Combined **Annual Report** 2021

Keep Discovering

BOREALIS

Gender Disclaimer
For reasons of better readability and easier comprehension, the male form used refers equally to all gender identities (without any judgemental distinction).

Contents

Reviewing 2021

Borealis at a Glance

~6,900

Head Office **in Vienna,** Austria. Operating on **five continents** in **120 countries.**
~6,900 employees (Full-time equivalents)

Safety performance:
2.3 Total Recordable Injuries (TRI)
frequency per million working hours
compared to 3.9 in 2020

75%
OMV, Austria

25%
Mubadala, United Arab Emirates

Borouge –
the world's largest integrated polyolefin complex in Ruwais, UAE

Production and distribution of **advanced and circular polyolefins solutions, base chemicals and fertilizers**

#2 among polyolefin producers **in Europe**

Record breaking results:

133

priority patents
filed in 2021

polyolefin recycling locations in Europe

Bayport Polymers (Baystar™) –
brings Borstar® technology to American polyethylene markets

Five-Year Comparison of Key Figures

See detailed background explanation of the performance in the respective chapter

		2021 excl. NITRO [1) i)]	2021 incl. NITRO [1) i)]	2020 incl. NITRO [1) i)]	2019	2018	2017
Income and profitability							
Total sales and other income	EUR million	8,723	10,153	6,937 [2)]	8,103	8,337	7,564
Operating profit	EUR million	1,410	1,517	351 [2)]	605	496	791
Operating profit as percentage of total sales and other income	%	16	15	5	7	6	10
Net profit	EUR million	1,631	1,396	589	872	906	1,095
Return on capital employed, net after tax	%	–	19	8	11	13	15
Cash flow and investments							
Cash flow from operating activities	EUR million	788	967	1,083	872	517	725
Investments in property, plant and equipment	EUR million	557	660	614	376	326	453
Cash and cash equivalents	EUR million	1,541	1,551	83	83	50	207
Financial position							
Balance sheet total	EUR million	–	12,985	10,583 [2)]	10,118	9,949	9,395
Net interest-bearing debt	EUR million	–	223	1,833	1,569	1,327	812
Equity attributable to owners of the parent	EUR million	–	8,176	6,417	6,445	6,421	6,365
Gearing	%	–	3	29	24	21	13
Health, Safety & Environment [3)]							
Total Recordable Injuries (TRI)	number/million work hours						
a. Old definition		–	–	1.7	1.6	1.3	1.1
b. New definition [4)]		–	2.3	3.9	3.4	–	–
EU ETS CO_2 emissions	kilotonnes	–	3,878	4,050	4,625	4,302	4,210
Energy consumption	GWh	–	21,730	22,340	25,831	24,476	22,400
Flaring performance	tonnes	–	38,538	42,543 [5)]	27,619	26,273	51,620
Waste generation	tonnes	–	102,023	97,905 [6)]	86,109 [7)]	53,713	61,398
Water withdrawal	m^3 million	–	735	755	750	675	752
Number of employees	full-time equivalents [8)]	5,255	6,934	6,920	6,869	6,834	6,619

1) NITRO: Borealis Fertilizers, Melamine and Technical Nitrogen Business // 2) 2020 amounts have been restated. For further details, please refer to the Restatement section in the Notes to the Consolidated Financial Statements. // 3) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time of closing of this report. // 4) Definitions have been adjusted in 2021 to be aligned with OMV definitions. A comparison to previous years is only possible with 2020. // 5) Severe upsets led to significant emergency flaring during shutdowns; further there was a lack of recycling capacity. // 6) Value has been recalculated in retrospect due to ongoing audits and missing third-party data at the time the last report was finalised. // 7) The main reason for the increase is the integration of the plastics recycling company mtm plastics GmbH into the monthly group reporting. // 8) Full-time equivalents considers part-time employed staff only as 0.5.

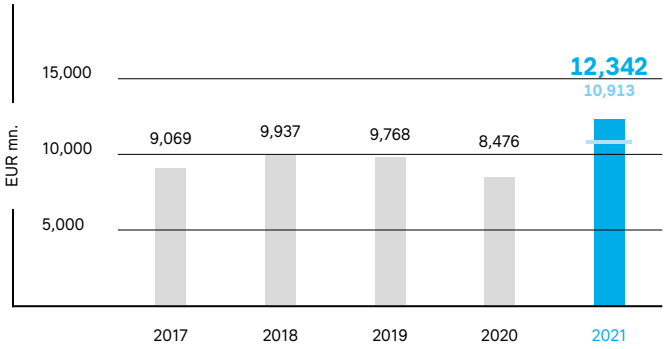
As described in the Notes to the Consolidated Financial Statements, Borealis is in the process of its divesting Fertilizers, Melamine and Technical Nitrogen Products business unit (Borealis NITRO). This has resulted in the "discontinued operation" classification in the Consolidated Financial Statements. Accordingly, turnover, capital expenditure and operating expenditure, as presented in the chapter EU Taxonomy (→ chapter EU Taxonomy, p. 87), do not include the nitrogen business unit (except Rosier as this is not part of the NITRO divestment process). **All non-financial information for the reporting period 2021 includes Borealis NITRO.**

Key Financial and Non-financial Metrics

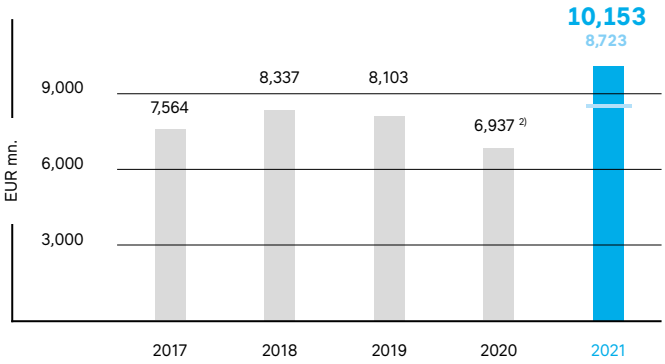
Borealis NITRO (Fertilizer, Melamine and Technical Nitrogen Business) data is included.

Borealis NITRO data is excluded.

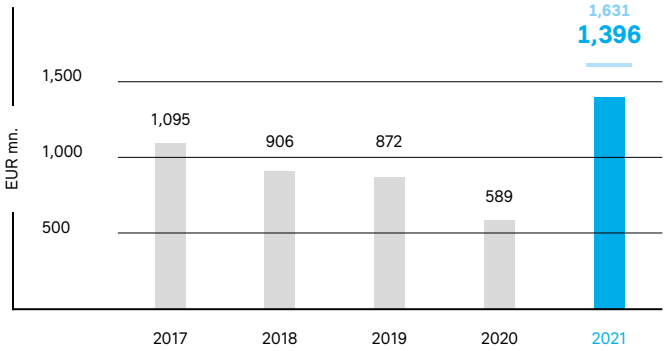
Total Sales [1)]



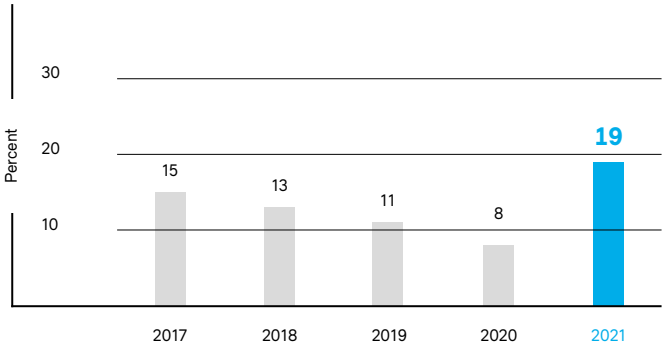
Total sales and other income



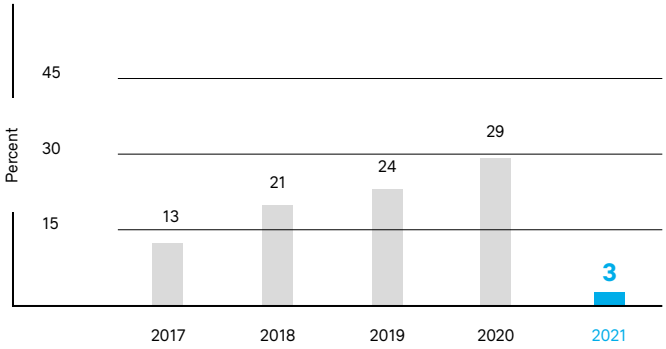
Net Profit



ROCE



Gearing



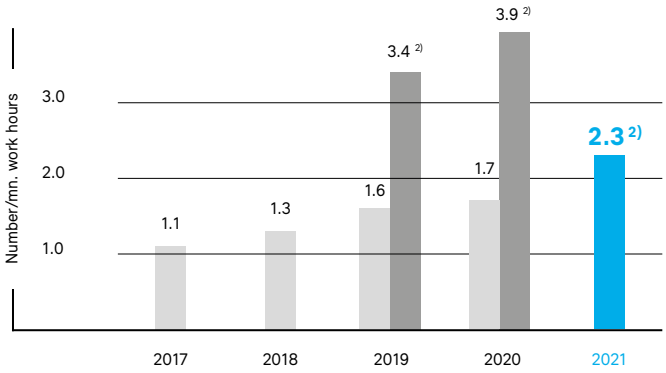
As described in the Notes to the Consolidated Financial Statements, Borealis is in the process of its divesting Fertilizers, Melamine and Technical Nitrogen Products business unit (Borealis NITRO). This has resulted in the "discontinued operation" classification in the Consolidated Financial Statements. Accordingly, turnover, capital expenditure and operating expenditure, as presented in the chapter EU Taxonomy (→ chapter EU Taxonomy, p. 87), do not include the nitrogen business unit (except Rosier as this is not part of the NITRO divestment process). **All non-financial information for the reporting period 2021 includes Borealis NITRO.**

1) Total net sales of Borealis and pro-rata sales of at equity-consolidated companies. // 2) 2020 amounts have been restated. For further details, please refer to the Restatement section.

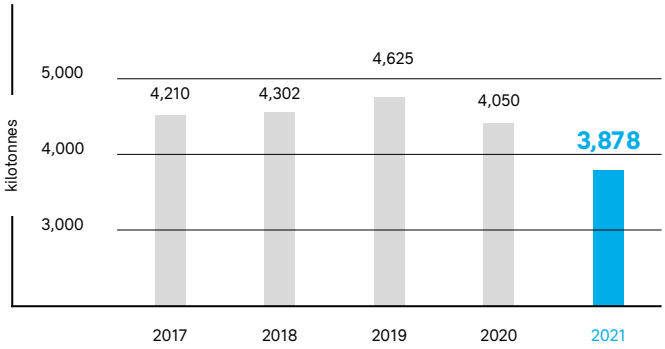
Borealis Nitro (Fertilizer, Melamine and Technical Nitrogen Business) data is included.

Recalculated TRI-rate according to new OMV definitions (to be compared with 2021 only)

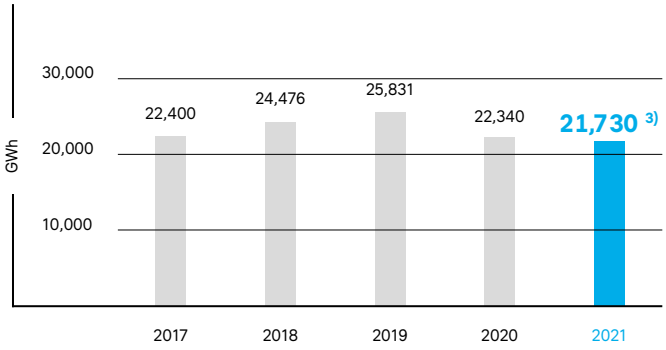
Total Recordable Injuries (TRI) [1]



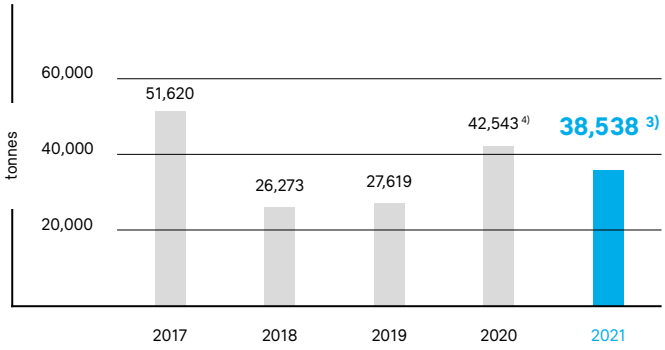
EU ETS CO_2 Emissions



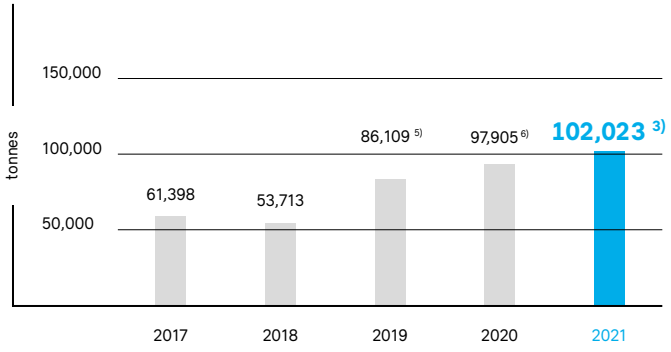
Energy Consumption



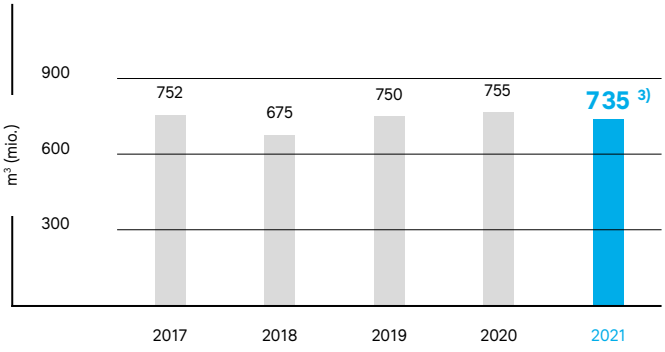
Flaring Performance



Waste Generation



Water Withdrawal



1) Includes own employees and contractors // 2) Definitions have been adjusted in 2021 to be aligned with OMV definitions. A comparison to previous years is therefore not possible. // 3) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time of closing of this report. // 4) Severe upsets led to significant emergency flaring during shutdowns; furthermore, there was a lack of recycling capacity. // 5) The main reason for the increase is the integration of the plastics recycling company mtm plastics GmbH into the monthly group reporting definitions. // 6) Value has been recalculated in retrospect due to ongoing audits and missing third-party data at the time the last report was finalised.

Our people showed great flexibility in adapting to the difficult circumstances of 2021, in particular the ups and downs in energy prices and market demand, the supply chain disruptions and the on-again, off-again lockdowns in many countries. We admire their resilience in making 2021 our best year ever, from a financial perspective.

Thomas Gangl, Borealis CEO

Highlights 2021

Safety first – TRI rate of 2.3 in 2021 compared to 3.9 in 2020.

Record-breaking results despite ongoing market volatility due to COVID-19:
– Net profit of EUR 1.4 billion
– 133 priority patents filed

#strongertogether enables closer collaboration and realisation of synergies with majority owner OMV.

USD 6.2 billion investment agreement to build Borouge 4 extends and deepens partnership with ADNOC and is cornerstone of Borouge 2030 Strategy.

Geographic footprint expansion on track as construction on growth projects continued apace in Belgium (Kallo), the UAE (Ruwais) and the US (Baystar™), despite ongoing pandemic.

Project STOP to be extended to serve 2 million Indonesians by 2025, establishing around 1,000 new jobs and collecting 25,000 tonnes of plastic waste annually.

Driving the circular economy: acquisition of minority stakes in innovative recycler Renasci and sustainable packaging innovator Bockatech; value chain co-operation results in numerous circular food packaging innovations, from Emmi's Caffè Latte to Greiner Packaging's food cups.

Borealis and TOMRA open state-of-the-art demo plant for advanced mechanical recycling in Germany.

The Bornewables™ portfolio of circular polyolefins can help reduce CO_2 emissions, says Life-Cycle Assessment study conducted in Germany.

Total amount of renewable power secured for European production operations via multiple power purchase agreements provides enough energy to power 160,000 households for an entire year and makes up around 20% of the Borealis Group's power consumption.

Qpinch heat recovery demonstration unit at Borealis low-density polyethylene plant in Belgium is first to apply revolutionary technology at commercial scale.

Step-changing new material class for film capacitor applications developed in collaboration with TOPAS Advanced Polymers.

About Borealis

Statement of the Supervisory Board

Company Ownership and Changes to Supervisory and Executive Boards

The year 2021 has been a transformative one under the new ownership structure established in 2020, in which OMV became the majority owner by increasing its stake in Borealis to 75%. Stepped-up collaboration under the motto "#strongertogether" has enabled Borealis and OMV to achieve meaningful synergistic effects, particularly in the area of plastics circularity.

In April 2021, Alfred Stern was appointed OMV Executive Board Member for Chemicals & Materials, replacing Thomas Gangl, who became Borealis CEO. Alfred Stern was also appointed to the Borealis Supervisory Board effective April 2021. He assumed the position of OMV CEO as of 1 September 2021 and followed Rainer Seele as Chairman of the Borealis Supervisory Board.

The Borealis Executive Board position previously held by Martijn van Koten, who was appointed to the OMV Executive Board as of July 2021, was filled by Wolfram Krenn, whom the Borealis Supervisory Board appointed as Executive Vice President Base Chemicals & Operations and member of the Borealis Executive Board as of July 2021. Effective as of September, Martijn van Koten joined the Borealis Supervisory Board.

As of 10 February 2022 Alvin Teh was appointed as Supervisory Board member, succeeding Musabbeh Al Kaabi. In addition, Saeed Al Mazrouei was appointed as Vice Chairman of the Supervisory Board.

The Supervisory Board would like to thank the former board members and Rainer Seele in particular, who, as Chairman of the Supervisory Board, played an instrumental role in ensuring the future success of Borealis as a leading global provider of innovative and circular polyolefins-based solutions in a rapidly changing industry environment.

Safety

Borealis reported a Total Recordable Injury Rate (TRIR) per million working hours of 2.3 in 2021. This is an improvement of 1.6 compared to the 3.9 reported in 2020. Although the TRI rate of 2.3 is world-class in the industry, Borealis must intensify its efforts to eliminate accidents and incidents altogether. The Supervisory Board is optimistic that by honing in its focus on safety among both employees and contractors, Borealis will realise its highest priority, "Goal Zero".

As the world enters the third year of the pandemic, the Supervisory Board would like to praise Borealis and its employees for their resilience and vigilance in the face of COVID-19. Adhering to stringent measures first introduced in 2020 to protect employees and contractors has required discipline and patience, yet these efforts have paid off. Many of these measures are likely here to stay as the coronavirus becomes endemic. The Supervisory Board is confident that with respect to COVID, the Borealis dedication to safety first will prevail.

Financial Results

With a record net profit of EUR 1.40 billion in 2021, Borealis has achieved outstanding results in an industry environment still affected by the pandemic. As the first signs of economic recovery became visible at the start of 2021, demand for Borealis polyolefins, primarily in the energy, healthcare and mobility sectors, rose rapidly.

In 2021, Borealis Polyolefins sales volumes reached a new peak of 3.95 million tonnes, an increase exceeding the pre-COVID sales volumes of 3.80 million tonnes achieved in 2019. Overall, 2021 Polyolefins sales volumes increased by 2% versus the same period in 2020 and 4% versus pre-COVID 2019. The polyolefin share of the integrated polyolefin industry margin reached previously unseen levels due to an increase in demand which was, additionally, accompanied by ongoing supply constraints due to logistics problems and industry production outages. The olefin industry margin expanded during 2021, albeit not as much as the polyolefin industry margin, as the market tightened on the back of stronger downstream demand in tandem with industry production outages.

Consequently, the hydrocarbons business delivered a profit contribution significantly above 2020 levels, but below those reached in 2019 as the advantage from cracking light feedstock became less favourable. The contribution from Borouge more than doubled from 2020 to 2021, driven by the favourable market development, and despite lower sales volumes due to logistics constraints, especially around mid-year.

Fertilizers sales volumes dropped to 3.91 million tonnes in 2021. This decrease is attributed to the temporary spike in sales at the end of 2020 which reduced demand in the following year, but also to production issues, especially at locations in France. Yet there was improvement in the contribution from the nitrogen business unit, from EUR 7 million in 2020 to EUR 78 million in 2021. This was supported by a favourable market environment, particularly in the Melamine business, and despite the spike in the price of natural gas.

In February, Borealis announced the start of a divestment process for its nitrogen business unit, including fertilizers, technical nitrogen and melamine products. The assets within the scope of the divestment project have been classified as assets held for sale and have benefitted from stopped depreciation. This was partially offset by an impairment charge in relation to assets in Rosier, which is not within the scope of the divestment project. Additionally, an impairment charge of EUR 444 million in relation to the assets within the scope of the divestment of the nitrogen business was recognised in 2021.

Corporate Strategy and Purpose

As a transformative year, 2021 has been marked by endeavours central to the three principle goals outlined in the Borealis Group Strategy 2035. First is geographical expansion in the form of acquisitions and partnerships, primarily in North America and the Middle East and Africa (MEA). These shall establish Borealis as the global partner of choice for advanced polyolefins solutions. A second aim is to leverage Value Creation through Innovation to develop customer-centric and more circular polyolefins solutions. The third involves leading from the core, building on the unique values and mindset of the Company to ensure that striving for excellence characterises all Borealis activities and efforts. The stated purpose imbued in the Group Strategy 2035, "Life demands progress – and we are re-inventing for more sustainable living", has proven its special relevance during times of crisis. Borealis is ideally positioned to provide innovative material solutions to its customers around the globe to address society's most pressing challenges, be it decarbonisation, energy, transportation or healthcare.

Global Growth Projects

In 2021, Borealis continued to make significant progress on its important global growth projects. In November, Borealis and ADNOC signed an historic USD 6.2 billion final investment agreement to build the fourth facility at the Borouge polyolefins manufacturing complex in Ruwais, UAE. After start-up, Borouge will be the world's largest single-site polyolefin complex, with an annual polyethylene production capacity of 6.4 million tonnes. Borouge thus ensures the reliable supply of differentiated polyolefins solutions in energy, infrastructure and advanced packaging to its customers in the MEA and Asia.

Alfred Stern
Chairman

Saeed Al Mazrouei
Vice Chairman

Reinhard Florey
Board Member

Martijn Arjen van Koten
Board Member

Alvin Teh
Board Member

In North America, construction on the Baystar™ project in Texas (a 50/50 joint venture between Borealis and TOTAL Petrochemicals & Refining USA, Inc.) is progressing, albeit with delays resulting in part from the unusually severe winter freeze in February. In Kallo, Belgium, the new world-scale propane dehydrogenation (PDH) plant being built adjacent to the existing PDH facility is progressing well despite minor delays due to pandemic-related issues. The project investment of around EUR 1 billion makes it the largest ever for Borealis on the continent.

Two important acquisitions carried out in 2021 are certain to speed up the transition to a circular economy of plastics. Borealis acquired a 10% minority stake in Renasci N.V., a Belgium-based provider of innovative recycling solutions, and a minority stake in Bockatech, a UK-based sustainable packaging innovator.

Plastics Circularity

Borealis is rapidly becoming a leading global provider not only of advanced polyolefins solutions, but of circular ones as well. The Company's dedication to bringing about a circular economy of plastics is embedded in its corporate strategy and embodied by its EverMinds™ approach. It is supported by significant investments in its assets, as well as in R&D and proprietary technologies.

And it is becoming more and more visible in the innovative products and applications it brings to market in collaboration with its value chain partners and customers. Borealis is taking great strides towards realising two important goals on the path to closing the loop on circularity: to ensure that by 2025, 100% of its consumer products are either recyclable, reusable or made using materials from renewable sources; and to increase the volume of recycled plastics solutions to 350,000 tonnes/year by 2025.

In mechanical recycling, Borealis and its strategic partner TOMRA inaugurated a state-of-the-art demo plant in Lahnstein, Germany. This partnership is helping guarantee the abundant availability of high-quality recyclate for sophisticated applications. The aforementioned acquisition of a stake in Renasci N.V. and the offtake agreement for circular pyrolysis oil are intensifying efforts in the area of chemical recycling. These complement the existing ReOil® co-operation in which the patented OMV technology of the same name is used to chemically recycle post-consumer plastics into raw materials which are subsequently processed by Borealis into polyolefins and circular base chemicals. A test of renewably-sourced feedstocks is also being carried out at a Borealis cracker in Stenungsund, Sweden, to evaluate the viability of feedstock derived 100% from vegetable-based waste streams as a replacement for fossil fuel-based feedstocks.

Value Creation through Innovation

In terms of product innovation, it was a successful year for both circularity and value chain collaboration. Borealis and TOPAS Advanced Polymers are currently developing a new class of engineering material for film capacitor applications which has the makings of a step-change innovation for the power industry value chain. Borealis and Sulzer, a global leader in fluid engineering, announced the successful development of an innovative process for the cost-effective extrusion of expanded polypropylene beads. This breakthrough should encourage the broader and more rapid uptake of a highly effective material which boasts advanced properties and good suitability for reuse and recycling. Borealis and Uponor Infra, a pipe and fittings maker, have developed a new generation of PP sewer pipes made using a product from the Bornewables™ portfolio and boasting a significantly lower carbon footprint.

A very visible product of collaboration between Bockatech and Borealis passed through the hands of attendees at the COP26 in Glasgow, Scotland: lightweight drinking cups which can be collected and washed for reuse before being recycled. Other results of customer-centric collaboration in more sustainable food packaging formats include ready-to-drink cups made incorporating chemically recycled PP, and food cup prototypes featuring in-mould labelling made of Bornewables PP.

Energy and Climate: Push towards Decarbonisation

On its journey to decarbonisation, Borealis is reducing the environmental impact of plastics production by making significant changes in the way it operates. Borealis aims to ensure that by 2030, renewable energy makes up 50% of the electricity supply for the company's production operations in Europe. To this end, several power purchase agreements (PPAs) with renewable energy providers were signed in 2021, including a nine-year PPA with Swiss renewables producer and trader Axpo, and a ten-year PPA with the Finnish energy company Fortum. The latter is the fourth and largest to date for the Company. The first of several planned photovoltaic arrays produced using the proprietary Quentys™ technology and used to power portions of Borealis production operations is now being installed in Monza, Italy.

Another important goal for European operations is to increase energy efficiency by an additional 10% by 2030 (from a 2020 baseline). The 10% efficiency improvements already achieved in the years 2015–2020 were obtained primarily by upgrading and modernising production facilities. In February, Borealis announced a EUR 17.6 million investment in a regenerative thermal oxidiser for its polyolefins plants in Porvoo, Finland. And at the massive Borouge 4 complex, ultramodern technologies will be used to improve energy efficiency and lower emissions; continuous flaring will be completely eliminated.

Economic Development and Outlook for 2022

As ever, safety comes first: the Supervisory Board reiterates that the paramount goal for the entire Group is to reach "Goal Zero". We are confident that the measures implemented by Borealis management to this end will produce the desired results in occupational and process safety.

While the market environment for the integrated polyolefins business is not expected to maintain the extraordinary levels seen in 2021, we expect margins to remain at a healthy level in 2022 thanks to strong demand and ongoing logistics constraints. The profit contribution from Borouge to Borealis is predicted to remain at a comparable level as in 2021.

In the course of becoming stronger together, Borealis and OMV will continue to leverage their respective areas of strength and expertise in order to capitalise on opportunities for collaboration and growth. The ongoing constructive exchange between Boards, management and staff will accelerate this positive development.

As the COVID-19 pandemic becomes endemic, we expect a further calming of markets and fewer supply chain issues. While certain geopolitical developments on the horizon give some cause for concern, we are confident that the innovative and more sustainable polyolefins solutions in the Borealis portfolio are the key to long-term and robust growth. Thanks to its expanding global footprint, its commitment to Value Creation through Innovation and its dedication to bringing about plastics circularity, Borealis is well placed to capitalise on growth opportunities as market recovery continues. It is certain to maintain its status as a reliable and trusted partner for its customers and the entire value chain. By maintaining its pledge to re-invent for more sustainable living, Borealis will continue to offer chemical and plastic solutions that make our lives safer, and create value for society.

The Borealis Supervisory Board would like to thank the Executive Board and all employees for their commitment and resilience in the second pandemic year, and congratulate them on the performance achieved in 2021.

Vienna, 21 February 2022
Supervisory Board

Executive Board

Thomas Gangl
Chief Executive
Appointed: April 2021

Prior to joining Borealis as new CEO in April 2021, Thomas Gangl was a member of the OMV Executive Board and in charge of Refining & Petrochemical Operations at OMV from 2019.
In his 20 years at OMV, Thomas Gangl helped shape the company's refining and petrochemicals business. He played a crucial role in laying the foundation of the OMV circular economy strategy, most notably by establishing chemical recycling at OMV. Since starting in 1998 as a process engineer, his OMV career positions include General Manager of OMV Deutschland GmbH and Senior Vice President, Business Unit Refining & Petrochemicals.

Mark Tonkens
Chief Financial Officer
Appointed: November 2014

Mark Tonkens joined Borealis in 2009. Before assuming the position as Borealis CFO in November 2014, he had served as Borealis Senior Vice President Group Controlling.
Mark Tonkens came to Borealis after holding a number of senior management roles in the Royal Philips group, acting as CFO and Senior Vice President of major business units and country organisations around the globe, from the Netherlands and Greece in Europe, to Taiwan and Hong Kong in Asia.

Lucrèce Foufopoulos-De Ridder
Executive Vice President Polyolefins & Innovation & Technology
Appointed: January 2019

Lucrèce Foufopoulos-De Ridder was appointed to the Borealis Executive Board as Executive Vice President Polyolefins and Innovation & Technology in January 2019. She joined Borealis after a career of more than 20 years in the chemical and petrochemical industry, most recently at Eastman, where she served as Vice President & General Manager of the Rubber Additives business unit. Prior to that, Lucrèce Foufopoulos-De Ridder held a variety of positions at multinationals, including Dow Chemical, Rohm and Haas, Dow Corning and Tyco. She currently serves on the supervisory board of Royal Vopak.

Wolfram Krenn
Executive Vice President Base Chemicals & Operations
Appointed: July 2021

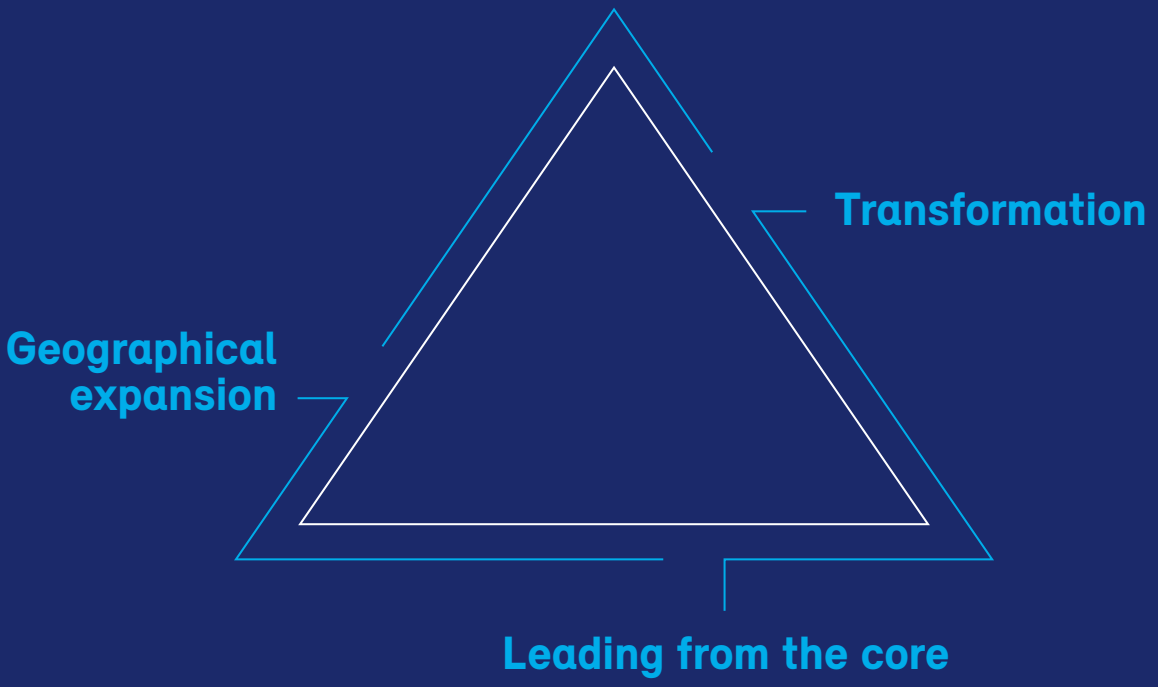
Wolfram Krenn was appointed Executive Vice President Base Chemicals and Operations and member of the Borealis Executive Board in July 2021. Immediately prior to joining Borealis, Wolfram Krenn had held the position of Senior Vice President for Refining Assets at OMV since 2019. Having started his career at OMV in 1998 as a process engineer, he gained international experience in production and operations as lead for OMV Petrom's Petrobrazi Refinery in Romania. In 2018, he was appointed Senior Vice President Site Management Schwechat, Austria.

Philippe Roodhooft
Executive Vice President Joint Ventures & Growth Projects
Appointed: November 2017

Philippe Roodhooft was appointed Executive Vice President Middle East and Growth Projects in November 2017, after having served since 2013 as Chief Operating Officer of Borouge ADP in the UAE. Prior to that, Philippe Roodhooft held Vienna-based senior management positions, including Senior Vice President Supply Chain and Product Management for Polyolefins, Senior Vice President Operations for the Borealis Group and General Manager for the Central European production sites.

Our Group Strategy 2035

Life demands progress. We are re-inventing for more sustainable living.



Geographical expansion
Leverage core to become a fully global partner to customers for high-value material solutions

North America
Grow through M&A or selected build projects to strengthen the global footprint

MEA
Build on ADNOC partnership to capture further growth with assets in Abu Dhabi and in Asia

Transformation
Evolve to fully customer-centric approach to offer sustainable high-value and circular material solutions

Circular Economy
Lead the transformation to a truly circular economy across all applications

Value Add
Acquire adjacencies to complement and accelerate value creation through innovation

Leading from the core
Build on safety, values and culture to sustain strong integrated margins in high-value polyolefin solutions

Sustainability
Improving environmental footprint and sustainable use of resources in areas where we operate

People
Drive impactful leadership in a high-performing, diverse and mobile organisation and a purposeful workplace

Excellence
Focus on excellence across all activities. Utilise technology and digitalisation to drive efficiencies

Our Values

Responsible

... is just a theory until you put it into action.

– We strive for zero incidents in health and safety.
– We consider our local and global responsibility for the environment in our decisions.
– We do business according to high ethical standards and lead by example.

Respect

... is just a word until you live its meaning.

– We trust and involve people and communicate openly, respectfully and in a timely manner.
– We collaborate, support and help each other to develop for the best of Borealis.
– We build on diversity for better results as “One Company”.

Exceed

... is just a goal until it becomes your path.

– We win through excellence and deliver beyond expectations.
– We commit to making joint decisions and follow through.
– We give feedback and make "Connect-Learn-Implement" and "Continuous Improvement" a natural way of working.

Nimblicity™

... is just a concept until you make it your routine.

– We are fit, fast and flexible and seek smart and simple solutions.
– We encourage decisions at all levels of the organisation to increase ownership and speed to realisation.
– We welcome change and manage it to shape our future.

COVID-19 Response

Supporting Employees, Customers and Society by Ensuring Safe and Effective Operations during the pandemic

In 2021, continuing to ensure an effective response to the COVID-19 pandemic was a key focus across the Group, with preventing employees from becoming infected with COVID-19 remaining a top priority. The COVID-19 crisis teams, which were formed back in January 2020 at Group and local levels, continued to manage Borealis' COVID-19 responses. Some of the actions taken by the different functions and businesses across Borealis are summarised in this overview.

Occupational Health & Safety

- Always strictly following national regulations and keeping in place measures to protect against COVID-19, such as social distancing, face masks, hand hygiene, temperature screening at gates, Plexiglas screens on counters, providing solutions for those who can work from home that comply with national laws and regulations and a gradual and controlled return of employees to offices and workplaces after lockdowns.

- Tracing contacts and tracking cases in the Group's HR system and making COVID-19 tests and vaccinations available free of charge in several locations.

- Implementing specific guidelines based on World Health Organization recommendations, evaluating locations' implementation of COVID-19 restrictions using self-assessments, sharing best practices, creating transparency and setting minimum standards for personal protective equipment (PPE).

- Providing temperature checks at the plant entrance at some locations, and safely carrying out turnarounds and annual shutdowns in numerous locations, thereby avoiding cluster infections.

- Supporting operations and businesses in managing the impact of COVID-19 by launching a broader, Group-wide initiative on wellbeing, "Discover Resilience Together". This focused on mental, physical and social wellbeing and covered a wide range of initiatives to help Borealis and employees become more resilient to negative events. Executive Board members talked about resilience and its significance to them on a radio show, thereby supporting a culture where employees feel they can openly talk about wellbeing issues. The initiative also included webinars, coaching, training, meditation and relaxation sessions and a podcast series where employees share their "resilience stories". The initiative was designed as a stepping stone towards building further local initiatives around mental, physical and social health. The Group also helped employees to cope by offering a social psychology specialist and sharing insights on coping with unusual situations and emotional stress.

- Stepping up communication across the Group, including video messages from the CEO and Executive Board, sharing COVID-19-related news, guidelines and materials, regularly informing employees about the situation, giving clear instructions and providing advice on issues such as exercising at home.

- Organising online sessions in some locations to inform employees about the risks and advantages of COVID-19 vaccinations and to receive their questions and concerns.

- Moving key events online, such as Corporate Co-operation Council meetings, Town Hall Meetings, the Ethics Conference and larger social events.

Information Technology

- Ensuring IT continued to support homeworking for all departments and underpinned critical digital processes such as payroll and invoice payments.

- Moving many training courses online, while the Group's Safety Centres were required to be closed.

- Supporting large virtual meetings, such as the virtual Executive Board Tour.

- Enabling employees to take their IT equipment home during mandatory home office periods, while making them aware of safety and IT security at home.

Procurement

- Maintaining a continuous focus on identifying potential issues in distribution and taking preventive measures (for example, storing goods close to the customer in Italy) to ensure the product would reach customers on time.
- Successfully ensuring continuity of supply and avoiding major production interruptions due to a shortage of RMP or equipment, as activity levels in the market increased compared to 2020, resulting in longer delivery times, more supplier requests for price increases and more vendors declining to participate in tenders.

Internal Control and Audits

- Helping to keep production running through risk avoidance, with non-mandatory audits (such as internal system or customer audits) cancelled or postponed.
- Shifting mandatory audits or executing them remotely where possible, with some locations using an electronic system called "Mobile Operator" to allow a local employee to walk through the premises and show the plant to a virtual audience.

HC&E Business

- Fully adhering to all local regulations and restrictions.
- Maintaining extra management focus on employee wellbeing, enabling the business to keep on performing to a high level, despite the volatile market environment.
- Temporarily mandating homeworking for the majority of employees, while ensuring excellent co-operation, commitment and teamwork.

Polyolefins Business

- Creating a rotating back-up system, with strict separation of the shift and separation in the handover phase.
- Changing processes at dispatch terminals to minimise risk when the Borealis team interacts with truck drivers, as well as working with the business's Logistics partner to reduce the challenges faced.
- Disruptions due to COVID-19 led to delays in the construction of the new Baystar™ cracker in Texas, which will, however, come on stream as planned in 2022.

The Group's response enabled it to continue its operations, producing plastic solutions that were urgently required by society during the pandemic. These included plastic products that are crucial to the healthcare sector, such as IV bottles and pouches, diagnostic equipment and consumables, syringes and other medical devices and pharmaceuticals packaging, as well as applications to protect food, pre-product for disinfectants and products to support food production.

The future will remain subject to unforeseen dynamics and changes. The COVID-19 pandemic showed us the importance of our flexible approach in adapting to the "new normal". The Group will continue with this nimble approach and adapt to changing circumstances while staying true to its mission.

For more information on the COVID-19-related impact
→ see Group Management Report / Financial Report, p. 144

Interview with
Borealis' CEO Thomas Gangl and CFO Mark Tonkens

left: Thomas Gangl, CEO
right: Mark Tonkens, CFO

In 2021, the combined effects of the ongoing COVID-19 pandemic, the global supply chain crisis and record energy prices made doing business more complex than ever. Thomas Gangl, what will you remember most about this challenging year, your first as Borealis CEO?

TG I will remember this year as being transformational on many different levels. The pandemic has forced us to change the way we live and work – we are transitioning to a "new normal". For me personally, this year has marked the apex of a transformative journey: from my career start as a process engineer at OMV, to becoming an OMV Executive Board and Borealis Supervisory Board member, and now Borealis CEO. From a company perspective, however, increasing the stake in Borealis to 75% was not only the biggest acquisition in OMV history: it is also a transformational step for both companies. We are using our value creation strategy to become stronger together. In 2021, Borealis passed several major milestones in the expansion of its global footprint by way of major growth projects. Most importantly, 2021 has been a crucial transformative year as we become producers of renewable and sustainable polyolefins and accelerate the shift to a circular economy of plastics.

Mark Tonkens, as Borealis CFO, what do your recall most when you reflect back on 2021?

MT What stands out most for me is the resilience and commitment of our people after over 20 months of volatility and unpredictability due to the pandemic. Thanks to all of their efforts, Borealis was able to produce an outstanding year-end result, with a net profit of EUR 1,396 million. Our people showed great flexibility in adapting to the difficult circumstances of 2021, in particular the ups and downs in energy prices and market demand, the supply chain disruptions and the on-again, off-again lockdowns in many countries. We admire their resilience in making 2021 our best year ever, from a financial perspective.

Yet one caveat is that we have not yet made good on our Goal Zero aim to eliminate safety incidents and injuries in process and personal safety. As of year end, our TRI rate of 2.3 is a significant improvement compared to 2020, but is still not good enough. From my point of view as CFO, even the best financial result is marred by safety incidents, so we need to do more to achieve even better safety performance.

"We admire their resilience in making 2021 our best year ever, from a financial perspective."
Mark Tonkens, CFO

The coronavirus pandemic has put a damper on expansion plans for many multinational companies. Has Borealis been able to proceed as planned with its global growth projects?

TG Indeed, we have – full steam ahead, in fact. At the ADIPEC (Abu Dhabi International Petroleum Exhibition and Conference) in November we signed a USD 6.2 billion final investment agreement with our partners ADNOC to build the fourth Borouge facility in Ruwais, UAE. Extending and expanding our joint venture with ADNOC will help us better serve markets in Asia and the Middle East. Borouge 4 will be the world's largest single-site polyolefin complex, with an ethane cracker, two polyethylene (PE) plants using our proprietary Borstar® 3G technology platform, a cross-linked polyethylene (XLPE) plant and a 1-Hexene unit. We are conducting an in-depth study to determine whether installing a carbon capture unit would reduce the facility's emissions on a truly massive scale – by up to 80%. Overall, Borouge 4 will have a lower environmental impact thanks to its energy efficiency and the elimination of continuous flaring. Its own energy supply will be decarbonised by drawing on renewable energy sources.

MT In the meantime, the fifth Borstar polypropylene (PP) plant in Borouge, the so-called PP5, has now started up. It will increase the current Borouge production capacity to five million tonnes. This project was delivered on time and within budget, despite COVID-related disruptions.

Another project that is progressing well, despite the pandemic, is our new world-scale propane dehydrogenation (PDH) plant in Kallo, Belgium, which is being built next to our existing PDH facility. This is a project full of superlatives: the largest Borealis investment ever in a European plant, and one of the largest in the petrochemical sphere in Europe. A top-notch safety record, with next to no safety incidents in both 2020 and 2021, despite the large number of subcontractors on-site. And one of the largest pieces of equipment ever shipped to the Port of

Antwerp in one piece was our facility's new propylene splitter. Also spectacular is the amount of steel we have installed: a total of around 10,000 tonnes, which is the rough equivalent of two entire Eiffel Towers! Excellent project management has ensured that we are still on track for start-up in 2023 .

TG Our joint venture with TOTAL in Texas, Baystar™, will help us transform our currently non-integrated business into an integrated one with more than 600 kilotonnes annual polyethylene capacity. Building a new Borstar 3G plant to use our proprietary technology is truly a milestone moment in expanding our North American footprint. The new cracker, which we are also building with TOTAL, is to start up in 2022. Like most operations in the area, we experienced some delays due to the disastrous winter freeze that hit the region in 2021, as well as COVID-related disruptions, but overall, good progress has been made.

"We see circularity as an enormous opportunity, and are using a combination of organic growth and acquisitions to develop our CES offer."

Thomas Gangl, CEO

Have other important acquisitions or partnerships come about in the course of 2021?

MT To be precise, our acquisition of DYM Solution Co., Ltd. in South Korea was finalised in 2020, but the organisational integration process was completed in 2021. Welcoming this compounder into the Borealis family is an important step for our own compounding business. It gives us a stronger foothold in Wire & Cable so as to meet growing demand on the one hand, and support the energy transition on the other.

TG A key component of transformation involves circular economy solutions (CES). As a company, we have the responsibility – to both people and the planet – to become a producer of sustainable and renewable polyolefins. We see circularity as an enormous opportunity, and are using a combination of organic growth and acquisitions to develop our CES offer. This year, for example, after signing an offtake agreement to purchase 20 kilotonnes/year of chemically recycled feedstocks from Belgium-based Renasci, we then acquired a minority stake in this innovative provider of recycling solutions.

This collaboration will enable Borealis to bring more circular base chemicals and polyolefins to the market. And because renewable feedstocks form the foundation of the Bornewables™, our portfolio of premium circular polyolefins, we can also help our customers maintain the high quality of products and applications, while at the same time meet their own sustainability goals. These efforts are complemented by those in advanced mechanical recycling, where we have consolidated our industry leadership by becoming the first virgin polyolefins producers to become plastics recyclers. This is thanks in part to our previous acquisitions of mechanical recyclers mtm and Ecoplast, but also to our own transformative Borcycle™ technology, which gives polyolefin-based, post-consumer waste a new life.

How is the divestment of the Fertilizer, Melamine and Technical Nitrogen Products business proceeding?

MT Even though regulatory approvals are still pending, we are pleased to have identified an excellent new home for our nitrogen-based business, one in which fertilizers and melamine form the core. The confluence of energy price shocks, market fluctuation and the pandemic's effects have made this a challenging time to close a divestment project successfully, but our team has done a terrific job throughout the year mitigating all related risks in Borealis key activities.

The dramatic effects of climate change are becoming more and more visible. Governments, industries and companies have formulated strategies and presented measures aimed at reducing CO_2 emissions. What has Borealis undertaken to this end? Is Borealis living up to its mission of "re-inventing for more sustainable living"?

TG The answer is a resounding "yes"! Borealis has pledged to source 50% of the electricity used in our own production operations from renewable sources by the year 2030 and during 2021 developed a comprehensive Climate Strategy that we will launch publicly during the first quarter of 2022. One clear proof is the number of power purchase agreements (PPAs) we have signed which will help us reach this goal. These long-term contracts to buy clean electricity from renewable sources like wind and solar guarantee that the energy thus supplied to power our own operations is 50% renewable. For example, our PPA with Axpo of Switzerland, which we signed

in September, will use wind to power our facilities in Belgium; another with Gasum of Finland – our largest to date – is supplying onshore wind power to our plant in Stenungsund, Sweden. When combined, the energy supplied by our PPAs could power 160,000 European households for an entire year!

We are also putting our own innovative technologies like Quentys™ to work to increase the share of clean energy in our overall energy mix. In June, we installed the first of several planned solar photovoltaic (PV) rooftop arrays to generate electricity for our own production operations, in this instance in Monza, Italy. This installation features modules with encapsulant materials made of Quentys, which improve long-term PV module performance and reliability.

MT The list of measures taken in 2021 to achieve more environmentally efficient operations is long, indeed! We invested in an RTO (Regenerative Thermal Oxidiser) for our polyolefins plant in Porvoo, Finland, which will save around 60 gigawatt hours of energy and reduce flaring. We are engaging in open-innovation collaboration with Qpinch, the creators of a revolutionary and patented heat recovery technology. In May this year we became the first in the world to apply this unique technology at commercial scale – at our own low-density polyethylene (LDPE) production site in Antwerp. This project is especially exciting because it enables us to significantly lower our own CO_2 emissions, while at the same time increasing production efficiency and maintaining cost competitiveness.

We appreciate that in times like these, predicting the future has become harder than ever. Yet how would you formulate your own outlook for 2022 and beyond?

MT Continued uncertainty is probably the only thing we can be sure of! There's no crystal ball to tell us if new COVID variants will arrive. The "new normal" requires us to be nimble and flexible, and to be prepared for every eventuality. If we adapt to changing circumstances, continue to prioritise and manage our resources wisely and stay true to our mission, I am confident that we will continue to produce excellent results and deliver on our growth projects.

TG As an industry leader, Borealis is ideally positioned to capitalise on the momentum towards plastics circularity and greater sustainability. We will maintain focus on circular economy solutions. We shall expand our Bornewables portfolio of premium and circular polyolefins along with our Borcycle portfolio of transformational recycling technology solutions. Decarbonising our own operations will continue to be an important area of focus in 2022. The launch of our new Climate Strategy in 2022 will be a key enabler for reaching these goals.

MT A further boost to becoming stronger together with OMV will be in the first months of 2022, as Borealis employees in Vienna move to refurbished offices at the OMV head office nearby. Regardless of what 2022 brings, one thing will never waver: our commitment to safety first, and reaching our Goal Zero destination of zero accidents and incidents.

TG In my first year as Borealis CEO, I have seen up close, again and again, that our people have what it takes to follow through on goals and succeed in any business environment. Thus I look to the year 2022 with optimism and confidence that our joint efforts will once again produce outstanding results.

Borealis Worldwide

– Borealis Locations

Head Office
Borealis AG
Trabrennstrasse 6–8
A-1020 Vienna, Austria
Tel. +43 1 22 400 300
Fax +43 1 22 400 333
www.borealisgroup.com
info@borealisgroup.com

Customer Service Centres
Austria, Belgium, Finland, France, Turkey, United States

Production Plants
Austria, Belgium, Brazil, Finland, France, Germany, Italy, South Korea, Sweden, The Netherlands, United States

Innovation Centres
Austria, Finland, Sweden

Sales Offices/Representative Offices
Argentina, Brazil, Chile, Colombia, Czech Republic, France, Mexico, Morocco, Poland, Russia, South Africa, Spain, Turkey, UAE, UK

Borealis L.A.T Locations
Austria, Bulgaria, Croatia, Czech Republic, France, Greece, Italy, Hungary, Poland, Romania, Serbia, Slovakia

Borealis Rosier Locations
Belgium, The Netherlands

O – Borouge Locations

Head Offices
Singapore, UAE

Innovation/Application Centres
China, UAE

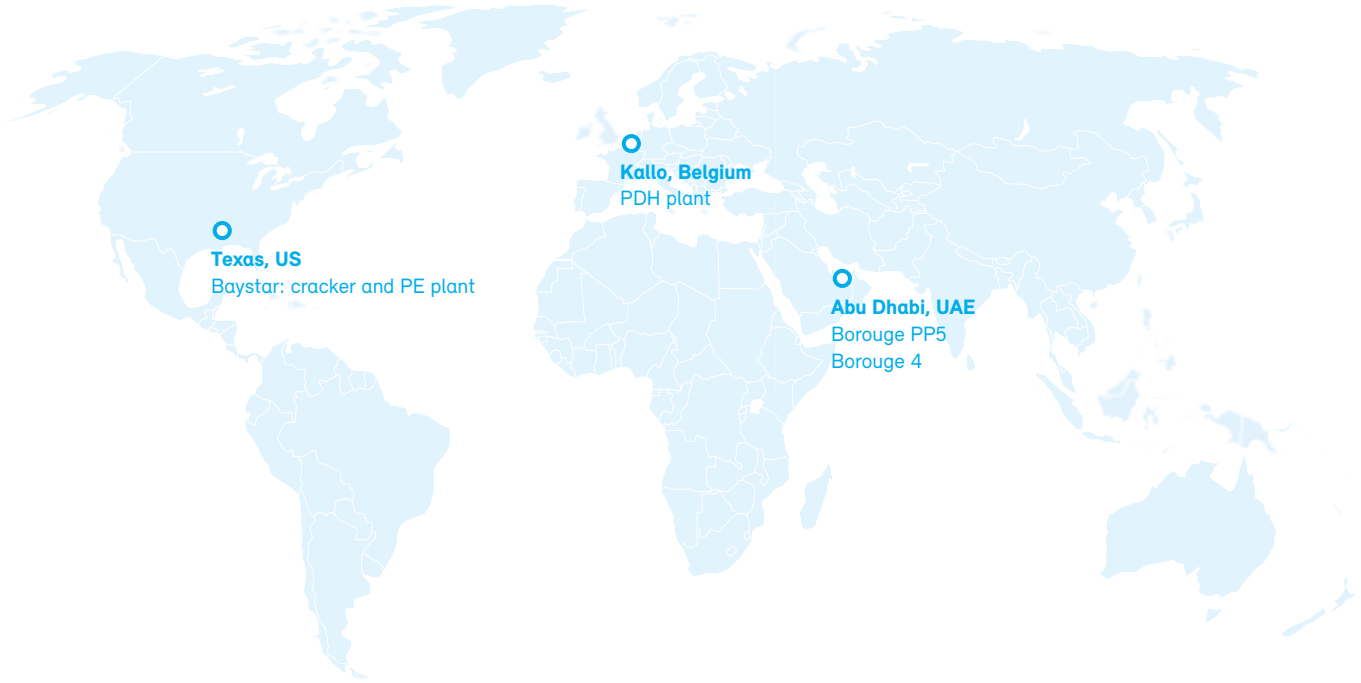
Production Plants
China, UAE

Sales Offices/Representative Offices
China, Egypt, India, Indonesia, Japan, Singapore, Thailand, UAE, Vietnam

Logistics Hubs
China, Malaysia, Singapore, UAE

This graphic is for representational purposes only. Though it was prepared with the greatest possible attention to detail, simplified illustrations may have been applied.

Global Growth Projects



Bayport Polymers LLC (Baystar™)

- 50/50 joint venture with Total Petrochemicals & Refining USA, Inc.
- Locaton: Texas, US
- 1,000 kilotonne per annum (kta) ethane cracker in Port Arthur
- 625 kta Borstar® polyethelene (PE) plant in Pasadena
- Borealis Borstar – technology, which will be used in North America for the first time – will allow Baystar to produce enhanced polyethylene products for the most demanding applications

World-scale propane dehydrogenation (PDH) plant

- 100% Borealis ownership
- Location: Kallo, Belgium
- 740 kta propylene production
- PDH is a vital process step in the production of propylene from propane. As one of the most important building blocks in the entire chemical industry, propylene is the raw material used to produce PP, which in turn is one of the most widely used plastics

Borouge: Fifth polypropylene plant (PP5, part of the Borouge 3 expansion) // Borouge 4

- Borouge is a 40/60 joint venture of Borealis and ADNOC
- Location: Abu Dhabi, United Arab Emirates (UAE)

Borouge PP5

- 480 kta PP plant
- Production based on Borealis proprietary Borstar technology
- PP5 will be integrated with the existing Borouge 3 complex, adding value to the surplus propylene available from Takreer's PDH unit

Borouge 4

Final investment decision for the Borouge 4 expansion taken in November 2021

- One 1.5 mio tonnes pa ethane cracker, to be the fourth cracker in Borouge's integrated petrochemical complex in Ruwais
- Two Borstar PE plants, each with a production capacity of 700 kta, using state-of-the-art Borealis Borstar third-generation (3G) technology
- One 100 kta cross-linked PE (XLPE)
- One Hexene-1 unit, producing co-monomers for certain PE grades
- In progress: in-depth study for carbon capture unit that would reduce CO_2 emissions by 80%

Non-financial **Report 2021**

As described in the Notes to the Consolidated Financial Statements, Borealis is in the process of its divesting Fertilizers, Melamine and Technical Nitrogen Products business unit (Borealis NITRO). This has resulted in the "discontinued operation" classification in the Consolidated Financial Statements. Accordingly, turnover, capital expenditure and operating expenditure, as presented in the chapter EU Taxonomy (→ chapter EU Taxonomy, p. 87), do not include the nitrogen business unit (except Rosier as this is not part of the NITRO divestment process). **All non-financial information for the reporting period 2021 includes Borealis NITRO.**

About the Non-financial Report

The Consolidated Non-financial Report 2021, as part of the Combined Annual Report 2021, has been prepared in accordance with the GRI Standards: core option, as well as the legal requirements for the publication of a consolidated non-financial report (Section 267a of the Austrian Commercial Code). In 2021, Borealis joined the United Nations Global Compact (UNGC). This report covers the 10 universal principles of the UNGC and constitutes the Communication of Progress (CoP), reporting on the progress in these areas.

The report covers information for the period from 1 January 2021 to 31 December 2021.

Borealis applies an annual reporting cycle. The last report, for the year 2020, was published in March 2021.

The Consolidated Non-financial Report 2021 differentiates between the product segments Polyolefins, Hydrocarbons & Energy and Fertilizers, Melamine and Technical Nitrogen Products. This approach was chosen to make the sustainability impacts of the different product segments more transparent.

The COVID-19 pandemic had no influence on Borealis' Sustainability Strategy and the Group's sustainability goals have not been adjusted due to the pandemic (→ chapter Group Management Report, p. 144).

A reference table connects the material topics, non-financial matters according to Section 267a(2) of the Austrian Commercial Code, the UNGC principles and the respective chapter in this report (→ chapter Sustainability Management, p. 38). The GRI Content Index in the appendix of this Combined Annual Report outlines where specific GRI reporting elements and indicators are addressed in the report (→ GRI Content Index, p. 250).

Scope of the Non-financial Information

The data presented in this report are consolidated at Group level. Non-financial data are collected for those activities where Borealis is the operator or where Borealis has a stake of more than 50% and exerts controlling influence.

As described in the Notes to the Consolidated Financial Statements, Borealis is in the process of divesting the majority of its nitrogen business unit, including fertilizers, technical nitrogen and melamine products. This has resulted in the "discontinued operation" classification in the Consolidated Financial Statements. Accordingly, turnover, capital expenditure and operating expenditure, as presented in the chapter EU Taxonomy (→ chapter EU Taxonomy, p. 87), do not include the nitrogen business unit. All non-financial information for the reporting period 2021 includes the nitrogen business unit.

An overview of the consolidated subsidiaries included can be found → on page 241-242 in note 33 of the Consolidated Financial Statements as of 31 December 2021.

Exceptions

- Procurement & Transportation Polyolefins (PO): Borealis Brasil S.A., Borealis Poliolefinas da América do Sul Ltda and Borealis Compounds Inc. are excluded from PO procurement data and from CO_2 emissions arising from shipment of PO products;
- Procurement & Transportation Fertilizer (FE): reporting excludes all Rosier subsidiaries;
- Ecoplast Kunststoffrecycling GmbH, mtm plastics GmbH and mtm compact GmbH are excluded from the sick leave rate, incident action completion rate and response rate for process safety accidents;
- DYM Solution Co., Ltd. and Baystar™ are excluded from all environmental and safety indicators.

In this report, mtm plastics GmbH, mtm compact GmbH, Ecoplast Kunststoffrecycling GmbH, DYM Solution Co., Ltd. and all Rosier subsidiaries are included in all employee data, which is a change compared to the last report.

The exclusions listed above are not material to the Group's total non-financial performance. However, Borealis will work on further increasing the scope of its non-financial reporting in future.

Changes to the Previous Report

For the first time, Borealis' Scope 3 greenhouse gas emissions are reported and the GRI indicator 305-3 has therefore been added. The occupational health & safety KPIs have been aligned with the definitions of OMV and the definitions of the GRI indicator 403-9. Furthermore, for 2021 Borealis is reporting its eligibility according to the EU Taxonomy Regulation (Regulation (EU) 2020/852). Otherwise, there were no material changes to the previous report. Restatements due to ongoing third-party audits of environmental data at the time of the publication of the last year's report are made visible with footnotes in this report.

The Consolidated Non-financial Report 2021 has been subject to an internal quality review and key sections were audited with limited assurance by PwC Österreich GmbH Wirtschaftsprüfungsgesellschaft. The assurance engagement was conducted in accordance with the International Standard on Assurance Engagements 3000 (revised), issued by the International Federation of Accountants. The Independent Report on a Limited Assurance Engagement on Non-financial Information (Independent Assurance Report) describes the exact scope of the audit (→ Independent Assurance Report, p. 135).

For questions regarding sustainability or social responsibility, please contact sustainability@borealisgroup.com.

Our Business

Borealis is one of the world's leading providers of advanced and circular polyolefin solutions and a European market leader in base chemicals, fertilizers and the mechanical recycling of plastics. The Group leverages its polymers expertise and decades of experience to offer value-adding, innovative and circular material solutions for key industries. In re-inventing for more sustainable living, Borealis builds on its commitment to safety, its people and excellence, as it accelerates the transformation to a circular economy and expands its geographical footprint.

With head offices in Vienna, Austria, Borealis employs 6,900 employees and operates in over 120 countries. In 2021, Borealis generated EUR 10.2 billion in total sales and other income and a net profit of EUR 1,396 million. OMV, the Austria-based international oil and gas company, owns 75% of Borealis, while the remaining 25% is owned by a holding company of the Abu Dhabi-based Mubadala. The Group supplies services and products to customers around the globe through Borealis and two important joint ventures: Borouge (with the Abu Dhabi National Oil Company, or ADNOC, based in UAE) and Baystar™ (with TotalEnergies, based in the US).

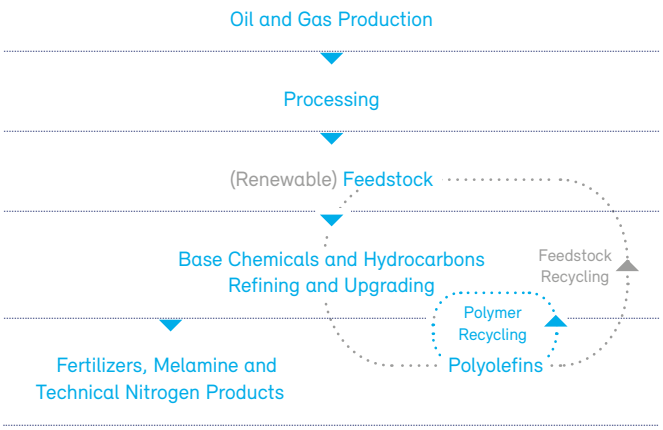
Value creation through innovation is at the core of Borealis strategy

Borealis continuously invests in its people, its Borstar® and other proprietary technologies and in its working processes, both internally and with external partners. The result is continuous technological improvement.

As a leading innovator in its industries, Borealis continuously identifies and anticipates unmet market needs to consequently develop the corresponding solutions. Using proprietary technologies, innovative tools and leveraging expertise acquired over many years, Borealis unlocks materials' molecular properties and creates tailor-made products

Borealis enhances this process with in-depth market knowledge, a cross-functional approach and an emphasis on open innovation.

Fig. 1: **Chemical production flow**



Industry Segments

Borealis clusters its businesses in three business areas: Polyolefins, Base Chemicals and Fertilizers, Melamine & Technical Nitrogen Products.

Polyolefins

The value-adding polyolefin products manufactured by Borealis form the basis of many valuable plastics applications that are an intrinsic part of modern life. Advanced Borealis polyolefins have a role to play in saving energy along the value chain and promoting more efficient use of natural resources. Borealis works closely with its customers and industry partners to provide innovative and value-creating plastics solutions in a variety of industries and segments. These solutions make end products safer, lighter and more affordable and easier to recycle. In short: they enable more sustainable living.

Borealis offers advanced polyolefins for virgin and circular economy solutions, servicing these industries: Consumer Products, Energy, Healthcare, Infrastructure and Mobility.

Advanced polyolefins for virgin and circular economy solutions

Polymer Solutions

Borealis continually develops novel and performance-enhancing solutions, such as polymer modifiers (plastomers and elastomers), foam solutions and reinforced polyolefins for structural parts. These material solutions may be designed for new or existing applications.

In polymer modifiers, Borealis continues to expand its wide range of attractive solutions. The multitalented Queo™ brand helps bridge the performance gap between conventional plastics, such as polyethylene (PE), and conventional elastomers, like ethylene propylene diene monomer. Queo makes it possible to meet or even surpass the most demanding requirements in sealing, flexibility, compatibility and processability.

Borealis' high melt strength (HMS), polypropylene-based foamed products fulfil the varying and sophisticated needs of both converters and consumers in the packaging, mobility and construction industries. For example, foam solutions in packaging offer excellent recyclability, especially when compared to conventional alternatives. Furthermore, HMS polypropylene (PP) foam also offers weight reduction, heat stability (for microwaveable packaging) and good thermal insulation properties.

Borealis' reinforced polyolefins are novel, performance-enhancing material solutions. The wide range of PP compounds are globally available and help contribute to enhanced sustainability, for example, through improved cost and energy efficiency.

Circular Economy Solutions

Borealis Circular Economy Solutions is dedicated to discovering new opportunities for long-term business growth, primarily in the areas of mechanical recycling, chemical recycling (in collaboration with Borealis partners – OMV and Renasci), reuse, renewable feedstock and design for recyclability (DfR).

Over recent years, mechanical recycling has proven to be effective and it will likely remain the eco-efficient method of choice in the foreseeable future when implementing the principles of the circular economy. The circular economy opens up new ways to re-invent the economy in the interest of preserving natural capital and minimising waste. Another important aspect of eco-efficient waste stream management is DfR, which incorporates recycling principles into the design process itself, in order to achieve optimised circulation of material for recycling and reuse. To this end, Borealis is collaborating with value chain partners – designers, retailers, packaging producers and brand owners – to develop material solutions and concepts to improve end-of-life recyclability and the performance properties of recyclate material.

Industries served with these advanced polyolefin solutions

Consumer Products

With over 50 years' experience in the industry, Borealis is an innovative and reliable supplier of superior polyolefin plastic materials used in advanced packaging, fibre and appliances.

Value-added packaging and fibre innovations play a role in safeguarding the quality and safety of consumer and industrial products, and also fulfil demand for enhanced functionality and convenience. Plastic food packaging, for example, helps protect and preserve food from farm to fork. Spoilage is avoided thanks to efficient filling systems and leak-resistant packaging. Food stays fresh longer and less must be thrown away. In addition, the consumer has a wider range of choices when it comes to convenient and appealing packaging formats.

Superior and proprietary Borealis technologies, such as Borstar, also make advanced applications possible in flexible packaging (including lamination film, shrink film and stand-up pouches); rigid packaging (caps and closures, bottles, thin wall and transport packaging); and non-woven and technical fibres (filtration systems, hygiene products and technical textiles).

Fig. 2: **Industries served by Borealis' polyolefins applications**

Circular Economy Solutions

Polymer Solutions

With our advanced polyolefins for virgin and circular economy solutions, we serve these industries:

Consumer Products

Energy

Healthcare

Infrastructure

Mobility

Advanced PP solutions offered by Borealis make white goods (such as washing machines, refrigerators, air conditioning units and more) and small appliances (such as toasters, ventilators and power tools) lighter yet more robust, and more energy efficient yet visually appealing.

Energy

Borealis is a leading provider of polyolefin compounds for the global energy industry. Step-change innovations based on the Borlink™ technology make electricity power grids more robust and reliable, eliminate wastage and help transport energy from renewable sources more efficiently and over longer distances. The broad range of sophisticated solutions includes extra high, high and medium voltage solutions for energy transmission, and low voltage solutions for energy distribution cable applications.

Safer wires and cables for the solar, mobility and construction industries are made possible by unique Borealis polymer manufacturing technologies. Borealis also has a proven track record of innovation in the area of flame retardant cables for these industries. Borealis offers a comprehensive range of communication cable solutions for advanced data, copper multipair, fibre optic and coaxial cables, all of which enhance the efficiency of data and communication networks.

Leading Borealis PP material solutions are used to produce capacitor film products. Meeting exceptional cleanliness standards, these materials help achieve outstanding electrical properties. Their consistent processing behaviour enables the production of extremely thin films.

Unique polymer and manufacturing technologies using Borlink, Visico™/Ambicat™, Borstar and Casico™ allow Borealis to offer innovative compounds tailored to specific customer needs.

With the launch of the new flagship solar brand Quentys™ in 2017, Borealis moved into the global solar industry. Pioneering new products based on Quentys are making solar energy more effective, affordable and long-lasting. For example, Borealis polyolefin encapsulant films improve the operational reliability of photovoltaic modules throughout the product lifetime. This results in better cost efficiency and thus greater viability for solar power.

Healthcare

Borealis offers reliable solutions that add value to healthcare, thanks to an impressive track record in Value Creation through Innovation and close cooperation with customers.

The growing Bormed™ polyolefins portfolio offers superior technical performance for medical devices, pharmaceuticals and diagnostic packaging. Borealis' innovations help make healthcare packaging and medical devices safer and more affordable, while improving usability – a key criterion in today's ageing society.

Healthcare products that have been enhanced by advanced polyolefins made by Borealis include, among others: medical devices, medical pouches, sachets, syringes, insulin injection devices, unbreakable transparent bottles and single-dose eye drop dispensers.

Importantly, as a global supplier, Borealis can ensure security of supply and provide technical support tailored to the specific and stringent requirements of the market.

Infrastructure

A trusted partner to the pipe industry for over 50 years, Borealis supplies advanced polyolefin pipe system materials to a wide range of infrastructure projects around the world. By offering more durable and reliable pipes, Borealis' step-change innovations continue to boost the sustainability of pipe networks by making them safer and more efficient. These improved networks also help eliminate wastage and loss, while at the same time offering energy savings.

Water and sanitation systems can be made more efficient and reliable by using proprietary Borealis materials. For example, when compared to conventional materials, modern PE systems reduce water losses by a factor of eight. Trenchless technology reduces installation costs by up to 60%.

Using its proprietary Borstar technology as a base, Borealis offers pipes used in many different industries: water and gas supply, waste water, drainage and sewage disposal and plumbing and heating.

For the oil and gas industry, Borealis provides reliable and high-quality solutions from one end of the pipeline to the other, including multi-layer coating solutions for onshore and offshore oil and gas pipelines.

Mobility

Borealis is a leading supplier of innovative polyolefin plastic materials for engineering applications in the mobility industry segment.

Proprietary Borealis technologies are lighter weight replacement solutions for conventional materials such as metal, rubber and engineering polymers. Borealis' material solutions help facilitate lightweight construction and thus play an important role in reducing carbon emissions. For instance, over the lifespan of an automotive application like a bumper, eight kilogrammes (kg) of carbon emissions can be avoided by using one kg of PP compounds. Borealis grades with post-consumer recycled (PCR) plastics content meet growing industry and end-user demand for high-quality materials that make better use of the planet's resources. By combining PCR and virgin material to produce high-end grades of consistent quality, fewer resources are used and less waste is generated over the lifetime of the product.

Borealis offers these leading-edge, lightweight polyolefins for a wide range of exterior, interior and under-the-bonnet applications, including bumpers, body panels, dashboards, door claddings, central consoles, pedal housings, cooling systems, battery trays and semi-structural body parts. Working closely with key value chain partners, Borealis continually develops novel materials for specific composite applications, such as structural carriers.

Base Chemicals

Hydrocarbons & Energy

Borealis produces a wide range of products for use in numerous industries, including phenol, acetone, ethylene and propylene. Borealis sources various feedstock, such as naphtha, butane, propane and ethane from the oil and gas industry. Through its olefin units, it converts these into the building blocks of the chemical industry: ethylene, propylene and C4 hydrocarbons (petrochemical derivatives consisting of butanes, butylenes and butadienes), among others. Steam crackers in Finland, Sweden and Abu Dhabi – the latter operated by Borouge – produce ethylene, propylene and C4 hydrocarbons, while propylene is also produced in a propane dehydrogenation plant in Kallo, Belgium. Feedstock and other olefins required for Borealis and Borouge polyolefin plants are either sourced from its owners or purchased on the market. A range of co-products from the steam cracking process, including butadiene, butene compounds and pygas, are also sold on international markets.

Phenol, benzene, cumene and acetone are produced in Finland and sold mainly to the adhesive, fibre, epoxy resin and polycarbonate industries. In the Nordic and Baltic regions, Borealis is the leading producer of phenol, which is used in adhesives, construction materials, carpets, CDs, DVDs, mobile phones and household appliances. Acetone is commonly used in solvents for paints, acrylics, fibres and pharmaceuticals.

In line with its ambition to proactively drive the transition to a circular economy, Borealis has also started to process renewable and chemically recycled feedstock.

Fertilizers, Melamine and Technical Nitrogen Products

Borealis produces and then distributes and supplies around five million tonnes of fertilizers and technical nitrogen products each year via its Borealis L.A.T distribution network. This comprises more than 60 warehouses across Europe and has an inventory capacity of over 700,000 tonnes.

Fertilizers

Efficient and effective use of fertilizers has become more essential than ever. The world's population is expected to rise from today's 7.6 billion to over 9.6 billion by 2050, and an increasing number of people will live in densely populated urban areas. As incomes in emerging nations rise, more meat is consumed and more grain must be produced to feed livestock. Biofuels also generate demand for increased yields. Because space for agricultural expansion is limited, yields must be optimised. At the same time, in many nations there is a heightened awareness of the need to promote fertilizers with low carbon footprints, maintain healthy soil environments and reduce run-off from fields.

The product portfolio comprises nitrogenous fertilizers, compound NPK fertilizers and speciality fertilizers with various formulas of primary and secondary nutrients as well as oligo elements. Non-European markets are serviced mainly via the Borealis Rosier distribution network.

Melamine

Borealis produces melamine at its plants in Linz, Austria, and at its facility in Piesteritz, Germany. Converted from natural gas, melamine has become an essential material for the global production of synthetic resins. Around 80% of Borealis' melamine production is destined for the wood-based panel industry, for example for decorative surface coatings of wood-based materials. Melamine also plays an important role in the manufacture of everyday objects used in the kitchen or around the house, for example, as one component used to make handles for pots and pans.

Technical Nitrogen Products

A broad range of technical nitrogen product solutions is derived from the raw materials urea, ammonia, ammonium nitrate and nitric acid.

AdBlue®

AdBlue, a high-purity aqueous urea solution, is used as a NO_x reduction agent for trucks, buses, tractors, construction machinery and diesel passenger cars.

Ammonia

A compound of nitrogen and hydrogen, ammonia has many uses: as a precursor or intermediate product in the production of nitrogenous materials; as a refrigerant in cooling systems; as a NO_x reduction agent; and as a hardening agent for metal surfaces.

Urea

Urea is a synthetically produced organic compound of ammonia and carbon dioxide. It is utilised in the production of melamine and the glues used in particle boards, but also as a raw material for resins and as a NO_x reduction agent.

Sustainability Management

Goals 2021	Key Achievements 2021
Update sustainability strategy, to outline path towards climate neutrality	Project started in Q4 2021, with communication planned for Q1 2022.
Further embed sustainability targets into Borealis' incentive system	Selected sustainability targets integrated into the Bonus Incentive Plan (BIP) and Long Term Incentive Plan (LTIP).
Strengthen Borealis' sustainability performance	External certification by EcoVadis upgraded from Gold in 2020 to Platinum in 2021.

Borealis' Sustainability Ambition is "to create a world where there is no waste of resources, no emissions into the environment and no harm to society, while delivering prosperity to Borealis and our stakeholders". To achieve this ambition and foster true sustainability throughout its business, Borealis takes responsible decisions based on a fact-driven evaluation of their positive or negative impact on the environment, people and the business. Improving its sustainability performance will enable the Group to contribute to more sustainable living, while enhancing efficiency, reducing costs and mitigating long-term business risks. Embedding sustainability in the business is therefore considered a key success factor for Borealis and a priority for the Executive Board.

Organisational Structure

The Executive Board is Borealis' highest governance body for sustainability. It:

- approves the Group's overall sustainability and public affairs strategy;
- regularly reviews the strategy's implementation and performance;
- provides guidance and decisions on major topics, such as Group operative plans, capital allocation and investments; and
- approves the Group's position on key sustainability issues, such as the Plastic Tax, microplastics and bio-based feedstock.

The Executive Board has delegated the management of social, environmental and economic issues to senior leaders in their respective functions.

The Director of Sustainability & Public Affairs leads the development of the Group's Sustainability Strategy and reports to the Vice President Strategy & Group Development, who in turn reports to the CEO. As per 1 January 2022 this function will become a direct report to the CEO. The Sustainability & Public Affairs organisation leads Borealis' commitment to sustainability by enabling and supporting the implementation of the Sustainability Strategy throughout the Group and catalysing sustainability-related initiatives that create value for Borealis' stakeholders. The team supports the leaders of key functions to develop sustainability-oriented strategies, implement a sustainability roadmap and support its execution through capability building, expertise, consultancy and dedicated methodologies and tools.

The Sustainability Advisory Team (SAT) comprises senior management from key functions across the organisation. It meets regularly to review the Group's progress against the sustainability roadmap, and assesses and guides sustainability projects, activities and Group Position Papers, prior to gaining approval from the Executive Board when necessary. The SAT also proposes new areas of involvement and ensures excellence and rigour in execution.

Sustainability Materiality Assessment

The Group's first Sustainability Materiality Assessment was carried out in 2013, followed by a refresh in 2019. Seventeen sustainability aspects were assessed, according to their importance to Borealis' stakeholders and their impact on the Group, society and the environment. The assessment will be repeated at three-yearly intervals, with the next assessment planned for 2022.

As a result of the assessment carried out in 2019, Borealis developed a Sustainability Materiality Matrix (Figure 3) based on four levels of response:

– Focus: core issues for Borealis
– Monitor: important sustainability issues to monitor
– Local: issues that are to be managed at local level
– Licence to operate: issues that are considered necessary for the Group to manage on a day-to-day basis

The following four topics were identified as the most important to Borealis and its stakeholders, and are defined as "Core focus areas for acceleration":

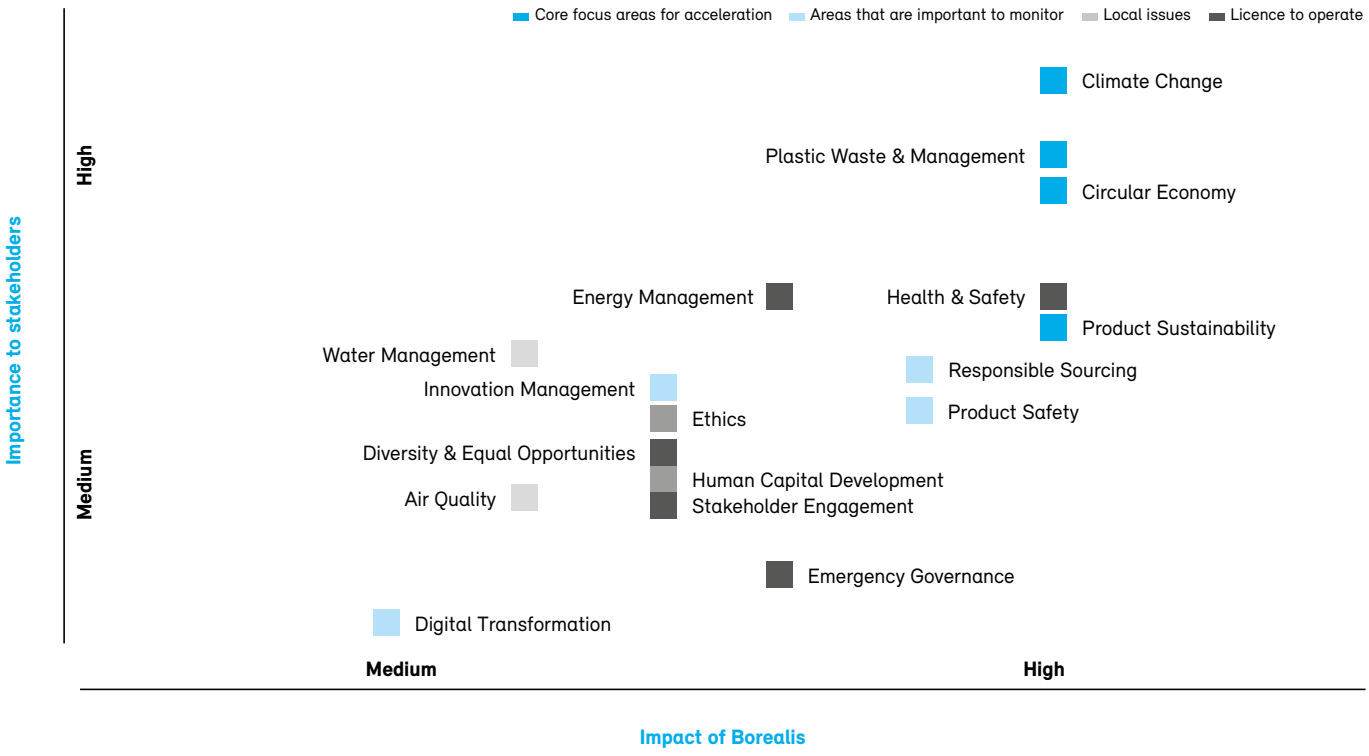
1. Climate Change is one of the focus areas in Borealis' current sustainability framework and is the most highly rated topic in terms of Borealis' impact on climate change and the importance to all stakeholders.

2. Circular Economy is one of the main drivers transforming plastics and chemicals industry business models and increasing their sustainability. It provides Borealis with opportunities to differentiate itself from other companies in the industry.

3. Plastic Waste & Management is an issue of utmost importance for Borealis, at both corporate and operational level. Proactive engagement by Borealis reaffirms its commitment to zero plastics leakage into the environment.

4. Product Sustainability is a key driver for developing and improving Borealis' products, to minimise stress on the environment and protect public health.

Fig. 3: **Sustainability Materiality Matrix**



In addition to the four core focus areas for acceleration, four topics have been designated as "monitor elements". These are important sustainability topics for Borealis, which the Group must monitor and continuously improve:

1. Responsible Sourcing: this aspect refers to the initial stages of product development, namely raw material sourcing.

2. Innovation Management: this aspect provides Borealis with opportunities to further differentiate itself from its industry peers, in respect of technological capabilities and research and development investments that lead to innovative and sustainable solutions for both products and processes.

3. Product Safety: this aspect is important for Borealis to ensure the environmental and social impacts of its products, predominantly based on life-cycle assessments and the precautionary principle.

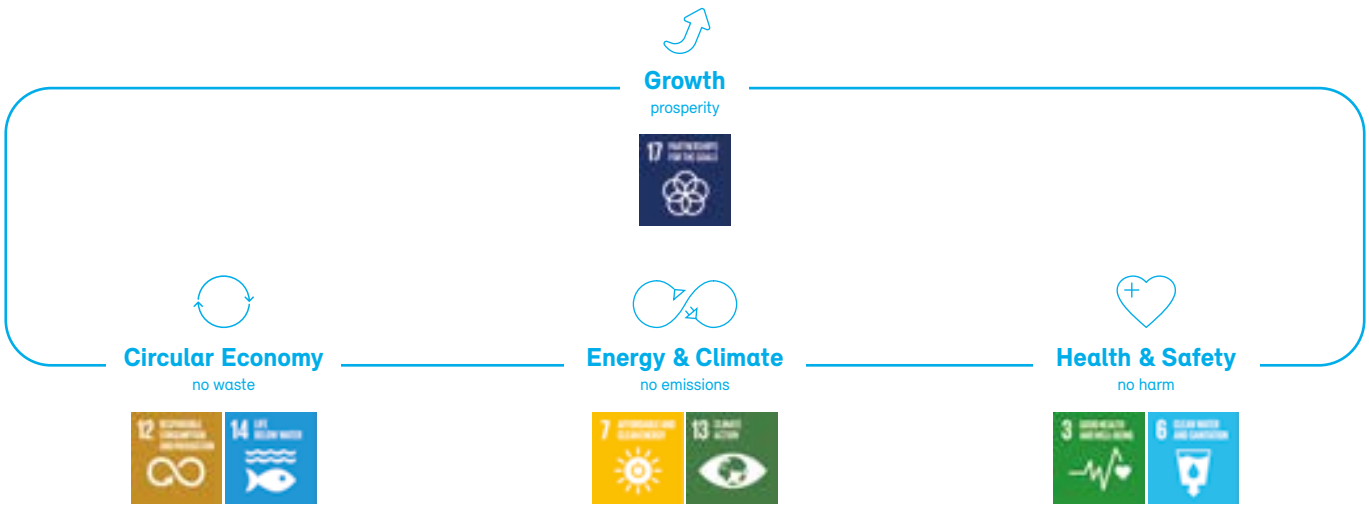
4. Digital Transformation: this aspect is an emerging topic and closely linked to IT and data security.

Air quality and water management were identified as local issues which require attention at an operational level, in conjunction with local authorities, laws and regulations, while all the topics categorised under "licence to operate" are integrated into Borealis' corporate culture and processes. Figure 5 on p. 43 provides the link between the material topics, the respective chapter in this report, and the sustainability aspects according to the 'Nachhaltigkeits- und Diversitätsverbesserungsgesetz' (NaDiVeG), the Austrian law on non-financial reporting based on the respective European Non-Financial Reporting Directive.

Sustainability Strategy

The 2019 materiality assessment confirmed that the three focus areas in the Sustainability Strategy, which are Health & Safety, the Circular Economy and Energy & Climate, are as relevant as ever and the Group is therefore further strengthening its efforts in these areas. Growth is seen as enabling prosperity for Borealis and its stakeholders and supports implementation of the Group's plans in the three focus areas.

Fig. 4: **Borealis' Strategic Sustainability Framework**



Our Goals for the Circular Economy for 2025 are:
- 350,000 tonnes of recycled polyolefin delivered annually, for the production of second-generation products
- 100% of consumer products being recyclable, reusable or with renewable content

Our Goals for Energy & Climate for 2030 are:
- 50% of electricity consumption from renewable sources
- 20% energy efficiency improvements (compared to 2015)
- Zero non-emergency flaring

Our Goals for Health & Safety remain constant and resolute:
- Zero work-related incidents or accidents
- Zero harmful substances in our products according to REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals)

During Q4 2021, Borealis started a process to update its Group and Sustainability Strategies. The process will be completed Q1 2022, with launch planned for Q1 2022.

Sustainability Targets

To ensure the realisation of the Group's strategy and with its sustainability ambition clearly in mind, Borealis has set specific long-term goals to improve the circularity of plastics, protect the climate and environment and care for the health and safety of its products, employees and communities. For related targets and achievements, see the respective chapters in this report.

In 2020, a sustainability KPI was added to the Group Performance Scorecard, reinforcing the importance of sustainability performance to Borealis' successful development and growth. For the Polyolefins and Hydrocarbons & Energy businesses, the sustainability KPI considers process safety incidents (including fires), flaring, energy efficiency, CO_2 emissions and the share of recycled waste in relation to total waste. For Fertilizers, Melamine and Technical Nitrogen Products, the KPI considers process safety incidents (including fires), release of N_2O, energy efficiency, CO_2 emissions and the share of recycled waste in relation to total waste.

A set of sustainability-related KPIs was integrated into the Bonus Incentive Plan (where a sustainability KPI is one of ten KPIs on the Group scorecard) and the Long Term Incentive Plan (→ chapter Our People, p. 106).

EcoVadis Sustainability Performance Assessment

In 2014, Borealis voluntarily began to participate in the EcoVadis annual sustainability assessment. EcoVadis is a platform that uses one of the most accepted methodologies for assessing a company's sustainability. In 2021, Borealis achieved a rating in the highest category, Platinum, for the first time, placing the Group in the top 1% of all industry peers who participated during the year.

Borealis' Stakeholder Engagement

Stakeholder engagement is imperative to Borealis' business and the development of its sustainability strategy. Regular engagement with a broad range of stakeholders ensures that Borealis can address their concerns and expectations, and inform the Group's materiality assessment, to ultimately better anticipate and respond to risks and opportunities.

Borealis' business activities involve a diverse and complex range of stakeholders at a global, national and regional level. Mapping and prioritising Borealis' stakeholders is a continuous and dynamic process. Based on its Group-level stakeholder mapping, Borealis has rolled out a stakeholder mapping process and a related issue and risk assessment in all of its major locations and at Group level over the past few years. The location-level management procedure was updated in 2020 to comply with the requirements of ISO 50001 and ISO 45001. At the same time, individual departments have carried out stakeholder mapping for specific market segments.

More information on how the Group engages with specific stakeholders can be found in other chapters throughout this Non-financial Report.

Borealis' Stakeholder Groups

Borealis routinely identifies and prioritises its key external stakeholders, as defined by the procedures described above. After identifying all relevant stakeholders, they are ranked based on two parameters, namely the level of importance the social and environmental aspects have for them, and the influence they have on Borealis. The output is a stakeholder map that indicates the importance of the stakeholder to Borealis (low/medium/high).

Academia and Science

R&D collaborations with leading universities, and participation in symposia, working groups and advisory committees (→ chapter Innovation, p. 99).

Customers

Face-to-face meetings, visits, surveys, trade fairs, conferences and product launch events.

Employees and Works Councils

Regular evaluation and feedback from the line manager, Corporate Co-operation Council (CCC) dialogue platform, biennial employee survey, pulse checks, town hall meetings, the annual Executive Board tour to all locations, engagement walks and many other channels.

Governments and Regulators

Different channels, such as face-to-face meetings and participation in workshops, both directly and via industry associations (→ chapter Public Affairs, p. 46).

Investors and Capital Providers
Regular Bankers & Investors Days and participation in relevant treasury, funding and investor relations forums and associations.

Local Communities
Ongoing dialogue through channels best suited to local needs, including face-to-face meetings, newsletters and Open Door Days.

Media
Interaction via established channels, including media interviews and events, press releases and the news section of the Borealis website.

Owners
Regular Supervisory Board meetings and owners' controllers meetings, as well as individual face-to-face interactions at executive, project and expert level.

NGOs and Society
Interaction through events, such as Open Door Days, face-to-face and round table discussions with representatives such as consumer and environmental associations, as well as participation in public consultations (→ chapter Public Affairs, p. 46).

Suppliers and Contractors
Formalised by the Borealis Supplier Relationship Management programme, face-to-face meetings, suppliers' events and annual industry conventions (→ chapter Procurement, p. 124).

Value Chain Partners
Face-to-face meetings, customer events, industry conferences, industry associations, EverMinds™ platform.

Industry and Trade Associations
Active membership and leadership positions in numerous national, regional, European and international associations (→ chapter Public Affairs, p. 46).

Other Focus Areas
To drive sustainability management to the next level, Borealis is progressing a set of activities covered in other chapters of this report. These include the climate roadmap 2050 (→ chapter Energy & Climate, p. 74); the action plan to address the microplastics challenge (→ chapter Public Affairs, p. 46); development of a third-party Operation Clean Sweep (OCS) audit and certification scheme (→ chapter Environmental Management, p. 90); initiation of Project STOP's expansion, to further prevent waste in Indonesia reaching the ocean (→ chapter Borealis Social Fund, p. 50); and launching the implementation of the EU Taxonomy reporting (→ chapter EU Taxonomy, p. 87).

Outlook
In 2022, Borealis will continue to reinforce its commitment to supporting the sustainable development of the Group and the industry. In addition to ongoing initiatives, Borealis will further enhance the implementation of its Sustainability Strategy by:

- refreshing the Materiality Assessment and Matrix and launching the updated Sustainability Strategy;
- developing the Group's approach to future non-financial reporting requirements, to ensure conformity with EU requirements and prepare to move from a combined to an integrated Annual Report;
- introducing a long-term target for GHG emissions, scaling up Project STOP to reach 2 million people and driving circular economy solutions;
- amplifying public affairs advocacy, to support the increase of recycled plastics in packaging, and implementing the EU Taxonomy;
- as per 1 January 2022 the Sustainability and Public Affairs Function will become a direct report to the CEO.

Fig. 5: **Overview of Material Topics**

Sustainability Focus Area	Material topic	Chapter of reference	Non-financial matters [1]	UN Global Compact Principles
Core focus areas for acceleration	Climate Change	Energy & Climate, Environmental Management, Logistics	Environmental matters	7, 8
	Circular Economy	Circular Economy, Borealis Social Fund	Environmental matters	9
	Plastic Waste & Management	Circular Economy, Environmental Management, Borealis Social Fund	Environmental matters	7, 8
	Product Sustainability	Product Safety, Sustainability Management, Procurement	Environmental matters, social matters	-
Areas that are important to monitor	Responsible Sourcing	Procurement of Raw Materials, Packaging and Technical Supplies	Environmental matters, respect for human rights, social matters	1, 2
	Innovation Management	Innovation	Social matters, environmental matters	9
	Product Safety	Product Safety	Social matters, environmental matters	-
	Digital Transformation	Digital Transformation	Social matters, environmental matters	-
Local issues	Air Quality	Environmental Management	Environmental matters	7, 8
	Water Management	Environmental Management	Environmental matters	7, 8
	Health & Safety	Process Safety, Occupational Health and Safety, Logistics	Employee-related matters, social matters	-
	Energy Management	Energy & Climate, Environmental Management	Environmental matters	7, 8
	Ethics	Ethics & Compliance	Anti-corruption and bribery, respect for human rights	1, 2, 4, 5, 10
Licence to operate	Diversity & Equal Opportunities	Our People	Employee-related matters, social matters	6
	Human Capital Development	Our People	Employee-related matters, social matters	3, 4, 5, 6
	Stakeholder Engagement	Sustainability Management, Stakeholder Management	Social matters	-
	Emergency Governance	Process Safety	Employee-related matters, social matters	-

1) Non-financial matters according to NaDiVeG

Sustainability Risks

This overview summarises the potential non-financial risks of Borealis' activities on sustainability matters (according to the NaDiVeG) and the mitigation measures in place. The summary is structured by the Group's material topics:

Sustainability risk	Risk description	Mitigation measures
Focus Area: Environment, Energy & Climate		**Material topics: Climate Change, Air Quality**
Unplanned emissions from operations	If the Group's operations do not operate according to engineered process levels, unplanned emissions to the environment can occur. These emissions can be emissions to air (including NO_x, dust and flaring) or pollution of soil and water, resulting in increased GHG emissions, waste, noise and other disturbances to the local community.	The Group employs health, safety, environment and quality management procedures and processes to prevent and remediate unplanned events. It proactively addresses these risks through its risk and opportunity management system to improve safety, reliability, quality and cost. It does this by identifying and setting priorities, and allocating funds and resources to the highest priorities in the risk register, while enhancing cross-learning of best practices in order to continuously reduce the risk level. → chapter Process Safety, p. 59 → chapter Environmental Management, p. 90 → chapter Corporate Governance, p. 113
Focus Area: Health & Safety		**Material topics: Emergency Governance, Product Safety**
Process Safety	The sudden and uncontrolled release of explosive material, for example, due to vessel or tube ruptures, could lead to major explosions, such as vapour cloud explosions or boiling liquid expanding vapour explosions. Catastrophic failure of process equipment could result in the uncontrolled release of harmful toxins into the community, such as ammonia.	Borealis has stringent measures to prevent accidents and mitigate their potential consequences effectively. The Group implements critical processes, such as: – management of change, safe permit to work, – safe start-up and integrity of safety critical protection layers; – regular inspections to ensure the integrity of the Group's installations; – Process Safety awareness campaigns; – tailor-made safety training, such as Process Safety in design and specific front-line leader training; – leading indicators, such as compliance with safety critical inspection plans; – regular testing of the functionality of the Group's safety devices and instrument protection loops; – regular deep dives in the Process Safety Committee; – self-assessments at the locations; and – cross-location health checks and Borealis Blue audits. → chapter Process Safety, p. 59
Chemicals Safety	Chemical substances, if not handled properly and according to their intended use, could lead to unintentional health impacts for people coming into contact with those substances.	As a signatory of the chemical industry's Global Charter for Responsible Care®, Borealis is committed to ensuring the safety of its products along the entire value chain. Borealis does not use any banned substances from REACH Annex XIV in its operations, unless authorised by the EU Commission and ECHA. The Group even goes beyond compliance with current regulations, for example, with replacing azodicarbonamide (ADCA) in cable solutions and halogen-free cable compounds. – The Group enforces high product safety standards, has a stringent product safety management system and considers the safety of chemicals in all of its decision-making processes. – The Borealis Product Stewardship Council evaluates the potential risks of all substances the Group uses and defines risk mitigation measures. → chapter Product Safety, p. 62

Sustainability risk	Risk description	Mitigation measures
Focus Area: Health & Safety		**Material topics: Health & Safety**
COVID-19 management	If extensive measures are not taken against global pandemics such as COVID-19, employees and other workers may be exposed to a significant health risk and there may be a consequent impact on production.	In 2021, the Group acted swiftly with extensive measures in order to keep its stakeholders safe from COVID-19. The key actions taken included: – protecting employees by implementing numerous safety and hygiene measures; – supporting employees and managers with handling of actual or suspected cases; – enabling digital key events, digital training and homeworking for all departments, in order to reduce the risk of infection. → COVID-19 Response, p. 20
Focus Area: Circular Economy		**Material topics: Plastic Waste & Management**
Spills Management (Pellet loss)	Plastic pellets could unintentionally leak into the environment through spills at Borealis' production sites, or during transportation, conversion or recycling, resulting in environmental pollution and microplastics ultimately ending up in groundwater, rivers and oceans.	Borealis was one of the first signatories to the European Operation Clean Sweep® (OCS), a programme to prevent pellets and plastic powder leaking into the environment. Since then, all Borealis Polyolefins production locations have implemented this programme. Borealis was the first plastics producer to carry out third-party external audits for OCS and the Group assesses gaps and achievements in all its Polyolefins locations regularly, followed by an improvement action plan. → chapter Environmental Management, p. 90
Environmental Pollution (Plastic waste in the environment)	Plastic waste, if not collected, sorted and disposed of properly, could end up in the environment, causing environmental pollution, harming animals and ultimately ending up as microplastics in drinking water and food.	Plastics are too valuable to end up in the environment. As a resource, plastics should be collected, sorted and recycled. Borealis is therefore playing a key role in the transformation of the industry into a circular economy. → chapter Circular Economy, p. 67 Borealis has initiated Project STOP, a programme that supports cities in Indonesia to establish low-cost, more circular waste management systems, thus avoiding the leakage of plastics into the ocean. → chapter Borealis Social Fund, p. 50

Public Affairs

Goals 2021	Key Achievements 2021
Participate in discussion rounds and public consultations regarding upcoming EU legislation	Input provided to several draft legislations (either directly or via industry associations), such as EU Circular Economy Action Plan (CEAP), revision of EU legislation on end-of-life vehicles, the Sustainable Products Policy Initiative and the revision of the EU rules on industrial emissions. In addition, support provided on the review of the EU Packaging and Packaging Waste Directive and the implementation of the Single Use Plastics Directive.
Progress the proposal for a UN Treaty on Plastics Pollution and the use of extended producer responsibility (EPR)	As member of the Ellen MacArthur Foundation's New Plastics Economy (NPEC) initiative, continued to advocate for the development of a UN Treaty on Plastics Pollution and the use of EPR on a global scale. Borealis was on the frontline in supporting the Foundation in developing the related position papers.
Collaborate with Austrian stakeholders to advance the circular economy of plastics	Work streams identified with the most relevant stakeholders.

The chemicals, plastics and fertilizer industries are undergoing significant changes and Borealis is playing a pivotal role in transforming the industry from a linear business model to a circular one. Well-designed legislation and regulation can help the industry to accelerate this transformation and to tackle issues such as resource efficiency, climate change, waste reduction, increased product safety, fair trade, plastic waste, littering and microplastics. Borealis therefore needs to understand the policy and regulatory environment in the EU and the expectations of non-governmental organisations (NGOs). This enables the Group to create a constructive dialogue and contribute its knowledge and insight to discussions about its activities and performance, and how regulation and legislation can support businesses in their transformation to more circular and more sustainable models. This helps policymakers to create better policies, which in turn will help the industry to support the overall EU strategy for a greener Europe.

Borealis engages with relevant stakeholders at EU and national levels, as well as through its membership of industry associations such as Plastics Europe, the Polyolefin Circular Economy Platform, Fertilizers Europe and the European Chemical Industry Council (CEFIC).

Borealis also collaborates with stakeholders such as NGOs (for example, the Ellen MacArthur Foundation) to better understand and address societal concerns, including those on climate change, the circular economy and chemicals safety, which are also key focus areas for the European Commission.

In line with the Group's Ethics Policy, Borealis strictly follows political corporate governance practices in public affairs and does not join political parties or make financial contributions to them or their candidates.

Organisational Structure

Borealis' Public Affairs function is part of the Sustainability & Public Affairs Department, reporting into Group Strategy & Development. As per 2022, the Sustainability & Public Affairs function will become a direct report to the CEO.

The Head of Public Affairs' responsibilities include:
- developing the Group's advocacy strategy;
- coordinating the Group's positions on key issues relevant to Borealis' business and its key stakeholders;
- engaging with key stakeholders at Group and EU level; and
- coordinating the Group's Public Affairs activities through the Public Affairs Network (PAN) and the Public Affairs Coordination Team (PACT).

Members of the PAN are the senior management representatives responsible for public affairs in each country where Borealis has a major presence. The PACT includes all PAN members, as well as representatives from relevant Borealis business areas and Borealis' representatives in industry associations. Both are chaired by the Director Sustainability & Public Affairs.

The PAN and PACT meet at least every two months, with the objective to:
- follow and share information on upcoming EU and national policy trends;

– align on Borealis' position on regulatory and policy developments;
– identify new issues, opportunities and risks that need attention;
– prioritise and coordinate Public Affairs activities across businesses and regions; and
– define and implement proactive stakeholder engagement activities.

Memberships

Borealis' memberships include the following organisations and associations (in alphabetical order, not exhaustive):

EU-Level Associations
– CEFIC
– CEFLEX (A Circular Economy for Flexible Packaging)
– EDANA
– Europacable (as associated industry partner)
– EUROPEN (European Organisation for Packaging and the Environment)
– Fertilizers Europe
– FSEU (Fire Safe Europe)
– IFA (International Fertilizer Industry Association)
– MPPE (MedPharmPlast Europe)
– PCEP (Polyolefins Circular Economy Platform)
– Plastics Europe
– PRE (Plastics Recyclers Europe)
– SolarPower Europe
– TEPPFA (The European Plastic Pipes and Fittings Association)
– WindEurope

Regional Associations
– Essencia (Federation for Chemistry and Life Sciences Industries, Belgium)
– FCIÖ (Fachverband der Chemischen Industrie Österreichs, the Association of the Austrian Chemical Industry)
– IV (Vereinigung der Österreichischen Industrie, the Federation of Austrian Industries)
– IVA (Industrie Verband Agrar, German Agrochemical Industry Association)
– Kemianteollisuus ry (The Chemical Industry Federation of Finland)
– UNIFA (Union des Industries de la Fertilisation, the association of the French fertilizer industry)
– WKO (Wirtschaftskammer Österreich, the Austrian Federal Economic Chamber)

Organisations
– Ellen MacArthur Foundation – The New Plastics Economy (NPEC)
– TfS – Together for Sustainability
– WEF (World Economic Forum)
– WBCSD (World Business Council for Sustainable Development)
– WPC (World Plastics Council)
– WSUP (Water & Sanitation for the Urban Poor)
– UN Global Compact

Activities 2021

Circular Economy

During 2021, Borealis continued to provide input to the EU Circular Economy Action Plan (CEAP), including contributing to public consultations, mainly through industry associations. Borealis also contributed independently to feedback rounds and public consultations on the revision of EU legislation on end-of-life vehicles, the Sustainable Products Policy Initiative and the revision of the EU rules on industrial emissions.

Borealis continued to support the implementation of the Circular Plastics Alliance (CPA) and coordinated the Packaging Design group, which has significantly advanced the work on standardisation of packaging and is developing design-for-recycling guidelines.

The Group also continued to support its industry associations and the European Commission in revising legislation, such as the revision of the Packaging and Packaging Waste Directive (PPWD) and the development of the Delegated Act on the methodology to measure recycled content in Single Use Plastics. In addition, Borealis monitors the revision and transposition of the new EU Waste Shipments Regulation in EU member states, to be prepared for opportunities and risks in regards to imports of plastics waste into Borealis' recycling plants.

The Ellen MacArthur Foundation's NPEC initiative continued to advocate for the development of a UN Treaty on Plastics Pollution and the use of EPR on a global scale. Borealis supported the Foundation in developing the related position papers.

In addition, Borealis is now part of the second EU IPCEI (Important Project of Common European Interest) on batteries and the European Battery Alliance, which aims to develop a circular battery business in Europe.

Fig. 6: **EU policy initiatives affecting Borealis' business**

Circular Economy
no waste

- Revision of the End-of-Life Vehicles Directive
- Revision of the Construction Products Regulation
- Revision of the Packaging and Packaging Waste Directive
- Revision of the Waste Shipment Regulation
- Single-Use Plastics Directive Implementation Act
- Food Contact Plastics Regulation Revision
- EU Sustainable Products Initiative
- Waste Framework Directive Revision
- Chemicals Strategy for Sustainability
- Policy framework for bio-based plastics

Energy & Climate
no emissions

- EU Emission Trading System Directive
- Carbon Border Adjustment Mechanism (CBAM) Regulation
- Renewable Energy Directive (RED II) Review
- Deployment of Alternative Fuels Infrastructure Regulation
- Offshore Wind Strategy

Health & Safety
no harm

- REACH – Chemicals of concern
- Revision of the Industrial Emissions Directive (IED)
- REACH Restriction on microplastics
- REACH Dossier Improvement Package
- REACH Registration of Polymers

Growth
prosperity

- EU Plastic Tax / EU Recovery Plan
- EU Taxonomy Proposal

Climate Change and the EU Fit for 55 Package

The Fit for 55 package is a set of proposals to revise and update EU legislation and put in place new initiatives, with the aim of ensuring that EU policies are in line with the climate goals agreed by the Council and the European Parliament.

The EU Strategy for Offshore Renewable Energy, published in November 2020, underpins the importance of creating a robust value chain for scaling up the deployment of offshore renewable energies and meeting the ambitious 2030 and 2050 targets. The European Commission is facilitating this process by establishing a working group on offshore renewable energy under the Clean Energy Industrial Forum. Borealis has joined this working group.

Health and Safety

The recast EU Drinking Water Directive came into force in January 2021. Among other changes, it implemented the long-awaited Article 11 on the minimum hygiene requirements for materials that come into contact with water intended for human consumption. Following the establishment of the first European positive lists of starting substances, compositions or constituents within four years, this will finally implement the EU-wide approval system for these materials that the plastics industry, including Borealis, and the value chain have been requesting for 30 years.

During 2021, the first high-level information became public on how the objectives of the EU's new Chemical Strategy for Sustainability (CSS) are planned to be implemented in legislation. In response, the European chemicals industry began preparations to give input to the legislative processes, in several working groups and fora. Borealis is actively contributing to many of these working groups in CEFIC and Plastics Europe, and is also providing input to the regulatory process through these organisations.

Increasing numbers of substances are being scrutinised under the EU REACH regulation for their hazardous effects and risks related to their use. Some of these substances are critical to Borealis' products or to their production process, and any change in regulation will have a substantial impact on its business with the value chain, potentially requiring substantial investments and R&D efforts. Borealis therefore actively follows up these developments in order to be well prepared and engages to inform policymakers, in order to ensure measures follow a cost-benefit approach and do not lead to competitive disadvantages versus non-EU supplies (for example, hydrogenated terphenyl being used as heat transfer fluid in closed systems).

Non-Financial Reporting Requirements and Sustainable Finance

Throughout 2021, Borealis continued to closely monitor the policy developments on the EU Taxonomy, relevant screening criteria and the related Climate Delegated Act, as well as the Renewed Sustainable Finance Strategy. The Group has installed a project and issue team and with the present report has started to report according to the EU Taxonomy requirements (→ chapter EU Taxonomy, p. 87). The Group also closely followed the development of the update of the EU Corporate Sustainability Reporting Directive (CSRD) and related reporting standard. Preparations are ongoing to adhere to these updated reporting obligations, which will gradually come into play.

Microplastics

In 2020, the European Commission requested the European Chemicals Agency (ECHA) to prepare a restriction proposal concerning the use of intentionally added microplastics. The process is currently ongoing, with final adoption planned for 2022. The proposal may result in restrictions in several applications, as well as the adoption of certain requirements, such as instructions for use and disposal, reporting and use/sale conditions. In 2021, the European Commission also started an initiative to address the unintentional release of microplastics and commissioned a study to provide the baseline for a cost-benefit analysis of effective and efficient policy measures. The main impact on Borealis will be the cost and administration involved in labelling, reporting and certification requirements for pellets.

Plastics and microplastics do not belong in our environment, waters or food. Once in the environment, it is difficult or even impossible to remove microplastics. This means that preventing plastics leaking into the environment in the first place is Borealis' priority. The Group therefore supports regulatory measures to prevent plastic leaking into the environment and is fully committed to Zero Pellet Loss. To support the current ECHA proposal that includes measures on pellet loss reporting, Borealis supported respective working groups at CEFIC and Plastics Europe in developing a reporting scheme, as well as a third-party audit and certification scheme regarding pellet loss, and piloted it in two of its plants in Belgium (→ chapter Product Safety, p. 62).

In 2021, Borealis became a member of the UN Global Compact and signed the UN Sustainable Ocean Principles. These commit companies to restoring and maintaining a healthy and productive ocean. Stopping the leakage of plastics into the environment and the oceans is a global challenge. Borealis is actively addressing this issue by advancing the circular economy of plastics and keeping material in the loop, thus avoiding it becoming waste in the first place. Borealis also initiated Project STOP in 2017, which is a pioneering programme to support cities in developing and emerging countries to establish cost-efficient, effective and more circular waste collection systems.

Outlook

In 2022, Borealis Public Affairs will continue to support initiatives such as:

- the development of the EU Green Deal regulatory framework, including the Circular Economy Action Plan;
- the revision of the Packaging and Packaging Waste Directive;
- the Sustainable Products Initiative;
- the Fit for 55 package, with a focus on policies affecting the Group's operations and value chain such as the Energy Efficiency Directive, the Renewable Energy Directive, the Emissions Trading System and the Off-Shore Energy Strategy;
- the EU Chemicals Strategy for Sustainability;
- the ECHA proposal on microplastics; and
- the development of a UN treaty on plastics pollution as promoted by the Ellen MacArthur Foundation.
- as per 2022, the Sustainability & Public Affairs function will become a direct report to the CEO.

Borealis Social Fund

Goals 2021	Key Achievements 2021
Complete implementation of Project STOP in the city of Muncar, Indonesia, and hand over to local government	Implementation completed and handover begun. By the end of 2021, Project STOP created 226 new full-time jobs, collected 20,000 tonnes of waste (2,700 tonnes of plastic) and served 260,000 people with waste collection.
Develop Project STOP scale-up over a wider region in Indonesia	Announced expansion of Project STOP to reach 2 million people by 2025 and began implementation.
Expand social fund portfolio – solar energy	Initiated a project with UNHCR, to deliver renewable solar energy to a refugee camp in Uganda.
Expand social fund portfolio – Education & Social Integration	Initiated five new projects in Austria, UK, Finland and India. Main sponsor and supporter of Ocean Eye, an escape box game that tours across Austria to raise awareness of ocean plastic pollution and microplastics.

Businesses can only grow sustainably in a healthy environment and stable society. To foster its role as a socially responsible company, Borealis has established the Borealis Social Fund.

A portion of the Group's net profit, based on clearly defined allocation rules, is dedicated to the fund each year. Projects can be submitted by any external or internal stakeholder to the Sustainability Team, which validates the proposal and makes recommendations to the CEO, who has responsibility for the Fund. The CEO selects and approves all projects. Sponsorships above EUR 0.5 million per project per year need the additional approval of the Chairman or Vice Chairman of the Supervisory Board.

To maximise the impact of its engagement and to align Borealis' social engagement activities with the Company's Purpose and its Sustainability Strategy, the Group has defined three areas of social engagement that directly contribute to the UN Sustainable Development Goals (UN SDGs).

Waste and Resource Efficiency
SDG 14: Life Below Water

– supporting research and innovation;
– improving waste management in emerging and developing countries to prevent marine litter; and
– raising awareness and encouraging behaviour change.

Water
SDG 6: Clean Water and Sanitation

– providing access to safe water and sanitation;
– supporting the preservation of water resources; and
– raising awareness and promoting best practices.

Energy
SDG 7: Affordable and clean energy

– supporting access to affordable, reliable, sustainable and modern energy supplies; and
– promoting best practices.

Education and Social Integration
SDG 4: Quality Education

– nurturing interest in chemistry and science;
– supporting education to meet future challenges; and
– integrating marginalised and underprivileged people.

Waste and Resource Efficiency

Marine litter is a global challenge. According to IUCN (International Union for Conservation of Nature), at least 14 million tonnes of plastic leak into the ocean every year. South Asia is the second largest contributor to global plastic waste. It generates 334 million tonnes of solid waste every year, as waste management infrastructure fails to keep pace with the region's fast-growing economies, population and consumption. Around 70–80% of this waste ends up in rivers and the ocean, 12% of which is plastic. On current trends, if no action is taken, the amount of mismanaged waste (including plastic) across South Asia is projected to double by 2050, adversely affecting the region's ocean ecosystems, livelihoods, human health and sustainable development more broadly. The world needs to address the problem of marine litter and become more resource-efficient. The solution is to establish more sustainable and circular waste management systems and to stop plastic leakage at the source.

Project Highlight 2021

Project STOP – Stop Ocean Plastics

In 2017, Borealis took the lead and initiated Project STOP (Stop Ocean Plastics). This programme, co-founded with SYSTEMIQ, aims to achieve zero leakage of waste into the environment and to recycle more plastics. Project STOP focuses on the regions with the highest leakage rates and, with the support of industry and government partners, works hand-in-hand with cities to create leak-free, low-cost and more circular waste management systems. In the process, Project STOP also creates community benefits, including jobs in waste management and a reduction in the harmful impact of mismanaged waste on public health, tourism and fisheries.

Project STOP uses a "system enabler" approach, whereby a team of experts works with the local government, communities and non-governmental organisations (NGOs) to build institutional capacity and support financial and business planning, behaviour change, technical expertise, project management and recycling valorisation.

Project STOP's initial city partnership was in Muncar, Indonesia, with two subsequent partnerships begun in the Indonesian cities of Pasuruan and Jembrana. The project's achievements by end of 2021 and since it's start:

- creating 226 new full-time jobs in waste collection, sorting, organic processing and management and administration;
- providing waste collection services to 260,000 people, for the first time in their lives;
- collecting 20,000 tonnes of waste (including 2,700 tonnes of plastic);
- developing a financially transparent process for transferring funds;
- building necessary infrastructure (material recovery facilities);
- supporting the development of a Waste Management Master Plan for the Banyuwangi Regency; and
- building a curriculum to train government workers, based on the lessons learned from STOP.

Despite COVID-related challenges, by the end of 2021 the implementation of Project STOP in Muncar was complete and handover to the local municipality had started. Full handover will only take place once all key performance indicators have been achieved and a financially sustainable system is ensured. During 2022, the Project STOP team will remain available for support and advice, if needed.

The cities of Pasuruan and Jembrana are planned to be completed by the end of 2022. When all three city partnerships are complete, Project STOP will reach 450,000 people and prevent 45,000 tonnes of waste (including 5,700 tonnes of plastic) leaking into the environment every year.

Project STOP's underlying ambition is to develop a blueprint model and share its know-how, to enable as many stakeholders as possible to replicate its approach in other regions. The knowledge gained from the three city partnerships is now allowing the project to scale-up across a wider region in Indonesia, while being even faster and more cost- and resource-efficient to implement. Once this four-year expansion is finalised, Project STOP will have provided waste collection services to 2 million people, established more than 1,000 new full time jobs and created systems collecting 25,000 tonnes of plastic waste annually, keeping it permanently out of the environment.

Water and Energy

Ensuring everyone has access to clean water and a reliable energy supply is an essential part of the world we want to live in, and there is sufficient fresh water on the planet to achieve this. However, due to bad economics or poor infrastructure, the United Nations estimates that 2.2 billion people still lack access to safely managed drinking water, especially in remote, rural areas. In addition, 789 million people – or 13% of the global population – are living without access to electricity and rely on wood, coal, charcoal or animal waste for cooking and heating.

Access to water and energy are fundamental to quality of life, as they affect the ability of poor families to obtain sufficient food and protect their health, as well as limiting the livelihoods and educational opportunities available to them. Drought is a particular problem, as it damages food supplies in some of the world's poorest countries and leaves people hungry and malnourished.

Energy services are also a basic requirement for good health, whether they are enabling the supply of clean water for hygiene purposes or powering healthcare facilities. This makes energy key to preventing diseases and fighting pandemics: the human cost and global recovery from COVID-19 could be significantly worse if hospitals and communities have no access to power.

Since 2007, Borealis and Borouge have provided solutions to the global challenge through Water for the World, a joint programme to address the global water and energy challenge in rural and urban communities, with a focus on South-East Asia and Africa.

Since its launch, Water for the World has carried out numerous projects across Asia and Africa, including China, Ethiopia, India, Kenya, Nepal, Morocco, Myanmar and Pakistan, benefiting over 1 million people.

Project Highlight 2021

Using Solar Energy to Deliver Life-Changing Clean Water to Over 100,000 Refugees

In 2021, Borealis joined the Clean Energy Challenge, a multi-stakeholder forum which aims to promote SDG 7 by supporting the self-reliance of refugees and bringing affordable, reliable and sustainable energy to all forced displacement settings by 2030. In this context, Borealis is cooperating with UNHCR, the UN Refugee Agency, at two refugee settlements in Uganda. Together, these settlements are home to around 105,000 people and cover 20 villages, including two health centres and two primary schools.

Uganda is the fifth-largest refugee-hosting country in the world, with over 1.4 million refugees and asylum seekers (as at November 2021). UNHCR's water pumping systems in its refugee camps are mostly powered by diesel, which is expensive and difficult to acquire, leading to unreliable access to safe drinking water. Furthermore, these pumping systems only provide around 10-11 litres of water per person per day, far below the SPHERE humanitarian standard of 15 litres and the UNHCR standard of 20 litres. This has a tremendous impact on people's ability to conduct their daily lives, while access to washing water is also particularly critical in preventing the spread of COVID-19.

As Uganda has plenty of sunshine, solar power is a viable option for running the water pumps and providing lighting at the collection points. As part of the Clean Energy Challenge Initiative, Borealis has financed a project to convert diesel-powered units into solar-powered ones at the two camps. The Group has also provided its Quentys™ material, which is being used by Borealis customer Waaree in making the solar modules. Through this project, Borealis is making an important difference to the lives of the refugees, by helping to make more water available to them for longer each day, while reducing the unit cost of water provision.

Education and Social Integration

Young people's education and innovation skills will determine how society copes with global sustainability challenges such as climate change and ocean pollution. Their critical minds are essential, if we are to continue to find innovative solutions to the ever-more complex challenges facing society.

Educational systems therefore need to adopt a framework and practices that enable young people to develop the right skills, so they can put their ideas into practice. Stimulating enthusiasm for science and chemistry at an early age means that today's young and inquisitive minds will become tomorrow's leading scientists and innovators.

Project Highlight 2021

Supporting a New Educational Initiative on Microplastics

Borealis is the main sponsor of the Ocean Eye mobile escape box, developed by the Science Center Network in Austria. Ocean Eye is an exciting escape game that aims to raise awareness of plastic in the sea and microplastics.

The initiative is aimed at game-savvy young people aged 15 and over. Working in groups of five or six, they experience teamwork in problem solving and enjoy 60 minutes of fun learning about scientific research methodologies, including chemical analysis, microscopy and physical experiments. This is combined with the classic elements of an escape room, such as colour filters, codes and black light, so scientifically sound information is packed into an exciting story.

In addition to raising awareness of microplastics, participants learn about the UN SDGs, develop a scientific way of thinking and are encouraged to adopt a mindset of using resources and recyclable materials in a mindful way.

Outlook

In 2022, Borealis will continue to implement projects in the Borealis Social Fund's defined areas, with two new key engagement activities. Borealis' objectives are to:

- expand Project STOP from Muncar across the entire region of Banyuwangi, to provide 1.4 million citizens with sustainable waste management;
- develop a new governance model for Project STOP, to allow further growth and ensure the programme remains fit for the future; and
- implement the projects initiated during 2021, in particular:
  * Project "Plastic Garage": Borealis will install a recycling line at the "Grand Garage" workshop space in Linz, Austria, to give visitors a hands-on experience with a live demonstration of recycling;
  * TAT Company Park: Borealis is supporting a Finnish learning concept offered to sixth- and ninth-grade school children, to provide positive experiences of working life, the economy and society and encourage entrepreneurship, based on a 700m^2 artificial miniature city with about 20 businesses built in;
  * Kindernothilfe: Borealis is supporting a Kindernothilfe project, in collaboration with Karunya Trust, that provides a better future for children living in the immediate vicinity of Dumping Site Govandi in Mumbai, India; and
  * Sheltersuits UK: Borealis is supporting this non-profit organisation that manufactures "shelter suits", which are a wind and waterproof jacket with an optional sleeping bag attached, to provide shelter to homeless people, while using upcycled plastic material and providing jobs.

Sustainability Focus Areas

Health & Safety: Occupational Health & Safety

Goals 2021	Key Achievements 2021
Successful transition from OHSAS 18001 to ISO 45001	Achieved ISO 45001 certification without any non-conformities.
Further roll-out of virtual training on Life Saving Rules	All planned modules of the game-learning training on the Life Saving Rules were rolled out.
Harmonise Borealis' health, safety and environment (HSE) procedures with OMV's HSE procedures	As a first step, reporting requirements and HSE-related definitions have been aligned with OMV.
Ensure effective field leadership	Senior leaders have trained local management on effective field leadership.
Implement the Safety Boost programme and safety perception survey in the Fertilizers, Melamine and Technical Nitrogen Products (TEN) business	Fertilizers, Melamine and TEN has improved its safety performance by implementing local and Group initiatives. A safety perception survey has been launched to measure how the business's employees perceive, integrate and apply safety in relation to themselves and others, to enable an action plan for improvement in 2022 to be defined.

Chemical operations involve highly flammable, toxic and hazardous substances that could pose a significant risk to Borealis' employees and neighbours, if not handled correctly. Health & safety is therefore one of the key focus areas in the Borealis Sustainability Strategy and the number one priority for the Group. In addition, process and occupational health & safety incidents have a direct link to lost working time and damage to valuable assets, both of which could affect the Group's ability to supply its customers, and its profitability and performance. Borealis therefore lives by the slogan "If we can't do it safely, we don't do it at all!" Everyone at Borealis is expected to stop working, or not to start working in the first place, if the situation is unsafe.

Organisational Structure

At location level, the local leadership and Health & Safety team meet each month to discuss health & safety performance. Every location also has an HSE Forum, where employee representatives are consulted and informed about the HSE management system (see below). The HSE Forum also promotes worker participation in occupational health & safety. A number of informal platforms and meetings ensure that all employees of operational sites are represented.

In Fertilizers, Melamine and TEN, Health & Safety Network meetings are scheduled to share lessons and best practices, with attendees including all health & safety specialists at the locations and Group health & safety experts. The HSE managers' network was introduced in 2021 to define the HSE strategy, establish improvement actions and share lessons learned. The network includes local HSE managers, the business's Head of Health, Safety, Environment & Quality and Group HSE experts.

Preventing Occupational Health & Safety Incidents

Borealis proactively prevents accidents by developing risk management tools, implementing controls, undertaking awareness campaigns and safety training and conducting regular audits for both employees and contractors. The Group is committed to eliminating hazards and reducing occupational health & safety risks, and continuously improves through systematic learning.

The Group has an HSE management system, which is designed to reduce the possibility of incidents in the workplace by ensuring that hazards are systematically eliminated or controlled. The system covers occupational health & safety, process safety, environment and energy, as well as some aspects of security. It applies to all businesses

where Borealis owns more than 50% or where the Group has operating responsibility. The HSE management system was certified to ISO 45001 during 2021.

Borealis uses risk assessments to identify hazards, assess the risk and take necessary measures to reduce it. These risk assessments are done before any work is carried out on a project or changes are made to an installation. Everyone must report hazards and hazardous situations and can do this via the Group's incident management software.

Meetings, conferences and speeches in Borealis commonly start with awareness raising and sharing lessons learnt on health & safety, and is a mandatory topic for discussion at many meetings.

All levels of management at Borealis, from front-line leaders to Executive Board members, carry out regular engagement walks. These ensure dialogue occurs between management, employees and contractors. The walks are designed to spot safety risks and encourage positive changes in daily work routines.

In addition to safety training for all employees and contractors, all visitors to Borealis' locations must pass safety training before they gain access to the site. Some Borealis sites also organise an annual meeting with their neighbours, where safety performance and initiatives are discussed. Borealis also coordinates emergency planning with the emergency services.

Borealis aims to develop its health & safety culture from a calculative level (where safety is based on having systems in place to manage hazards) via a more proactive level (where safety leadership and values drive continuous improvement) towards a generative level, where health & safety becomes "how we do business". The Group has set itself a "Goal Zero" ambition that nobody should get hurt when working at Borealis and the aim is to have zero process safety incidents. Effective field leadership is a key enabler of this. In addition, each Borealis employee has a shared responsibility for others. "Care for my colleague" means encouraging employees to report incidents, actively participate in investigations and contribute to making Borealis safer for all.

Promoting Employees' Health and Wellbeing

Borealis promotes and protects its employees' health and wellbeing in several ways. In addition to detailed chemical exposure monitoring, which is carried out in accordance with national laws, the Group offers physical examinations and subsequent check-ups, periodic screenings and evaluations. Employee health initiatives vary depending on local needs, but they typically include addressing issues such as back pain, blood pressure and weight management, as well as providing on-site flu vaccinations. Employees learn about stress prevention, find help to quit smoking and can consult a psychologist. Borealis also encourages healthy eating by providing fresh fruit and healthy meals in many locations. Employees may also take part in voluntary health counselling programmes to identify and monitor health problems.

Training packages are available to raise employees' competence in areas such as social psychology, office ergonomics, musculoskeletal disorders and use of hydraulic tools.

In addition, Borealis has developed a wellbeing concept that sets common standards across all locations, enables sharing of best practices and builds on existing activities. It takes a holistic view of wellbeing and identifies four key areas for ensuring motivated and healthy employees. These are health, job engagement, competence and work-life balance.

Borealis conducts regular workplace health surveys, which cover every location in the Group every five years. These surveys identify, evaluate and document the current standard of the working environment in both operations and offices to establish a base for further improvement and to prioritise an action plan. Their primary focus is to prevent occupational health risks, occupational illnesses and accidents. The health surveys also put a considerable focus on the psychosocial aspects of work and the work-life balance.

Activities 2021

Protecting Employees from COVID-19

In 2021, preventing employees from becoming infected with COVID-19 remained a top priority (→ COVID-19 Response, p. 20). National regulations were always strictly followed and measures to protect against COVID-19 – such as social distancing, use of face masks, hand hygiene and working from home for those who can – remained in place. Some of the Group's locations also provided COVID-19 vaccinations to employees, where this was feasible.

Achieving ISO 45001 Certification

Borealis received ISO 45001 certification after a successful audit, without any non-conformities being identified. The ISO 45001 standard helps to further improve the Group's occupational health & safety performance and demonstrates its commitment to safety.

Safety Training

Two new virtual training modules on the Life Saving Rules were rolled out across the entire organisation. These modules are based on game-learning, which increases knowledge retention compared to standard classroom training thanks to its interactivity and enjoyable elements. E-learning was also a good alternative to classroom training, which could not take place due to COVID-19 restrictions. In addition, senior leaders trained local management on effective field leadership.

Group-wide Safety Day

The fourth Group-wide Safety Day was held in all locations under the banner "Safer Together".

Enhancing Safety in Fertilizers, Melamine and TEN

In the Fertilizers, Melamine and TEN organisation, a safety boost programme was launched to improve performance by implementing local and Group initiatives. More than 60 initiatives have been created to reinforce the safety skills and mindset of employees. In addition, a safety perception survey has been launched to assess the business's safety culture and to define an action plan for improvement in 2022.

Performance 2021

Total Recordable Injuries (TRI) per million working hours has been a Borealis Group Scorecard KPI for many years. TRI are those that require medical treatment, restrict the work an employee is able to do or result in lost working days. Both Borealis' employees and contractors are tracked.

From 2021 onwards, Borealis adopted OMV's TRI criteria, which are based on the reporting guidelines from IOGP (International Association of Oil & Gas Producers). These criteria are more stringent than those Borealis previously used and would now, for example, classify an injury which requires only one stitch or results in a lost working day without any medical treatment as a TRI. This has resulted in higher TRI figures for 2021 compared to previous years, which are calculated under the former methodology.

Borealis has set an ambitious target of a TRI of 1.3 or less and continuously works towards zero TRI.

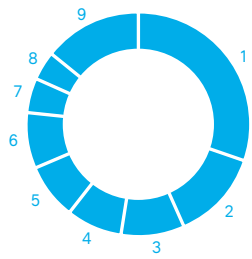
The TRI criteria were changed in 2021 to bring them in line with OMV's Health, Safety, Security and Environmental (HSSE) incident classification and reporting, based on the standards by the International Organisation of Oil and Gas Producers (IOGP). When the TRI rate for 2020 is also calculated according to the new criteria, the following comparison can be made: the overall Borealis' TRI rate was 2.3 in 2021, compared with 3.9 in 2020. The TRI rate for Borealis' employees was 2.3 against 3.8 in 2020, while that of its contractors was 2.2 compared to 4.2 in 2020.

In Fertilizers, Melamine and TEN, a major turnaround was performed in Grand Quevilly, France, without any serious accident classified as a TRI.

Data analysis showed that hands and fingers remain the main body parts harmed in accidents and that the most frequent incidents (13 out of 46) are slips, trips and falls.

The sick leave rate is another important occupational health indicator. In 2021, the sick leave rate was 3.7% compared to 3.6% in 2020.

Fig. 7: **Part of the body harmed between 2019 and 2021** [1)]



1. Hand, finger, wrist 30%
2. Leg, knee 13%
3. Arm, elbow 10%
4. Foot, ankle, toe 8%
5. Neck, shoulder 8%
6. Eye 8%
7. Face, mouth 5%
8. Back 4%
9. Others 14%

1) Analysis of 1,260 injuries between 2019 and 2021

Outlook

Occupational health & safety remains the number one priority for Borealis and for 2022 the Group has identified seven primary focus areas. These are to:

- continue to align Group HSE procedures and processes with OMV;
- improve contractor HSE performance;
- evaluate and update the Life Saving Rules;
- develop and roll out HSE training;
- provide refresher training in social psychology for front-line leaders;
- roll out the cloud version of the incident management database that Borealis uses across Polyolefins and Hydrocarbons & Energy, to align with OMV; and
- maintain a high focus on COVID-19, in order to protect employees from infection and ensure business continuity.

Fig. 8: **Health & Safety performance indicators 2017–2021** [1)]
See detailed background explanation of the performance in the respective section of this chapter

Issue	Definition	2021 [2)]	2020	2019	2018	2017
TRI Rate	Per 1 mn hours worked					
a. Old definition		–	1.7	1.6	1.3	1.1
b. New definition [2)]		2.3	3.9	3.4	–	–
TRI Rate Borealis	Per 1 mn hours worked					
a. Old definition		–	1.8	1.3	1.1	0.9
b. New definition [2)]		2.3	3.8	3.3	–	–
TRI Rate Contractors	Per 1 mn hours worked					
a. Old definition		–	1.3	2.6	1.8	0.3
b. New definition [2)]		2.2	4.2	3.6	–	–
Fatalities	Number	0	0	1	0	0
Fatalities Borealis	Number	0	0	0	0	0
Fatalities Contractors	Number	0	0	1	0	0
Fatality rate	Per 100 mn hours worked	0	0	5.6	0	0
Fatality rate Borealis	Per 100 mn hours worked	0	0	0	0	0
Fatality rate contractors	Per 100 mn hours worked	0	0	19.7	0	0
High-consequence work-related injuries	Number	3	6	0	2	2
High-consequence work-related injuries Borealis	Number	2	5	0	0	2
High-consequence work-related injuries Contractors	Number	1	1	0	2	0
High-consequence work-related injury rate	Per 1 mn hours worked	0.15	0.31	0	0.11	0.11
High-consequence work-related injury rate Borealis	Per 1 mn hours worked	0.16	0.40	0	0	0.17
High-consequence work-related injury rate Contractors	Per 1 mn hours worked	0.13	0.15	0	0.37	0
Hours worked	Hours (thousand)	20,466	19,260	17,823	17,903	18,687
Hours worked Borealis	Hours (thousand)	12,548	12,532	12,748	12,484	11,998
Hours worked Contractors	Hours (thousand)	7,918	6,728	5,075	5,419	6,689
Sick leave rate	% of total hours worked	3.7	3.6	3.4	3.6	3.3

1) Suppliers of raw materials, chemicals, additives and other commodities and hauliers are excluded from the TRI statistics; Ecoplast Kunststoffrecycling GmbH, mtm plastics GmbH and mtm compact GmbH are excluded from the sick leave rate, incident action completion rate and response rate on process safety incidents; DYM Solution Co., Ltd. is excluded from all KPIs. //
2) Definitions have been adjusted in 2021 to be aligned with OMV definitions. A comparison to previous years is therefore not possible (→ see Perfomance 2021, p. 56).

Definitions

Total Recordable Injuries (TRI): Accidents resulting in absence from work, the need to do a different type of work or any other case in which medical treatment is required. The TRI criteria have been aligned with OMV Group and have therefore become stricter since this year: this now also includes, for example, an accident which resulted in a single lost day of work without any medical treatment, or an incident which resulted in an employee requiring a single stitch. The rate is calculated as the number of accidents per million working hours. Borealis' employees and contractors working on the Group's premises are included in this calculation.

High-consequence work-related injuries: High-consequence work-related injuries are split between:
– Fatalities
– Other injuries from which the worker cannot recover (e.g. amputation of a limb), or does not or is not expected to recover fully to pre-injury health status within six months (e.g. fracture with complications)

The definition of high-consequence work-related injury uses recovery time instead of lost time as the criterion for determining the severity of an injury. Lost time is an indicator of the loss of productivity for an organisation as a result of a work-related injury; it does not necessarily indicate the extent of harm suffered by a worker. Recovery time, in contrast, refers to the time needed for a worker to recover fully to pre-injury health status.

Sick leave rate: The sick leave rate indicates the amount of time employees were absent from work due to sickness or injury. The overall sick leave rate is calculated as a percentage of the total number of planned working days in the current year.

Health & Safety: Process Safety

Goals 2021	Key Achievements 2021
Continue to develop standardised safeguards for similar scenarios, to ensure an adequate level of safety for all locations and across all business units	Standardised guidance on process hazard assessments, defined in the relevant network for Polyolefins (PO) and Hydrocarbons (HC) and in the Process Safety network for Fertilizers, Melamine and Technical Nitrogen Products (TEN).
Roll out a process safety awareness-boost programme, including the definition of five process-safety rules	Rolled out the process-safety rules and Process Safety Leader's Handbook, and trained 1,500 people.
Conduct a Quantitative Risk Assessment (QRA) for the cracker and aromatics plants in Porvoo, Finland	The Porvoo cracker and aromatics QRA was started and the QRA for Schwechat, Austria, was updated to a new standard and for new projects.
Develop a Safety Boost programme in Fertilizers, Melamine and TEN	Safety Boost programme developed and monitored on a regular basis.

Borealis processes large quantities of flammable and/or toxic materials under high pressure and temperatures, which, if not handled properly, could lead to process safety incidents. In a worst-case scenario, leaks, fires or explosions could cause fatalities, both inside and outside Borealis, as well as major environmental impacts. In addition, this could lead to disruption of supply to customers and financial costs. It is therefore of the utmost importance for Borealis to invest in process safety and to properly design, maintain and operate its plants.

The Seveso Directive is the main EU regulation dealing with the control of onshore major accident hazards involving dangerous substances. In line with this directive, Borealis works closely with national authorities and emergency organisations to ensure the safe operation of its plants and maintain a high level of preparedness in case of incidents. The Group also actively supports industry-wide efforts to enhance process safety, as a member of the European Process Safety Centre.

To reach Borealis' objective of achieving zero accidents, the Group put in place the Goal Zero programme. The programme covers both occupational health and safety and process safety, and is a key deliverable of the Group's Sustainability Strategy. As Borealis employees are encouraged to see Goal Zero as a journey to be taken together, the programme helps establish a collective health and safety mindset (→ chapter Occupational Health & Safety, p. 54).

Organisational Structure

The Group Process Safety department has developed a process safety management system that enhances risk identification and mitigation. The Group policies that are relevant to Process Safety are the Risk Management Policy and the Responsible Care® Policy. The Risk Management Policy defines Borealis' risk management framework by providing principles, roles and responsibilities, and guidelines for risk assessment, mitigation and reporting. The policy aims to ensure the implementation of sound risk management practices at all levels across the Group. The Responsible Care Policy statement sets out the guiding principles for the Group-wide implementation of Responsible Care at Borealis (→ chapter Corporate Governance, p. 113).

The Executive Vice President (EVP) Base Chemicals and Operations chairs the Group-level Process Safety Committee. The Committee's members are directors and departmental leaders from all of the relevant operational streams: Group Health, Safety, Environment & Quality, Manufacturing Excellence, Operations Polyolefins and Operations Hydrocarbons and Project & Expert Support. Each production location also has its own health, safety and environment (HSE) Assurance Team, chaired by a nominee appointed by local management. Its members come from different areas within the location, to ensure cross-learning and a link to Group developments.

The Process Safety Committee (for PO and HC) and HSE Assurance Teams meet regularly to oversee Borealis' process safety performance and programme, steer the Group's process safety Goal Zero roadmap, review progress and provide guidance on priorities, key activities and performance measures. Priorities are identified based on reoccurring or severe incidents, leading to a programme being launched by multifunctional teams to improve performance. These teams determine best practice and roll it out in the locations, with support and supervision from Group Process Safety. Group Process Safety also takes an active

role in resolving challenges for Borealis' growth projects, by providing its expertise in an early stage study.

Borealis' joint venture Borouge has its own process safety network and Borealis shares best practice in three areas: learning from incidents across borders, defining the minimum process safety design requirements for new plants and setting minimum competence levels and education programmes related to process safety. Borealis' Process Safety chief engineer is leading Pre-Start Up Safety Reviews for new projects and large turnarounds in the Group's joint ventures.

The Group is an active member of the European Process Safety Centre, sharing lessons from incidents and supporting process safety developments. The Group also takes part in a number of forums related to process safety, such as the High Pressure Safety Conference, Fertilizers Europe, the European Ethylene Producers Conference and the European Chemical Industry Council (CEFIC) Plant & Process Safety Network. In addition, the Group exchanges information with other companies to assess the best technical solutions for preventing and mitigating the escalation of major scenarios.

Activities 2021

Borealis undertook a wide range of activities during 2021, which were designed to further improve its process safety. In particular, the Group:

- defined standardised scenarios and/or safeguarding concepts for the installation of main equipment;
- defined, rolled-out and provided training on the five Process Safety rules and re-issued an updated Process Safety Handbook for leaders;
- developed Process Safety competency, despite the limitations caused by COVID-19, by conducting Process Safety in Design Training and Hazard Study Leader Training, as well as rolling-out Process Safety basics e-learning, which was shared by OMV;
- started the QRA for Porvoo HC, reviewed and followed up the QRA at Stenungsund, Sweden, HC, from last year and initiated an update of the QRA in Schwechat, Austria, to be used for the layout and siting of projects;
- published and began the roll-out of a new instruction for irreversible line breaking. Irreversible line breaking means breaking of the primary enclosure using invasive methods that cannot be reversed, for example, through drilling or cold or hot cuts in pipelines or other equipment; and
- developed a Safety Boost programme, to improve safety performance by implementing local and Group initiatives.

Borealis Blue Audits are an internal audit of a location's HSE systems and requirements. These were conducted in Taylorsville (North Carolina), Rockport (New Jersey), Beringen (Belgium), Grand Quevilly (France) and the Linz catalyst plant and Innotech in Austria. Four audits were also done on internal and external Hydrocarbons logistics installations.

Borealis' insurance brokers conducted four follow-up surveys during the year. Due to COVID-19, no major surveys were conducted. All of these audits reassured the Group's insurance brokers that the Group has a well-managed process to prevent and limit the impact of incidents.

Based on lessons from the fire in 2020 at the Stenungsund cracker, Borealis rolled out a risk reduction programme, including elements such as Process Safety competence, enhancing the project hazard review process and initiating actions to reduce the risk landscape of the location, as well as rolling out a Group-wide assessment of the protection layers for large machines.

Performance 2021

Borealis uses a Loss of Primary Containment Pyramid tool (Figure 9) to support the monitoring of incidents, ensure they are investigated and that actions are completed in time to prevent reoccurrence.

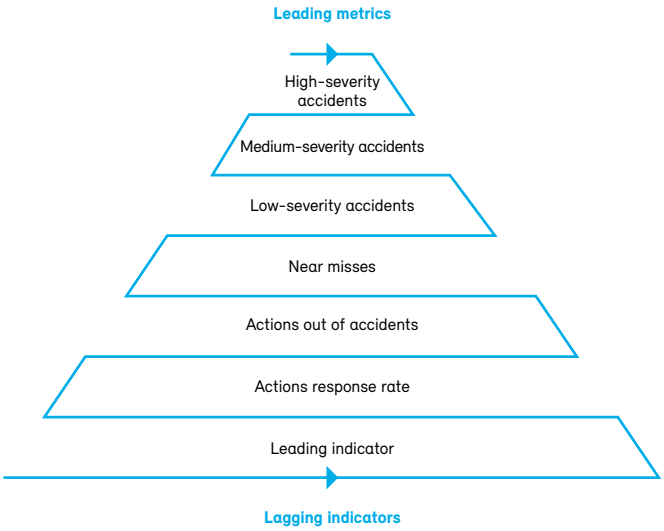
The pyramid includes the performance of the safety-critical processes designed to prevent accidents. This performance is measured using indicators such as the status of safety-critical inspections, the testing of critical interlocks and the closure of actions. The leading indicators are followed up annually through a "deep dive" into overall performance and review by the Process Safety Committee. As well as using its own process safety incident rating tool, Borealis also tracks process safety incidents according to CEFIC standards.

High-severity accidents would include, for example, a large fire or explosion resulting in injuries or fatalities, and significant business loss and impact on the environment.

Medium-severity accidents are those resulting in a loss of containment, with medium consequences for people, planet and profit. A medium-severity accident would normally result in limited possible injuries, easy-to-repair damage and a controllable environmental impact.

Low-severity accidents are those where substances are released but which result in a very low to zero impact.

Fig. 9: **Borealis' Loss of Primary Containment Pyramid**



In 2021, the Group's target was to have a maximum of 21 Tier 1 + Tier 2 accidents.

In 2021, 9 Tier 1 accidents were reported. 7 Tier 2 accidents and 774 low-severity Tier 3 process safety accidents were reported, along with 806 process safety near misses, of which 4 were process safety-related with high potential. As general process safety awareness increases due to Borealis' educational initiatives and campaigns, more low-severity accidents are being reported (→ chapter Occupational Health & Safety, p. 54). The process safety response rate measures the number of actions closed against the number due to be closed on a 12-month rolling basis. Including all actions of 2021, the response rate for December was 91.7% (2020: 92.7%). A total of 1,565 actions were implemented in response to high-, medium- and low-severity accidents.

In September 2021, a major incident occurred at the Borealis cracker plant in Stenungsund. An operator identified a leak from a furnace thermocouple during a field check round. The furnace was taken out of service but the leak caught fire and the cracker was immediately shut down. No one was injured.

Outlook

During 2022, Group Process Safety will focus on the following areas:

- developing an integrated Process Safety roadmap for PO and HC, to define current and upcoming process safety initiatives for Group Process Safety, Operations Polyolefins and Operations Hydrocarbons; and
- continuing the Safety Boost programme, with new initiatives at both location and Group levels. These may include a flare bow-tie assessment at all locations, the roll-out of an integrated global risk register specifically focusing on Process Safety, introducing an additional leading indicator to assure the quality of management of change, and upgrading the PHA-pro (Process Hazard Analysis) assessment tool, to facilitate the transparency and management of related hazard assessment actions.

The Group will also conduct internal health checks on Process Safety-related elements and a Process Safety review in the Borealis Blue Audit.

Fig. 10: **Process safety performance indicators 2017–2021**

Issue	Definition	2021 [1]	2020	2019	2018	2017
Response rate on process safety incidents	% actions completed on time	91.7	92.7	92.9	97.1	97.9
High-severity accidents (Tier 1)	Number	9	1	0	0	1
Medium-severity accidents (Tier 2)	Number	7	11	11	16	19

1) Definitions have been adjusted in 2021 to be aligned with OMV definitions. A comparison to previous years is therefore not possible.

Definitions

Response rate of process safety incidents: Process safety incidents of a certain severity or risk potential are recorded and investigated through root cause analysis. Corrective actions are defined to prevent re-occurrence. The response rate of process safety incidents is measured as the ratio (%) of corrective actions completed within a defined time period.

High-severity accidents: are Tier 1 accidents according to API RP754; **Medium-severity accidents:** are Tier 2 accidents according to API RP754.

Health & Safety: Product Safety

Goals 2021	Key Achievements 2021
Keep Borealis' registrations under the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) up to date	Submitted and followed a plan to update all active REACH dossiers by 2026, with 17 dossiers updated in 2021, one being a lead registrant dossier. Continued preparation to update three additional lead registrant dossiers.
Take all necessary steps to assure future compliance of Borealis' products with REACH-type legislation in Turkey, the UK, South Korea and Taiwan	Seventy-one Downstream User Import Notifications (DUIN) completed for UK REACH, four polymer of low concern (PLC) exemptions from registration received from South Korean authorities, Carbon Black registered in South Korea. Lead registrant role for two substances for Fertilizers, Melamine and Technical Nitrogen Products (TEN) in Turkey.
Install automatic global label management for Polyolefin products in Borealis locations	Implemented in all relevant EU and North American production locations, with all relevant labels created.
Follow-up on classification changes affecting Borealis products	Updated safety data sheets (SDSs) and label information for 54 products, due to classification changes of raw materials.

In October 2020, the European Commission published its chemicals strategy for sustainability towards a toxic-free environment (CSS). This is part of the EU's zero pollution ambition, which is a key commitment of the European Green Deal. Together with the EU Circular Economy Action Plan and the linked EU Sustainable Products Initiative, this aims to bring about a step change in product safety and sustainability in the EU. Preparations for turning the strategy's ideas into proportionate and enforceable legislation were ongoing throughout 2021 and will continue for several years. Borealis is taking part in the CEFIC-organised economic analysis of the impacts of the CSS on the European chemical industry and in public consultations on the Sustainable Products Initiative. In addition, the Group is represented in many CEFIC and Plastics Europe working groups dealing with the different aspects of these initiatives, including the ongoing revisions of REACH and the Classification, Labelling and Packaging (CLP) regulation.

Numerous aspects of the CSS have been embedded in Borealis' ways of working for many years. Borealis is committed to the principles of Responsible Care® and enforces high product stewardship standards, to ensure that its products are used safely at any stage along the value chain (→ Responsible Care Infobox, p. 118).

Borealis' Product Stewardship department is responsible for ensuring product safety and puts stringent measures in place throughout the entire life cycle. In addition, it gives clear instructions to the organisation to ensure that all products are legally compliant with chemical- and application-related laws in all the countries in which the Group operates and sells.

The Group also ensures that it understands and anticipates consumer and market needs and concerns, as well as the development of legislation concerning chemicals, their applications and the environment, so it can take necessary measures and ensure continued compliance. Borealis also sees the proactive substitution of chemicals of concern as an opportunity to gain market share and be the first to market with an alternative solution.

Making plastics more circular is one of Borealis' main goals. The Product Stewardship department supports the Group's work to maintain product safety while using mechanically recycled post-consumer waste. A defined mix of testing and risk assessment, as well as looking at the waste stream and the sorting and cleaning processes, provides the basis of recycled products' compliance in different application areas.

Organisational Structure

Group Product Stewardship reports to the Director Health, Safety, Environment and Quality (HSEQ). The team assesses and approves incoming chemicals at Group level and ensures that products comply with general chemical legislation, such as REACH and CLP, as well as application-related legislation, such as food contact or healthcare applications. Product Stewardship activities at national

or location level, such as plant-level approvals of raw materials and managing compliance with national chemical laws, are handled by experts who are part of the locations' HSEQ organisations.

The Product Stewardship Council addresses chemicals of concern in a proactive way. It is chaired by the HSEQ Director and brings together experts from across the Group, including areas such as Product Stewardship, Sustainability, Ethics and Innovation & Technology, as well as all of Borealis' business sectors and operations. This range of competencies ensures holistic risk assessments that consider market needs, legal and technological requirements and stakeholder views.

Assessing Chemical Risks

The Group's hazardous chemicals strategy follows the precautionary principle of continuously assessing the risk potential of all substances used in Borealis' products to identify critical chemicals that need to be replaced by safer alternatives. The Group establishes a list of Substances of Concern (SoC) that is influenced by regulations such as REACH and customer and public perception.

The Product Stewardship Council assesses substances with the highest identified risk, selecting the substances to be evaluated using a proprietary ranking tool. These assessments enable Borealis to identify, mitigate and manage the risks posed by hazardous chemicals.

The Product Stewardship Council also updates the Borealis Banned Substances List of more than 250 substances and substance groups that the Group will not use. In 2021, 28 substances were added to the list, which is published on the Borealis website.

Borealis uses its Portfolio Sustainability Compass to assess the sustainability of its product portfolio. Product Stewardship assesses the Group's polyolefin products and innovation projects in two categories of the Compass: "Chemical hazard and exposure across the life cycle" and "Global regulatory trends", and follows up any finding, opportunity or threat. More information on the Compass can be found in → chapter Sustainability Management, p. 38.

Product Compliance

Borealis' product safety procedures cover the health, safety and environmental (HSE) aspects of a product throughout its life cycle, from raw material sourcing to its eventual recycling, recovery or disposal.

All new or modified products undergo mandatory HSE assessments and continuous monitoring, to ensure they are suitable for use in the countries where they are sold, and that they comply with all applicable legislation, including REACH. This regulation requires participants in the chemicals value chain to prove the safe use of chemicals. Over the last couple of years, the quality of REACH registration dossiers has been challenged by non-governmental organisations and some EU Member States. CEFIC has therefore established a REACH dossier improvement programme, which Borealis has signed up to and fully supports. The aim is to update all existing dossiers by 2026, with the Group's progress reported to CEFIC each year. Other relevant legislation and regulations include the Toxic Substances Control Act in the United States, the Globally Harmonised System (GHS) for the classification and labelling of hazardous chemicals, CLP, and, depending on use, any application-related legislation, such as the EU framework regulation on food contact materials.

As a consequence of REACH data generation, more chemicals are being classified as hazardous, which triggers reclassification and labelling requirements for Borealis' polyolefin products. In 2021, Borealis updated SDSs and label information for 54 products.

Borealis also closely monitors emerging legislation so it can anticipate and take measures to maintain its products' legal compliance. In line with the REACH principle of "no data equals no market", this is essential to sell any product worldwide. Borealis therefore incurs the significant costs of registration fees, data creation and external consultancy to ensure compliance.

In 2021, the main focus of these activities was to meet the DUIN deadline in the UK after Brexit and receive PLC exemptions for the REACH-type legislation in South Korea. Forty-seven substances were successfully DUIN-notified by Borealis UK Ltd before 27 October 2021. A further 24 substances for Fertilizers, Melamine and TEN were DUIN-notified by external service providers. PLC exemptions have been granted by the South Korean authorities for all polymers for which Borealis imports more than 1,000 tonnes per year into South Korea. The lower-volume polymers will follow in the coming years, before the respective registration

deadlines for the applicable volume bands. In addition, the only high-volume substance subject to the 2021 registration deadline, carbon black, has been successfully registered. To manage the increasing complexity of global labelling requirements, an automatic global label management tool has been rolled out to all relevant EU and North American Borealis production locations.

For Fertilizers, Melamine and TEN, there are two key regulations coming into force in the next two years. These are Regulation (EU) 2019/1009, laying down rules on making EU fertilizing products available on the market, and Regulation (EU) 2019/1148, on the marketing and use of explosives precursors. Implementation projects have been launched and followed up to ensure product compliance and explore potential opportunities.

Supporting the Group's Sustainability Journey

Borealis' activities regarding the circular economy and exploring sustainable feedstock result in new product safety and compliance aspects to consider and solve. Both existing and planned legal frameworks, for example, following the EU Commission's Green Deal, ask industry and brand owners to use post-consumer recycled (PCR) materials for their products. The Product Stewardship team is providing support by generating an overview of applicable legislation and available industry standards to produce a risk assessment and analytical testing strategy to be able to confirm compliance and the suitability of Borealis' Circular Economy Solutions portfolio.

Moving from fossil to renewable feedstock is another important aspect of the Group's sustainability journey. Using this type of feedstock from animal and agricultural waste, however, raises other product safety challenges that needed to be tackled. After a thorough analysis of the related aspects, the messages on Kosher, Halal, animal origin, genetically modified organisms and vegan status have been revised in the statement on raw material origin for the PO products concerned.

Controlling and Approving Raw Materials

Before they are approved for use, all incoming chemicals used in Borealis' products are assessed using a thorough incoming material process. Group Product Stewardship performs an initial assessment to ensure legal compliance. Product Safety teams in the countries where Borealis operates then perform additional assessments at each plant, to ensure the chemical meets plant-specific requirements and complies with national or community related legislation. The raw material approval package must contain a signed specification, up-to-date SDSs and all relevant information as laid down in the Borealis Raw Material Questionnaire. The approval package needs to be reviewed every three years. In 2021, following requests from suppliers, the new component material category was assigned for all fertilizer raw materials, according to the new fertilizer regulation.

Once materials are approved for purchase, they are subject to Borealis' quality control to ensure they continue to comply with the agreed material properties.

All materials are documented based on Borealis' knowledge of the exact composition of the raw material and on detailed information about the material's hazardous constituents. Proper documentation of the raw materials used is a key element of high-quality Borealis product compliance statements, such as SDSs, application-related statements (such as medical use, food contact and drinking water) and other statements, such as on raw materials' origin.

Borealis also regularly audits its raw material suppliers for compliance with, for example, their legal and hygiene requirements. The Group requires its suppliers to provide documentation for each raw material and to keep it up to date, including the information required by national chemical inventory control laws, the CLP and REACH. This enables Borealis to issue the respective SDSs for its customers. In addition, Borealis' production sites are subject to frequent external audits.

Microplastics

Microplastics are found in the environment, our nutrition and the human body. Once in the environment, microplastics do not biodegrade and tend to accumulate, unless they are specifically designed to biodegrade in the open environment or salt water. They are often mistaken for food by birds and turtles, and swallowed particles can lead to injuries or starvation.

In its 2019 report on microplastics in drinking water, the WHO concluded that "no reliable scientific information available today suggests a potential human health risk associated with exposure to microplastics".

However, research on microplastics is complex and in its infancy and a lot remains uncertain. Scientists agree that today's evidence provides sufficient grounds for genuine concern. SAPEA concludes that, if microplastic pollution is left unchecked, business-as-usual would lead to concentration thresholds being exceeded in the near future and the occurrence of widespread risk within a century.

As it is not possible to completely remove microplastics once they are in the environment, the priority is to prevent plastics leaking into the environment in the first place. To develop effective and efficient solutions, more sound scientific knowledge is needed about the source, fate, persistence and effect of microplastics. Borealis has therefore installed a cross-functional Microplastics Issue Team, which closely follows scientific knowledge generation, evaluates emerging studies and collaborates with value chain partners and industry associations in the development of new studies.

For example, Borealis actively contributes to the EU-funded CORNET (COllective REsearch NETworking) project, microplastics@food, which is investigating the presence of microplastics in food. Initiated by the Österreichisches Forschungsinstitut für Chemie und Technik (OFI) in Vienna, the project is run by a consortium organised by the Food Cluster of Lower Austria, along with several industrial and academic partners.

In 2021, Borealis, MAM Baby and OFI Vienna initiated a study on microplastics released from baby bottles. The conclusion was that the microparticles detected in the bottle were a result of the production process and after washing and cleaning these could be removed completely.

Borealis also proactively engages in working groups, along with Plastics Europe and CEFIC. The Group's experts contribute to CEFIC's Microplastics Issue Team, as well as to Plastics Europe's Microplastics Strategic Group, Operation Clean Sweep Taskforce and Microplastics Science Group.

Product Stewardship has added instructions on how to avoid accidental release to the environment to all product safety documentation, such as SDSs and Product Safety Information Sheets (PSISs) issued from October 2020 onwards.

Stakeholder Engagement

Borealis communicates with its stakeholders on Product Safety through a wide range of channels. The Borealis website allows anyone to find information about the Borealis Banned Substances List. The website also includes examples of successful substitutions of hazardous chemicals and some position statements regarding "hot topics". Borealis' Polyolefin customers can download SDSs, PSISs and other general or application-related compliance statements from the Borealis website or the MyBorealis customer portal.

When product modifications may influence customers' safety or require additional testing of finished articles, Borealis informs customers or authorities in due time before it makes the modifications. Borealis also informs customers in advance when legislative changes have consequences for them. For example, customer letters were sent out in October 2021 to inform them about classification and labelling changes effective from March 2022.

In addition, Borealis offers training and education to customers. Sharing Borealis' expert product safety knowledge with value chain partners makes an important contribution to helping customers continuously meet the highest product safety and quality standards.

Collaboration in the value chain is also instrumental to mechanical recycling. Together with customers, Borealis is defining the boundaries to guarantee the safety of PCR plastics in different applications, as no established standards are available yet.

In Fertilizers, Borealis offers education and awareness activities for farmers. This informs them about proper use of mineral fertilizers and how to avoid pollution of groundwater or soil.

Borealis actively participates in industry associations and standardisation groups to stay at the forefront of regulatory and public requirements (→ chapter Public Affairs, p. 46). The Group is an active member of the Product Stewardship teams at CEFIC, Plastics Europe and related national organisations. The Group works closely with its own experts, customers and suppliers, and engages in experience exchange at REACH conferences and other activities. As a member of Fertilizers Europe and related national associations, Borealis takes part in discussions on draft regulations and their applications. In 2021, the relevant topics included details of the new fertilizer regulation and its guidance on labelling.

During 2021, the Group took part in an information exchange with the Federal Institute for Occupational Safety and Health in Germany (BAuA), after participating in a public consultation on the Regulatory Management Option Analysis for Melamine. The aim of the outreach was to provide information on the safety of the main use of melamine as a monomer for resin production and that this use should not be restricted or banned if melamine is identified to be a substance of very high concern (SVHC).

Outlook

The Group's product stewardship objectives are to:

- support Borealis in maintaining its position as a leader in regulatory compliance, with a special focus in 2022 on implementing the long-awaited amendments to the food contact regulation for plastics;
- be an active stakeholder in the shaping of regulatory changes implementing the EU's Chemical Strategy for Sustainability;
- execute the agreed EU REACH dossier improvement plan by 2026;
- drive sustainability, by minimising potential hazards and risks associated with Borealis' portfolio;
- continue to implement emerging legislation globally, such as chemical inventories and registration, and application-related legislation, with a special focus in 2022 on preparing for 50–80 registrations in Turkey and the UK, which are coming up in 2023;
- provide regulatory support for the implementation of the circular economy in the fields of mechanical and chemical recycling, and for the use of renewable feedstock; and
- extend regulatory service to Borealis' growth projects in the US and South Korea.

Circular Economy

Goals 2021	Key Achievements 2021
Create innovation step change in advanced mechanical recycling	Opened an advanced mechanical recycling demonstration line and made the first products commercially available.
Accelerate chemical recycling technology developments and broaden asset base	Deepened cooperation with OMV around chemical recycling. Concluded off-take agreement and investment in innovative recycling solutions provider Renasci. Launched feasibility study for chemical recycling operations in Stenungsund, Sweden.
Launch innovative solutions for customers that advance the circular economy	Launched over ten circular products (up from five last year), including monomaterial solutions, Borcycle™ M, Borcycle™ C and The Bornewables™. Started sales in reuse applications.

Within the linear economic model, plastic products are made, used and eventually disposed of. Continuing with this model will lead to more plastic waste and environmental pollution, while putting pressure on the planet's limited resources.

The solution is to transition to a circular economy, where dependence on fossil feedstock is reduced and plastics are reused, recycled and/or made from renewable feedstock. A circular economy decouples economic growth from resource constraints, while reducing the leakage of waste into the environment, in particular the oceans, as well as to landfill. The circular economy will also reduce global warming, since greenhouse gas emissions of products will be lowered by using mechanical and chemically recycled material instead of virgin feedstock.

The creation of a truly circular economy also has wider implications. It will provide economic benefits to society by reducing the significant financial burden of ineffective waste management systems and pollution management, and it will create new business opportunities and employment at various stages of the value chain.

The circular economy is one of three focus areas in the Group's Sustainability Strategy, alongside Energy & Climate and Health & Safety, all of which are important pillars in the Borealis Strategy 2035. In addition to the environmental and social benefits outlined above, the Group sees the circular economy as a business opportunity which will support its growth ambitions. Borealis is therefore working towards offering an alternative to the linear make-use-dispose economy. The Group already has a growing circular economy product portfolio, under the Borcycle M, Borcycle C and The Bornewables brands.

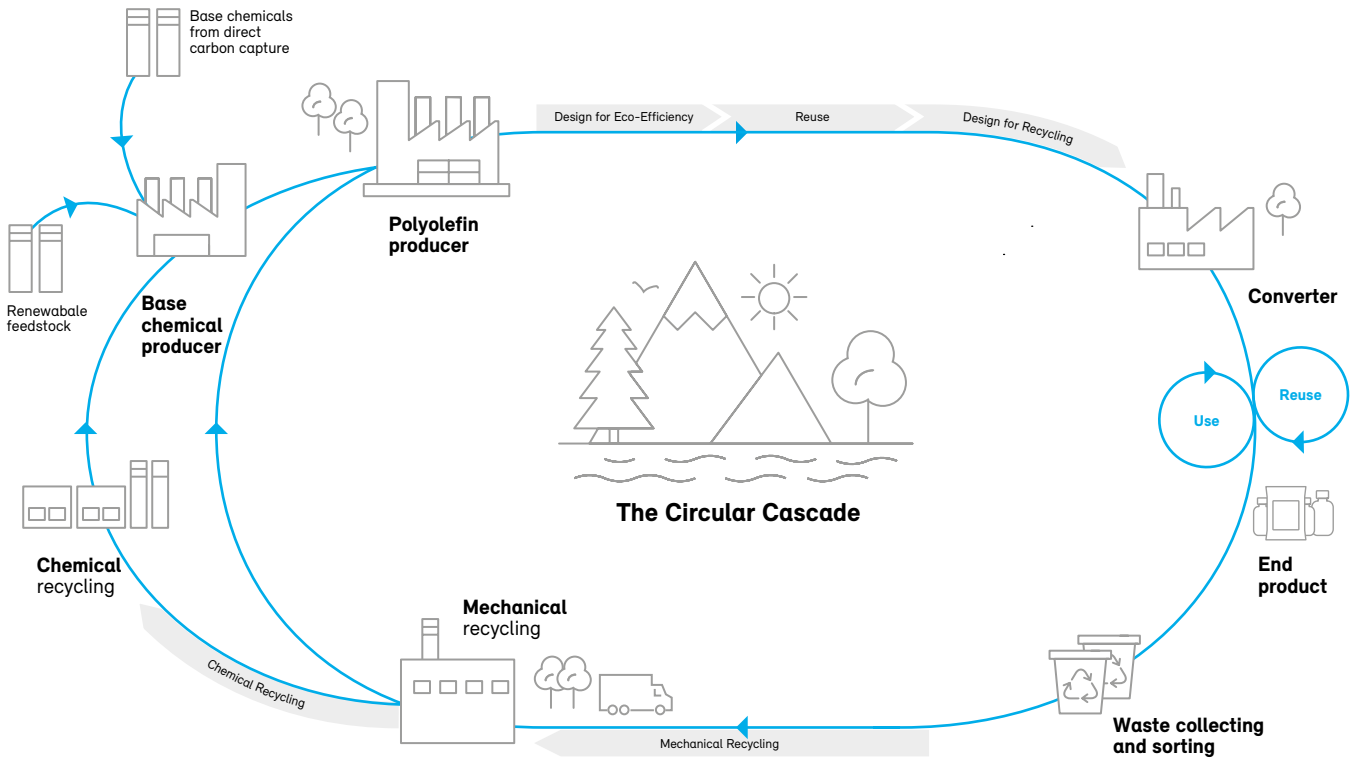
Organisational Structure

To accelerate its transformation to a circular model, the Group has a dedicated department called Circular Economy Solutions and New Business Development. This group leads the execution of Borealis' Circular Economy strategy, around several thematic project focus areas, such as chemical recycling or design for recyclability, as well as supporting all other Borealis business areas in the industry-specific transformation.

This setup enables Borealis to constantly learn and push innovation boundaries, while the business grows with customer-centric circular solutions, satisfying today's needs. The Circular Economy Innovation Studio in Borealis' Innovation Headquarters in Linz, Austria, remains the Group's spearhead for technology and innovation.

As a consequence of the OMV Group acquiring a majority holding in Borealis, the companies have joined forces to expedite the transition from a linear to a circular economy. Several circular economy areas, for example, chemical recycling, are now being jointly developed.

Fig. 11: **Borealis' integrated approach is embodied in the Circular Cascade Model**



To transition to a truly circular and carbon-neutral economy, a variety of solutions will be required to keep products circulating at their highest value, quality and utility over many lifetimes. Borealis therefore believes in using a full suite of carefully chosen technologies, in a complementary and cascading way, to achieve circularity through the following hierarchy:

- **Design for eco-efficiency** – this means adopting a design mindset from the start that sets the agenda for minimising the use of resources and maximising their lifetime value.
- **Reuse** – Borealis helps to maximise the lifetime for products already in circulation, by leveraging its knowledge of plastic use and processing, and by establishing systems and business models for reuse.
- **Design for recyclability** – product design is one of the biggest issues preventing plastic recycling. For example, flexible packaging often uses layers of different materials, which makes separating and recycling the plastic content extremely difficult. The challenge is to create packaging using only one (mono) material, while maintaining or improving performance. In the spirit of life-cycle thinking, Borealis therefore designs products that can be reused as well as collected, sorted and recycled, by making appropriate material and design choices.
- **Closing the loop** – first with mechanical recycling, to make products with the highest possible value and quality. Borealis continues to work with partners to develop newer technologies for mechanical recycling, with the objective of delivering products with near-virgin quality where possible, and with the lowest carbon footprint.
- **Chemical recycling** – Borealis also believes there is an essential role for chemical recycling, to complement mechanical recycling. Chemical recycling can valorise residual waste streams from mechanical recycling, as well as mixed plastic waste streams which would otherwise go to incineration or landfill.
- **Non-fossil feedstock** – ultimately, moving towards carbon neutrality, the use of non-fossil feedstock like renewables, and the development of carbon capture technologies for base chemicals production are essential parts of Borealis' hydrocarbon and energy strategy.

The Cascade Model in Action

Borealis' commercial and technology efforts are demonstrated through its circular cascade approach.

Design for Eco-Efficiency

The Borealis foam business is a prime example of eco-efficient polyolefin solutions. This business line is used in industries such as packaging, sports, transport and construction, and helps facilitate the transition to a circular economy as it is especially suited to ultra-lightweight foam applications while being fully recyclable.

Another example is the Borealis material used to manufacture lightweight, insulated, durable and recyclable packaging for single-use and reusable applications, utilising Bockatech's patented EcoCore® technology.

Reuse

To develop and advance Borealis' position on the topic of reuse, the Group has been engaging with start-ups and collaborative projects. For example, Borealis has been working with a Finnish start-up, Kamupak, to accelerate the use of reusable takeaway packaging in Helsinki, Finland. A three-month pilot began in April 2021 in around ten locations across Helsinki, during which time the environmental impacts of the KamuCup reusable cup were evaluated and data and feedback were collected, both from the coffee houses and restaurants and customers.

In Belgium, Borealis worked together with start-up Quppa to develop RFID identifiable cups and bowls, which are traced on a digital reuse platform developed by Borealis Digital Studio. This provides insight to Borealis and its partners on the optimal design of reuse systems and reuse products to ensure scalability. The data also serves to demonstrate the transparency of the reuse system performance versus the single-use system that it replaced.

Design for Recyclability

To promote design for recyclability, Borealis is actively promoting 10 Codes of Conduct for polyolefin packaging designers. These are being incorporated into assessment methodologies for recyclability, for example, in future modulated Extended Producer Responsibility (EPR) guidelines for packaging. Borealis also applies its innovation activities to offer alternatives to materials and material combinations that are not recyclable today. In addition, the Group collaborates with strategic value chain partners to expand its range of monomaterial solutions and is actively investigating the potential for reuse applications.

Closing the Loop with Recycled Materials

The Group's efforts to advance polyolefin recycling are closely linked to Borealis' work on design for recyclability. Borealis has committed to producing up to 350,000 tonnes of recycled plastics per year by 2025, which will help the Group to transition from a model based on the extraction of fossil resources towards one based on the circulation of materials. During 2021, Borealis has sold 91,000 tonnes of circular material (recyclates and bio-based material) while succeeding to build a production capacity of 100,000 tonnes. To support this transition, Borealis is building up its Borcycle portfolio (including both Borcycle M, based on mechanical recycling processes, and Borcycle C, using chemical recycling technology) to meet growing demand for high-quality recyclate that helps producers and brand owners to meet environmental and regulatory challenges. Borcycle stands for transforming plastic-waste streams into value-adding, high-performance and versatile solutions for demanding applications.

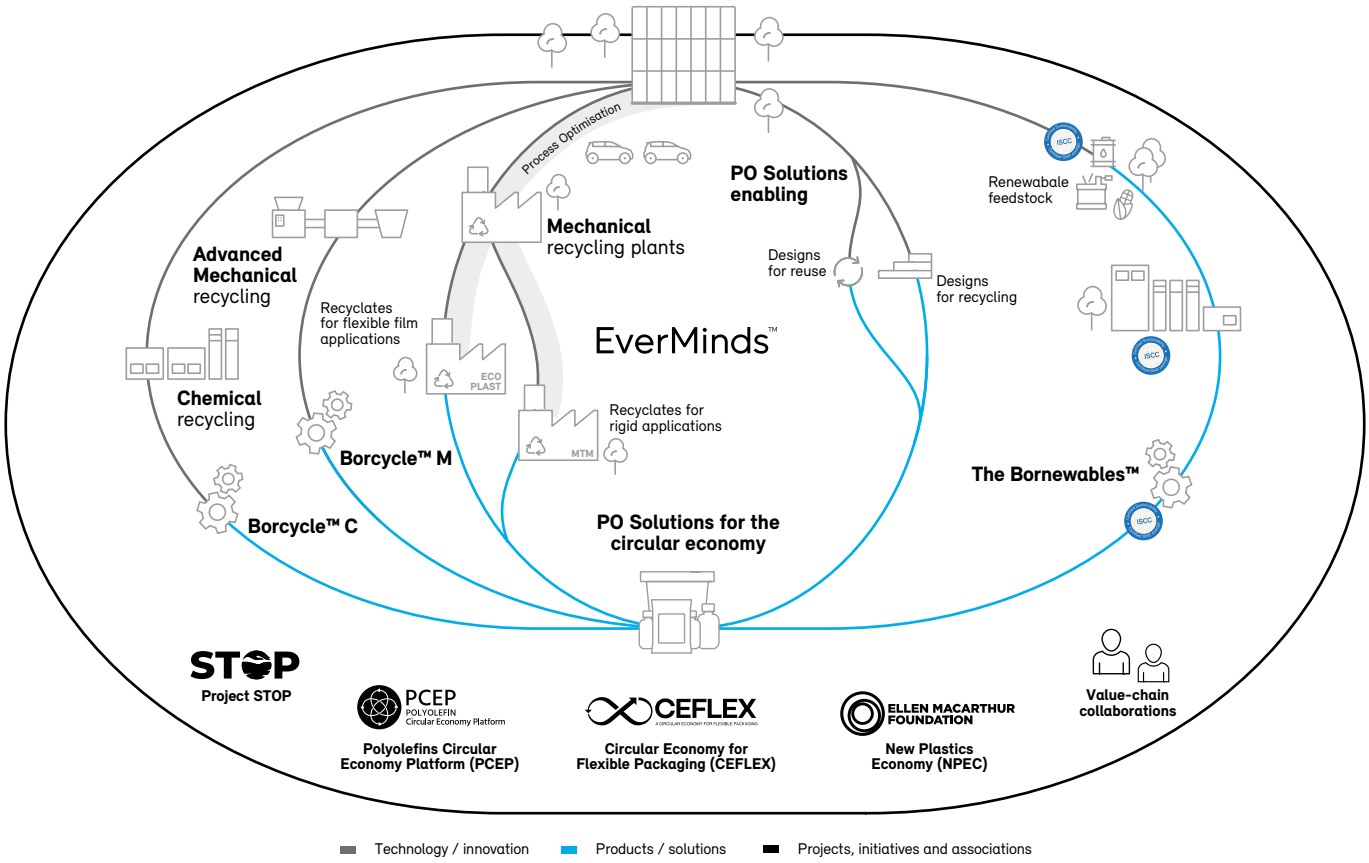
A key part of Borealis' Circular Economy Strategy is an advanced mechanical recycling business. During 2021, Borealis and its partners TOMRA and Zimmerman opened an advanced mechanical recycling pre-commercial line to demonstrate its vision and showcase its capabilities. New Borcycle M grades have been launched based on this platform during 2021 (→ section Activities 2021, p. 71).

Borcycle C provides an important alternative to energy recovery and is suitable for very demanding applications such as food contact materials. Borealis' cooperation with OMV and its proprietary chemical recycling technology is key to the Group's Circular Economy Strategy and is supplemented by cooperation with other value chain members, such as the Group's investment in the Belgian recycling company Renasci, which created the innovative Smart Chain Processing concept (→ section Activities 2021, p. 71).

During 2021, Borealis continued to commercialise its Bornewables portfolio. The locations in Kallo and Beringen (Belgium), Schwechat (Austria), Porvoo (Finland), Stenungsund (Sweden) and Burghausen (Germany) were ISCC (International Sustainability & Carbon Certification) PLUS-certified, giving Borealis six accredited European production locations. This gives the Group an even broader production base for mass balanced products, such as the Bornewables and Borcycle C product ranges.

With the new Life-Cycle Assessment published in 2021, Borealis demonstrated that Bornewables is especially suited to reducing carbon emissions. The assessment showed that greenhouse gas emissions of Bornewables polypropylene produced at Kallo and Beringen go beyond carbon neutrality and can be reduced cradle-to-gate (meaning all the steps from the sourcing of raw materials to products leaving Borealis' production site) by at least 120% compared to fossil-based polypropylene. This is possible while offering the same high-performance levels as virgin polyolefins and the ability to be recycled in the same way.

Fig. 12: **Overview of Borealis' Circular Economy landscape**



Collaboration with the Value Chain

To expedite the circular transition of the polyolefins industry, it is imperative that the entire value chain collaborates. A circular polyolefins industry implies that all products are designed for recyclability, while quality waste streams become increasingly available for recycling operations. Higher waste collection rates and further improvements to the efficiency of waste sorting are prerequisites to advancing the Group's recycling agenda. The willingness of converters and brand owners to value high percentages of recycled content in their products is equally important.

All Borealis initiatives which demonstrate clear progress in the circular economy are positioned under the EverMinds™ platform. The platform stands for accelerating and celebrating action and progress in the circular economy with partnerships. Borealis uses EverMinds to facilitate change and to unite value chain partners and other stakeholders. During 2021,

plans for value chain activities had to be adapted to the COVID-19 pandemic.

Waste management and the way plastic waste is collected in Europe is a key concern for the entire value chain, as all recycling technologies require the best-quality feedstock. Borealis strongly supports EPR, as a key vehicle for organising the collection and sorting of plastic waste and providing dedicated, ongoing and sufficient funding. Through EPR schemes, companies putting packaging on the market are required to pay for its collection, sorting and recycling after use. Borealis has therefore endorsed the Ellen MacArthur Foundation's position paper on EPR.

Implementing Borealis' circular economy vision entails a considerable redesign of the industry and several risks need to be mitigated. For example, health and safety standards in waste and recycling are not at the same high standards as the chemical industry. Product safety is another area where the recycling industry needs to raise standards and get closer to the standards of the established petrochemical industry. In addition, the overall attractiveness and profitability of the recycling business needs to increase through market incentives and legislative support. At the same time, the entire waste management and recycling industry must become more efficient.

Activities 2021

Launch of New Circular Products

During 2021, Borealis started to commercialise the first chemically recycled products, several renewable products and more mechanically recycled compound solutions. The Group also introduced new grades which enable the creation of monomaterial flexible polyolefin packaging, which are recyclable into high-quality new applications.

In 2021, Borealis launched over ten new products, with applications in the field of mobility, appliances, packaging and pipes.

Cooperation with Bockatech on Ecocore® Foamed Reuse Cups

Bockatech EcoCore® is a patented manufacturing technology that improves sustainability by creating lightweight, insulated, durable and recyclable packaging for single-use and reusable applications. The combination of Borealis' polypropylene material and Bockatech technology is empowering the creation of low-cost reusable food and non-food packaging. Examples of this cooperation include Borealis' own 'closestheloop' project, in which Borealis' Belgium operations switched from single-use cups for coffee vending machines to a reuse distribution, collection and washing service, which resulted in a switch from 1.3 million single-use cups per annum to 40,000 reuse cups and raw material savings of up to 70%.

In December 2021, Borealis announced that it has acquired a minority stake in Bockatech, further deepening the existing partnership between the two companies.

Borealis and Partners Open State-of-the-Art Sorting and Mechanical Recycling Plant

At the start of 2021, Borealis and its partners TOMRA and Zimmermann opened their state-of-the-art mechanical recycling demonstration plant in Lahnstein, Germany. The plant processes both rigid and flexible plastic waste from households and is the result of a partnership that marries chemistry with technology. Unlike many current recycling plants, it will produce the advanced solutions necessary for use in highly demanding plastic applications in industries such as mobility and consumer products. With high purity, low odour, high product consistency and light colour fractions, these recycled polymers will meet customer quality requirements across the value chain.

The purpose of the demonstration plant is to generate material for brand owners and converters to validate for use in their highly demanding applications. Technical success will set the groundwork for a commercial-scale advanced recycling plant.

Collaborative Project to Increase Supply of Chemically Recycled Feedstock

In April 2021, Borealis began a feasibility study for establishing a chemical recycling unit at its location in Stenungsund, Sweden. The aim is to secure an increased supply of chemically recycled feedstock for the production of more circular base chemicals and polyolefin-based products. The study is part-funded by a grant from the Swedish Energy Agency and is being carried out with Stena Recycling. It will evaluate the optimal technology for the chemical recycling unit and its integration with the cracker at Stenungsund. Stena Recycling will recover plastic waste and, after sorting to remove materials suitable for mechanical recycling, will deliver it to the new chemical recycling unit. Subject to a successful feasibility study and final investment decision, operations are expected to begin in 2024.

Partnership with Renasci to Jointly Develop Novel Recycling Solutions

To increase its chemical recycling offerings, Borealis has entered into a partnership with Renasci N.V., a provider of innovative recycling solutions and creator of the novel Smart Chain Processing (SCP) concept. The SCP concept is a proprietary method (EP patent application approved) of maximising material recovery to achieve zero waste. It is unique because it enables the processing of multiple waste streams using different recycling technologies, all under one roof.

At the newly built Renasci SCP facility in Oostende, Belgium, mixed waste is automatically selected and sorted multiple times. After sorting, plastic waste is first mechanically recycled and any remaining material is chemically recycled into circular pyrolysis oil and lighter product fractions, which are used to fuel the process. Sorted non-plastic waste is further processed using other technologies. At the end of the process, only 5% of the original waste remains, which is then used as filler in construction materials. The extremely efficient processing reduces the carbon footprint of these waste streams by more than 30%.

As part of the agreement, Borealis will source a projected 20 kilotonnes of circular pyrolysis oil annually from Renasci's Oostende facility and the Group also plans to purchase mechanically recycled material. Having acquired a 10% stake in the company, Borealis will collaborate closely with Renasci to evolve and scale up the SCP technology. This includes developing facilities which would source their feedstock entirely from household waste. The two companies also plan to identify and act on other promising investment opportunities in the circular economy sphere.

Emmi, Borealis and Greiner Packaging Partner to Create First Chemically Recycled Polypropylene Ready-to-Drink Iced Coffee Cups

Swiss dairy company Emmi has partnered with Borealis and Greiner Packaging to produce Emmi CAFFÈ LATTE drinking cups using chemically recycled polypropylene. Emmi is Switzerland's largest milk processor and has a goal to make all of its packaging 100% recyclable. It is also committed to promoting circularity, such as packaging that contains at least 30% recyclate by 2027. From September 2021, Emmi CAFFÈ LATTE will use at least 100 tonnes of plastic based on the recycled material each year.

The chemically recycled material used for the cup consists entirely of ISCC-certified material, on a mass balance basis. This provides transparency to consumers, enabling them to know that the product they are buying is based on this recycled material.

Greiner Packaging Produces First Cup Prototypes Made of Bornewables

By using Borealis' Bornewables portfolio, Greiner Packaging has for the first time incorporated renewable resources into the production of food cups made of polypropylene (PP), with in-mould labelling (IML) as the decoration technology. The Bornewables offer the same characteristics as virgin polyolefin materials, while boasting a substantially reduced carbon footprint, which can be up to 120% less than fossil-based PP.

The new prototype IML cups for dairy products are made of Bornewables monomaterial and were developed to be recycled as normal in conventional facilities, in line with the principle of design for recyclability. This is a great example of how the packaging specialists at Greiner Packaging take sustainability into account from the very start.

Making High-Quality Filter Material with Bornewables

Dutch PPE Solutions, a joint venture between VDL Groep and Royal DSM, produces high-quality medical face masks and filter material. As Borealis is a leader in meltblown PP materials and renewable polyolefins, Dutch PPE Solutions has partnered with Borealis, enabling it to make its filter materials with Bornewables and green electricity. This significantly lowers its carbon footprint, allowing it to deliver high-quality filter materials while minimising its climate impact.

Bornewables Physical Content Test Run

In July 2021, Borealis conducted a physical content test run of the Bornewables produced with measurable renewable content (via controlled blending) of bio-propane in the propane dehydrogenation unit in Kallo.

Since the successful test-run, Borealis is able to offer its customers Bornewables polypropylene with physical renewable content, which is fully measurable according to the C14 method for biogenic carbon content. This is in addition to offering mass balance for the manufacture of sustainable polyolefins.

Pioneering Digital Watermarks for Smart Packaging Recycling in the EU

Borealis is one of over 130 organisations representing the packaging value chain who have joined forces to assess whether a pioneering digital technology can enable better sorting and higher-quality recycling rates for packaging in the EU. The Group is a long-time partner of the "HolyGrail" project and joined the project's leadership team during 2021. The project will now take place on a much greater scale and scope, including the launch of an industrial pilot to prove the viability of digital watermark technologies for more accurate sorting of packaging and higher-quality recycling, as well as the business case at large scale.

Innovative Cooperation with On and LanzaTech

Shoe company On has partnered with Borealis and LanzaTech to create CleanCloud™, a sustainability initiative using carbon emissions to create foam for running shoes. On is the first company in the footwear industry to explore carbon emissions as a primary raw material for a shoe bottom unit as part of its move away from petroleum-based resources.

Technology from LanzaTech captures carbon monoxide emitted from industrial sources such as steel mills or from landfill sites. Once captured, these emissions enter a patented fermentation process, which converts the carbon-rich gas to liquid ethanol using specially selected bacteria. The ethanol is then dehydrated to create ethylene, which Borealis polymerises to become EVA (a copolymer of ethylene vinyl acetate), the versatile and lightweight material that On starts working with to create a performance foam for shoes.

Engaging with Value Chain Partners

During 2021, Borealis ran a series of nine webinars around sustainability and circular economy topics. The webinars were tailor-made for all industry clusters and were aimed at customers and value chain partners. Examples of the topics covered included Bornewables for use in appliances, healthcare, mobility and food packaging applications, as well as mechanical recycling for rigid and flexible consumer products and design for recyclability (DfR) in PE and PP flexible packaging. On average, each webinar had more than 500 registrations and an attendance rate of 50%.

Borealis also engages with value chain partners through industry groups. In 2021, Borealis retained its position of Steering Committee member in CEFLEX, the project to create a circular economy for flexible packaging in Europe, leading the value chain group of collection, sorting and recyclers. CEFLEX has over 175 members representing the entire flexible packaging value chain. It has established DfR guidelines specifically for small flexible packaging formats, which currently mostly end up in incineration.

Outlook

Borealis remains fully committed to advancing the development of a broader and more circular offering. The Group will continue to expand its range of circular solutions, based on a growing range of technologies. As true circularity can only be implemented in a joint effort, Borealis will develop these solutions in close collaboration with partners across the value chain towards more sustainable living.

In 2022, Borealis will focus on the commercial ramping up of its existing circular portfolio to continuously progress towards its targets. This includes further investments in the advanced mechanical recycling facility in Lahnstein, Germany, to increase recycled material capacity to move closer to the 350 kilotonnes target.

Borealis will also continue exploring alternate business models such as closed-loop systems, and has an aspiration to publish long-term targets for its circular transition journey.

Energy & Climate

Goals 2021	Key Achievements 2021
Achieve energy performance in Polyolefins (PO) of 1.30 MWh primary energy/tonne	Energy performance 1.30 MWh/tonne compared to target of 1.30 MWh prim/tonne
Achieve energy performance in Hydrocarbons & Energy (HC) of 4.17 MWh primary energy/tonne	Energy performance 4.12 MWh/tonne compared to target of 4.17 MWh prim/tonne
Achieve energy performance in Fertilizers, Melamine and Technical Nitrogen Products (TEN) of 1.12 MWh primary energy/tonne	Energy performance 1.17 MWh/tonne compared to target of 1.12 MWh prim/tonne
Achieve a percentage of energy from renewable sources (HC+PO only)	20% renewable energy contracted, towards the ambition of 50% by 2030
Start development of a comprehensive Climate Strategy	Refreshed climate strategy completed, but not yet approved by Borealis Supervisory Board at the time this report was finalised.

The evolution of industry is having a major impact on the natural greenhouse effect. Over the last century, the burning of fossil fuels, such as coal and oil, has increased the concentration of atmospheric greenhouse gases (GHG). The clearing of land for agriculture, industry and other human activities has also contributed to that increase. These changes to the natural atmospheric GHG composition are having major effects on the environment and society. For example, the earth will become warmer, more evaporation and precipitation overall will occur and the sea level will rise. Taken as a whole, the range of published evidence indicates that the net costs of climate change are likely to be significant and will increase over time.

The COP21 Paris Agreement calls on all countries to keep the global temperature increase to well below 2°C and to pursue efforts to limit the increase to 1.5°C above pre-industrial levels. At COP 26, which took place in 2021, countries made bold collective commitments to curb methane emissions, to halt and reverse forest loss, align the finance sector with net zero by 2050, accelerate the phase-out of coal and end international financing for fossil fuels, to name the key achievements. However, recognising the urgency of the challenge, ministers from all over the world agreed that countries should come back in 2022 at COP 27, to submit stronger 2030 emissions reduction targets with the aim of closing the gap to limit global warming to 1.5°C.

In this context, the European Union is committed to being the first carbon-neutral economy by 2050 and will therefore define its long-term GHG emission reduction strategy. This strategy is expected to transform all sectors of the European economy. The EU has already put a price on carbon emissions through the EU Emission Trading Scheme (EU ETS), which covers 40% of EU carbon dioxide emissions and aims to achieve a reduction in the quantity of emissions. With the Fit for 55 legislation published in July 2021, the European Commission has shown its commitment to expanding the scope of the EU ETS and driving GHG reduction to the next level.

As one of the largest and most diversified industries in Europe, and as a significant emitter of GHGs, the chemical industry plays an important role in helping to achieve long-term GHG emission reductions in a European and global context.

Organisational Structure

Borealis' governing body for addressing climate change is the Energy & CO_2 Committee. For the HC and PO parts of the organisation, it develops and implements energy and CO_2 emission targets, strategies and guidelines, and measures performance using key performance indicators (KPIs). The committee is headed by the EVP Base Chemicals and Operations, and comprises representatives from relevant businesses and functions. Within Fertilizers, Melamine and TEN, the Energy & CO_2 Committee is headed by the business's CEO. To align the energy management system across Borealis, a Group-level energy management team has a presence in each location.

The HC and PO organisation has set up a team to create a roadmap to reduce fossil-based CO_2 emissions that result

from industrial activities. The team evaluates Borealis' progress against its 2030 ambitions (see below) as well as technologies, business challenges and innovation, and reports to the Energy & CO_2 Committee. The team is led by the VP Hydrocarbon Operations and works closely with the Circular Economy team. In Fertilizers, Melamine and TEN, a GHG reduction task force has been set up to identify the full GHG reduction potential and to create a roadmap to achieve it.

Borealis' Commitment to Climate Neutrality

Climate change is arguably the biggest threat to humans on a global scale. Borealis therefore has a responsibility to reduce its carbon footprint, as well as its products' total life-cycle emissions. Climate change mitigation and economic success must go hand in hand to ensure that the innovations needed for global climate protection continue to be developed. Whilst it is essential to reduce emissions in the Group's operations, Borealis is also contributing to both avoiding and reducing value chain emissions during the life cycle of its product solutions.

Borealis can play a significant role in solving society's climate challenges by providing sustainable Polyolefin solutions. For example:

- society's conversion to renewable power needs a high level of interconnectedness in the electricity grid. Borlink™ technology ensures reliable power transportation from wind and other renewable energy sources → chapter Innovation, p. 99;
- Borealis' advanced photovoltaic films (Quentys™) optimise the production of renewable solar energy;
- plastics provide for efficient electric vehicle system components and reduce emissions in transportation;
- the Group is driving the circular economy to reduce end-of-life emissions from plastic waste by designing for recyclability, increasing recycled content or using chemically recycled feedstock → chapter Circular Economy, p. 67; and
- Borealis will reduce total life-cycle fossil emissions by using renewable feedstock → chapter Procurement of Feedstock, Electricity and Utilities, p. 124.

In addition, Borealis is fully committed to reducing the carbon footprint of its operations and to achieving climate neutrality by 2050 or sooner, and has developed a comprehensive climate strategy during 2021 that we will launch publicly during the first quarter 2022.

Borealis will achieve these goals by following three pathways:

1. sourcing renewable electricity to avoid emissions;
2. continuing to implement energy efficiency improvements and zero non-emergency flaring to reduce emissions;
3. driving innovation to find solutions to mitigate GHG emissions.

For each of these areas, Borealis has set the following goals in its journey towards climate neutrality by 2050 (or sooner):

- source 50% of electricity from renewable sources by 2030 to reduce indirect (Scope 2) emissions that are caused by electricity consumption;
- implement energy efficiency improvements equal to 20% of the absolute primary energy consumption in 2015, by 2030;
- to reach net zero for Scope 1 and 2 emissions, the Group will go beyond the targets set out above and is therefore exploring opportunities to handle emissions as they arise, for example, through carbon capture and storage and utilisation.

To make this transition possible, Borealis has developed robust internal pricing for CO_2 emissions in PO and HC. Together with the regulatory and policy framework, this will enable sustainable investments.

Borealis also works with partners along the value chain to reduce Scope 3 emissions that occur both upstream and downstream. A real step change can only be achieved through intra- and cross-sectoral cooperation.

The Fertilizers, Melamine and TEN business is committed to Borealis' goals on the journey towards climate neutrality by 2050. For example:

- roadmaps to reduce GHG emissions are being implemented;
- investments to improve energy efficiency are realised under the current capital expenditure framework;
- cross-industry partnerships for break-through projects in decarbonisation are being pursued and are part of EU funding schedules, such as in IPCEI (important projects of common European interest) on hydrogen, for the locations in Linz, Austria, and Ottmarsheim, France;
- a study of carbon capture and storage is being conducted with other companies to decarbonise hydrogen for ammonia; and
- the development of digital tools supports the needs-based and precise application of products by end users, thereby making more efficient use of resources.

Greenhouse Gas Emissions

In 2021, Borealis calculated its first corporate carbon footprint following the Greenhouse Gas Protocol, using 2020 data on Scope 1, 2 and 3 GHG emissions:

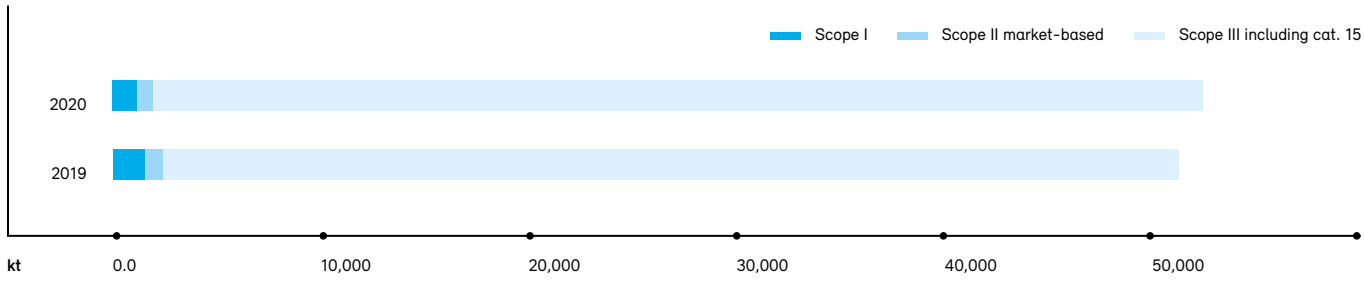
- The calculations include in Scope 1 and 2 all companies that are more than 50% owned by Borealis and where Borealis has operational control. Emissions of companies not under operational control or with less than 50% ownership are included in Scope 3.15 (investments).
- Borealis has taken 2019 as the base year, which will be adapted when needed according to the GHG Protocol accounting rules.

To calculate its emissions performance, Borealis uses a broad range of emission factors, which are a means to calculate the GHG emissions for a given source. Each EU member state has a national inventory of emission factors, which means that, for example, natural gas use in Austria would have the specific Austrian emission factor applied to it. Other emission factors are standard factors from scientific literature, from inventories or are measured by a certified laboratory. All EU ETS emission factors are permitted and approved by the relevant authorities.

Scope 1 and EU ETS

Scope 1 involves direct emissions originating from Borealis' own sites and include power and steam generation (before furnaces) and flaring. These make up a large part of Borealis' Scope 1 emissions. In 2021, Borealis produced 3,878 kilotonnes of EU ETS CO_2 equivalent emissions. This is less than the 4,050 kilotonnes in 2020 due to production reduction as a result of COVID-19 and unforeseen stops, primarily of ammonia plants. For 2021, Borealis has set a target to emit no more than 4,527 kilotonnes of EU ETS CO_2 equivalent emissions. Nitrous oxide (N_2O) emissions from nitric acid plants decreased to 750 tonnes in 2021, compared to 1,143 tonnes (ETS) in 2020, due to a reduction in nitric acid production of 162 kilotonnes and improvement of the N_2O catalyst.

Fig. 13: **Borealis HC and PO greenhouse gas emissions according to Greenhouse Gas Protocol for 2019–2021** [1)]



GHG emissions in kilotonnes (kt) CO_2e	2021	2020	2019
Scope I	1,547	1,180	1,569
Scope II market-based	n.a. [1)]	767	864
Scope II location-based	669	631	632
Scope III excluding cat. 15	n.a. [1)]	23,899	24,345
Scope III including cat. 15	n.a. [1)]	50,509	48,841

1) At the time of publication of this report, no final data is available for Scope 2 market-based and Scope 3 emissions in 2021.

Scope 2

Scope 2 involves indirect CO_2 equivalent emissions caused by Borealis' externally generated electricity consumption, external steam and energy supply that is purchased and brought into the Group's facilities from other sources. It is expressed as market-based or location-based emissions, as defined in the Greenhouse Gas Protocol (an international standard for the calculation of greenhouse gas emissions).

Scope 3

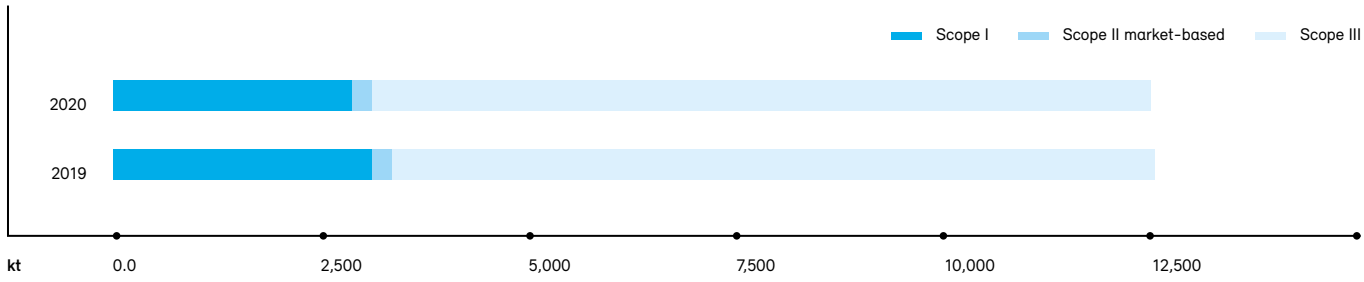
Scope 3 involves other indirect emissions in the value chain. For Borealis, the following Scope 3 categories according to the Greenhouse Gas Protocol are material and therefore included in the calculation:

- 1 Purchased goods and services
- 2 Capital goods
- 3 Fuel-and energy-related activities not included in Scope 1 or 2
- 4 Upstream transportation and distribution
- 5 Waste generated in operations
- 10 Processing of sold products
- 11 Use of sold products
- 12 End-of-life treatment of sold products
- 15 Investments

Not all categories are mature and significant for HC and PO and the Fertilizers, Melamine and TEN part of the organisation. Borealis will therefore only report categories 1, 2, 3, 4, 5, 10, 11, 12 and 15.

As Borealis transitions to being climate neutral, a big lever will be circular and bio-based material. Borealis has therefore opted to calculate Scope 3 category 12 (end-of-life treatment of sold products), based on the recycled and biogenic content of the products it produces. Taking this conservative but fully transparent approach, Borealis is assuming the burden of recycling and emissions in its own circular transition.

Fig. 14: **Borealis Fertilizers, Melamine and TEN greenhouse gas emissions according to Greenhouse Gas Protocol for 2019–2021** [1)]



GHG emissions in kilotonnes (kt) CO_2e	2021	2020	2019
Scope I	1,869	2,886	3,119
Scope II market-based	n.a. [1)]	237	237
Scope II location-based	181	189	192
Scope III	n.a. [1)]	9,363	9,176

1) At the time of publication of this report, no final data is available for Scope 2 market-based and Scope 3 emissions in 2021.

A major part of Borealis' Scope 3 emissions is in category 15 (investments). This includes Borealis' financial stake in Borouge, as a result of which 40% of Borouge's Scope 1 and 2 emissions are taken into account. Borouge's Scope 3 emissions are extrapolated from Borealis' Scope 3 emissions, excluding category 15. A similar approach is taken for Borealis' financial stake in Baystar™ (Texas).

The figures below are the outcome of the first assessment for HC and PO. Validation and verification of the data is ongoing.

Renewable Energy Sourcing

The 2030 renewable energy goal is an important part of the journey towards climate neutrality by 2050 or sooner. To achieve the 2030 goal of 50% renewable electricity, Borealis will use a combination of on-site investments where possible, as well as long-term contracts known as power purchase agreements (PPAs). The projects targeted are as close as realistically possible to the Borealis locations where the power is consumed. Borealis believes that more renewable power will be needed going forward if industries such as the petrochemical industry are to electrify further (→ chapter Procurement of Feedstock, Electricity and Utilities, p. 124).

Driving for Energy Efficiency

Energy consumption accounts for a significant proportion of Borealis' total costs and for around 55.2% of its GHG (ETS) emissions. Process emissions (emissions resulting from a chemical reaction) from ammonia production represent 37% of GHG ETS emissions and flaring losses and N_2O emissions represent a further 7.8% (→ chapter Environmental Management, p. 90).

Borealis has the ambition to implement improvements that reduce absolute primary energy consumption by 20% by 2030, against a 2015 baseline. The Group's Energy Roadmap sets out a sequence of different activities, starting with establishing a baseline. In the roadmap towards the ambition, HC and PO have realised energy savings of 4.5% (3,000 GWh) towards 2030, compared to the 2015 baseline.

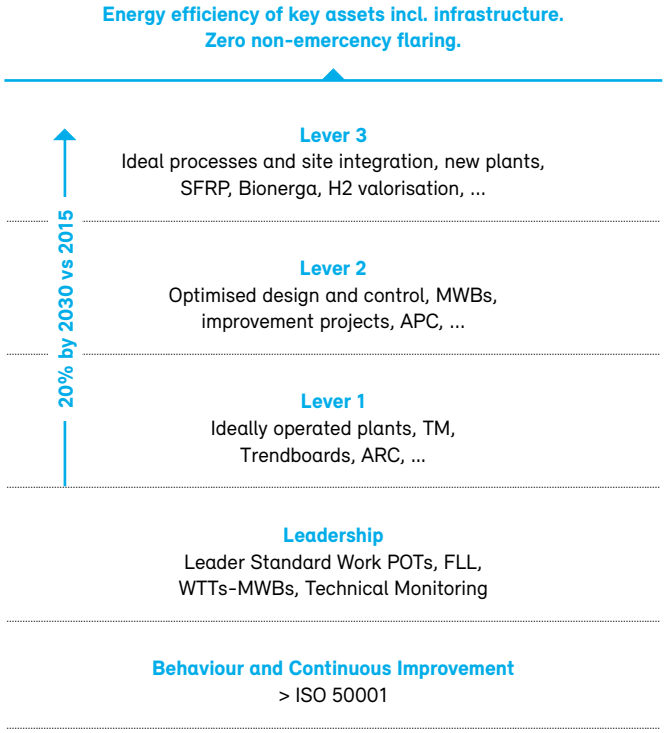
The baseline for any energy efficiency improvement is to implement and comply with ISO 50001, combined with continuous leadership engagement from key teams. Borealis' initiatives include energy teams at each production location that drive the location's energy planning process, increase awareness, act as a forum for energy issues and ensure ISO 50001 compliance.

To progress beyond this baseline, all Borealis locations run energy screening programmes every four years, often with third-party support, to evaluate their energy performance and identify improvement opportunities.

Actions to improve energy efficiency fall into one of three levels known as levers, which will deliver increasing optimisation. The three levels of actions are as follows:

- Lever 1: As a first step, Borealis is implementing tools to run its plants as optimally as possible, such as introducing an Energy Trendboard, which helps operators to continuously focus on energy consumption.
- Lever 2: Running plants most effectively requires continual optimisation of plant design and control, and the implementation of improvement projects to remove potential barriers to optimisation.
- Lever 3: Another way to increase energy efficiency is to implement new technologies during periodic production line revamps and to seek energy integration through industrial clusters.

Fig. 15: **Building blocks of the Energy Roadmap 2020+**



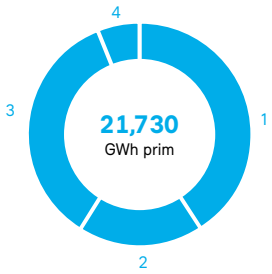
APC: Advanced Process Control // ARC: Advanced Regulatory Control // FLL: Front-Line Leader // MWB: Must Win Battles – high priority projects // POT: Plant Operational Excellence Team – management team of a plant striving for excellence // SFRP: Stenungsund Furnace Revamp Project // TM: Technical Monitoring // WTT: Winning Triangle Team: combined team of operation, business and innotech

Measuring Energy Consumption and Efficiency

Borealis' main sources of energy are electricity, heat (primarily from steam), natural gas and fuel gas. The Group documents, tracks and follows up on all sources of energy each month, for every location.

In 2021, Borealis' total primary energy consumption was 21,730 GWh, compared to 22,340 GWh in 2020. This represents a decrease of 610 GWh compared to the previous year. This was the result of lower production as a result of COVID-19 and unforeseen stops of cracker and ammonia plants. In total, 278 GWh of steam were sold. Data on all of Borealis' energy consumption is collected as it is metered, then converted into the equivalent in primary energy using the Group's environmental data management tool. This allows Borealis to summarise different energy sources using one consumption figure, enabling comparability across plants and production lines, and providing the Group with better information for identifying technological improvement opportunities. Figures 16 and 17 show the activities for which energy was used. Figures 18, 19 and 20 show the Group's energy intensity since it established its Energy Roadmap for each business unit.

Fig. 16: **Total energy consumption per source in 2021**



1. Electricity 41%
2. Natural gas 18%
3. Fuel gas 35%
4. Steam 6%

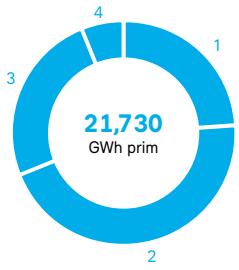
Innovation & Partnerships to Drive Climate Neutrality

To achieve its climate neutrality goal, the Group drives innovation in the value chain to reduce Scope 3 emissions and increase carbon circularity.

Examples of the Group's partnership approach and innovation include:

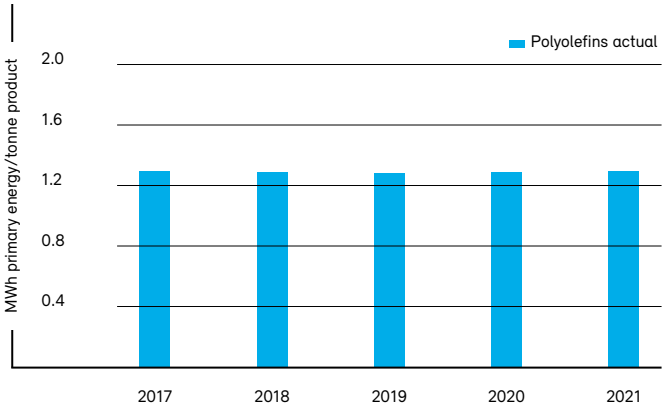
- Forming a partnership called C2PAT with Lafarge, OMV and VERBUND for the joint planning and construction of a full-scale plant to capture CO_2 and process it into synthetic fuels, plastics or other chemicals on an industrial scale.
- Forming a consortium with the Port of Antwerp (Belgium) and seven leading chemical and energy companies, called Antwerp@C. The consortium will investigate the building of CO_2 infrastructure in the port, which is one of the larger integrated energy and chemicals clusters in Europe. This infrastructure could support carbon capture, utilisation and storage (CCUS) applications and reduce the CO_2 emissions within the port by half between now and 2030.
- Forming a consortium in the Seine Valley with the Port of Le Havre and other leading refineries and chemical companies to develop carbon capture and storage (CCS) for hydrogen production for Grand Quevilly.
- Forming the Cracker of the Future Consortium, in conjunction with five petrochemical companies, to investigate how to use renewable energy instead of fossil-based energy to operate steam crackers. These crackers are used to produce base chemicals that are primarily turned into plastics and they represent the industry's principal opportunity for reducing GHG emissions. The companies have agreed to invest in R&D and knowledge sharing, as they assess the possibility of transitioning their base chemical production to renewable electricity.

Fig. 17: **Total energy consumption per product group in 2021**



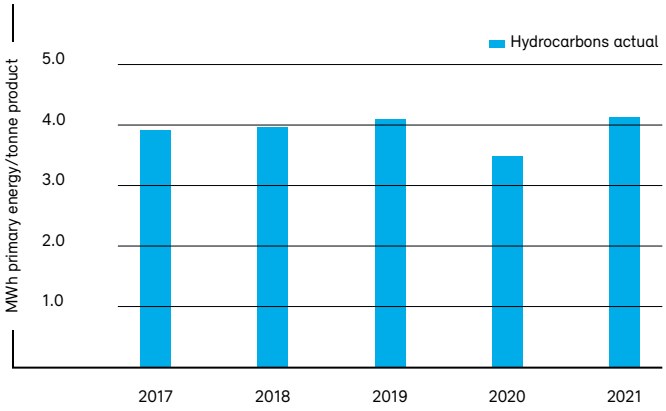
1.	Melamine and Fertilizers	24%
2.	Hydrocarbons	45%
3.	Polyolefins	25%
4.	Infrastructure, offices, warehouses, research	6%

Fig. 18: **Polyolefins production energy intensity 2017–2021**



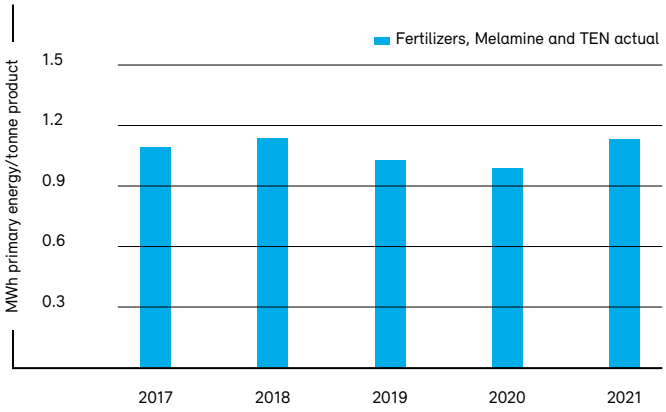
Year	PO actual
2017	1.291
2018	1.284
2019	1.283
2020	1.286
2021	1.300

Fig. 19: **Hydrocarbons production energy intensity 2017–2021**



Year	HC actual
2017	3.916
2018	3.960
2019	4.088
2020	3.507
2021	4.121

Fig. 20: **Fertilizers, Melamine and TEN production energy intensity 2017–2021**



Year	Fertilizers, Melamine and TEN actual
2017	1.089
2018	1.136
2019	1.028
2020	0.999
2021	1.172

– Launching the Bornewables™ portfolio of circular, premium polyolefins, which are produced with renewable feedstock derived entirely from waste and residue streams, while offering the same material performance as virgin polyolefins (→ chapter Innovation, p. 99).
– Enabling the transportation of renewable energy by providing a high-voltage direct current (HVDC) cable compound based on Borealis Borlink technology, which is being used in crosslinked polyethylene (XLPE) power cables that qualified for the tender for the "German Corridor projects".
– Establishing a co-operation with Chalmers University, to assist Borealis in establishing a CO_2 Roadmap for its olefin plants. Chalmers will evaluate selected promising set-ups, based on both commercial and novel technologies, as well as establish reference cases.
– Continuing to be an active member of Catalisti, the spearhead cluster for the chemical and plastics industry Open Innovation R&D in Flanders, Belgium. The Catalisti research agenda is built around four programmes: Biobased Value Chains, Process Intensification & Transformation, Circularity & Resource Efficiency and Advanced Sustainable Products. Borealis currently takes part in a number of ongoing Open Innovation projects, including one related to recycling of flexible packaging (TRUCE) and another related to the combination of solar photovoltaic and solar thermal energy (CSP+).

Activities 2021

Development of Borealis' Climate Change Strategy

In the second half of 2021, Borealis kicked off the development of its Sustainability Strategy. This refreshed strategy will reflect upcoming legislative changes, such as the EU Fit for 55 package, as well as increased expectations from external stakeholders, in particular the need to support the Group's customers on their journey towards climate neutrality via Borealis' product solutions.

The new climate strategy and updated targets will be communicated to external stakeholders as soon as they are finalised and approved by the Executive Board and the Supervisory Board, which is planned for Q1 2022.

Gaining Insight into the Group's Carbon Footprint

Borealis conducted an in-depth analysis of its corporate emissions and its product portfolio. This included the identification of the levers to significantly mitigate emissions in the future.

For Scope 1 and 2 mitigation, the preferred technologies have been identified. Depending on the geographical location, market, the availability of end-of-life products and the legislative framework, the options assessed may include mechanical or chemical recycling and the reuse of CO_2. The Group selected its preferred technologies based on the required product quality, the supply of feedstock, market demand and economic and technological feasibility. Borealis also identified circular and biogenic carbon as important levers for reducing its Scope 3 emissions. Borealis has also identified opportunities with technologies with multiple readiness levels and is evaluating opportunities to work with partners to further develop innovative technologies, as it has with Qpinch technology (see below). Along with the technological options, Borealis has created a financial pathway to drive the transition, partly supported by subsidies and government grants to engage in innovative technologies. Collaboration along the value chain has also been identified as a lever for improving the Group's carbon footprint.

Supporting Other Organisations' Sustainability Through Borealis' Products

Borealis' innovative technologies and product offering will enable others to operate more sustainably, most notably by enabling the more efficient production and transportation of energy from renewable sources to energy consumers. For example, the European energy transformation will be facilitated by Borealis Borlink, e-mobility at large will be driven by the Group's capacitor films, and Quentys has the potential to revolutionise the solar energy industry, by making applications more affordable, reliable and durable.

Borealis also offers solutions that improve energy and resource efficiency during the product manufacturing phase itself. This results in significant CO_2 emissions reductions. For example, Borealis Nucleation Technology grades reduce production cycle times, Daploy™ enables light weighting through foaming of polypropylene and Borstar® allows for significant downgauging in the production of packaging and pipes.

Demonstrating the Potential of Heat Recovery Based on Qpinch Technology

The first-ever application of the unique Qpinch heat recovery technology at commercial scale was achieved in 2021, with the technical completion and start-up of a new demonstration unit. Located in an existing Borealis low-density polyethylene production plant in the Port of Antwerp, the heat recovery unit will test the technology's capabilities as well as its scale-up potential for Borealis' plants in other parts of the world. The unit will also enable Borealis to save approximately 2,200 tonnes of CO_2 per year. The open-innovation collaboration, first announced in 2018, is especially advantageous because it allows Borealis to take steps towards its climate ambitions while increasing production efficiency and maintaining cost competitiveness. For Borealis, this project marks the largest potential application to date based on the results of open innovation. The project has received ecology funding support from the Flemish government.

Finding New Opportunities for Energy Efficiency

To identify ways to improve energy efficiency, Borealis finalised energy screenings in Stenungsund (Sweden) and Porvoo (Finland). Subsequent actions are prioritised based on their benefit to the planet, in the form of environmental benefits, people (for example, through improved working conditions) and profit (such as the ability to generate cost savings). The prioritisation is also based on factors such as a risk and opportunity assessment, including social, environmental and economic aspects, total cost of ownership, internal rate of return and organisational capacity.

Examples of energy efficiency actions taken during 2021 included:

- a furnace revamp in Stenungsund, which delivered an energy performance improvement of 18 GWh primary energy;
- a reliability improvement programme in Geleen (Netherlands), which delivered an energy improvement of 30 GWh primary energy;
- bypassing a distillation tower in Porvoo, which delivered an energy saving of 17 GWh;
- the start-up of a chemical heat pump in Kallo (Belgium), which delivered an 8 GWh primary energy saving; and
- implementing advanced process control in ammonia production at Linz, Austria, and Grandpuits, France, to optimise energy consumption, delivered a saving of 20 GWh/y for Linz and 20 GWh/y for Grandpuits. At Grandpuits, optimising the steam network delivered a saving of 14 GWh/y.

Ensuring Compliance with ISO 50001

During 2021, the Group successfully extended its compliance with the energy management standard ISO 50001:2018. A series of internal audits was undertaken to prepare for certification of the energy management system.

Outlook

Borealis' energy and climate objectives for 2022 are to:

- communicate the updated climate strategy and ambitions, both internally and externally, including updated KPIs. To drive change, Borealis will launch a climate campaign internally to strengthen awareness in the organisation of the path forward and the contributions needed from functions and locations;
- continue to focus on Borealis' journey towards climate neutrality to deliver the next steps towards the updated ambition of 50% renewable electricity by 2030 and 20% energy improvement in 2030;
- obtain third-party validation of Scope 1, 2 and 3 GHG emissions;
- implement new, more detailed reporting and an updated ambition for 2030 for flaring reduction;
- deliver opportunities and partnerships across the value chain and beyond to find innovative solutions for CO_2 reductions in Scope 1, 2 and 3; and
- set up a framework for EU Taxonomy reporting in alignment with the criteria of the two first objectives (climate change mitigation, climate change adaptation) and prepare for the four remaining objectives (sustainable use of water and marine sources, circular economy, pollution prevention, healthy eco-systems and biodiversity).

Climate-related Risks and Opportunities

Borealis supports the Task Force on Climate-related Financial Disclosures (TCFD). TCFD is a global initiative established by the Financial Stability Board, which has the objective of developing recommendations for more efficient and effective climate-related disclosures. It provides a framework for developing voluntary, consistent information about how a company's business is and will be affected by climate change – information which is increasingly requested by investors, banks, insurance companies and other stakeholders.

TCFD distinguishes two categories of climate-related risks and opportunities:

- Transition risks or opportunities are associated with an abrupt adjustment to a low-carbon economy, such as rapid losses in the value of assets due to changing policy or altered consumer preferences.
- Physical risks or opportunities are direct or indirect impacts of climate change-induced modifications in the natural environment, such as an increase in natural catastrophes and extreme weather events, as well as gradual changes in temperature and precipitation patterns.

A Group-wide assessment of climate-related risks and opportunities was first performed in 2020. In a process aligned with Borealis' Enterprise Risk Management, climate-related risks and opportunities for the most relevant Borealis business areas were identified and qualitatively assessed in terms of business impact and probability. Risks and opportunities were identified by desktop analysis of industry-specific reports, peer analysis and topic-related studies, and refined in interviews with business units and Group functions. The assessment took different time horizons into account, from the short-term up to ten years in the future.

In 2021, Borealis started the process of integrating climate-related risks and opportunities into the Borealis Enterprise Risk Management process. Due to necessary alignment with OMV's risk management, this process is delayed and could not be finished in the reporting year. The Group further refined its climate-related metrics by including the disclosure of Scope 3 emissions. This enables Borealis to formulate realistic yet ambitious climate targets.

Within the climate strategy process in 2021, Borealis extended its analysis of climate-related risks and opportunities. By means of an extended climate risk and opportunity assessment, including the integration of stakeholder requirements, further risks and opportunities for the Group have been identified.

Relevant transition risks for Borealis mainly arise from an anticipated increase in certificate costs for greenhouse gas emissions under the EU Emissions Trading System (ETS) and regulation (notably CWW BREF – Common Waste Water and Waste Gas treatment best available technique reference document for the chemical industry), as well as limits on non-emergency flaring.

There are also physical risks to Borealis' sites and its supply chain from climate change-induced increases in the frequency and severity of extreme weather events. Nonetheless, Borealis also identified significant opportunities from a transition to a decarbonised, more circular economy. These include the development of low-emission and bio-based products, opportunities from regulatory changes as part of the EU Green Deal and EU Circular Economy Strategy, more efficient production processes and an increase in supply chain resilience.

While many companies have a focus on climate risks in their TCFD assessments, Borealis has also identified clear business opportunities from CO_2 reductions. In particular, the Group's circular economy solutions, such as its focus on Design for Recyclability and the integration of mechanical recycling companies to close the loop of its polyolefin products, show a clear win-win situation for the climate, the environment and Borealis' success.

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Results of the climate-related financial risk and opportunity assessment

Transition risks

– **Increased GHG emission price**
Large parts of Borealis' business, such as its fertilizer or base chemical production sites, are included in the EU ETS, meaning that for every tonne of CO_2 emitted, certificates need to be surrendered. These certificates are traded in the marketplace and their price is subject to supply and demand. Currently, their value is approximately €80/t CO_2 (end of 2021). This leads to additional expenditure for Borealis. Under the assumption that to meet EU climate targets the costs of CO_2 emissions will increase, Borealis' expenditure for buying CO_2 emission certificates will also increase in the future.

– **Regulation on non-emergency flaring**
Flaring is an essential process control that ensures safe operation of hydrocarbons and polyolefin plants. A significant fraction of flaring is non-emergency flaring, which is under heavy scrutiny following the publication of the CWW BREF in 2016, which will bring an end to non-emergency flaring. The timeline for when the CWW BREF has to be fulfilled is dependent on technology (hydrocarbons or polyolefins) and partly on local legislation. Borealis has set reduction targets for total flaring as well as a special focus on non-emergency flaring.

– **Increased operating costs due to renewable energy purchasing**
A transition to a low carbon economy requires the installation of renewable energy sources. Costs for renewable energy are decreasing but as the demand for renewables is increasing, with supply not following the same trajectory, this may lead to higher operating costs. Significant technology step-ups, such as electrification of crackers, will increase the electricity demand and may further tighten the demand-supply balance for renewable electricity.

– **Pressure on usage of fossil-based feedstock**
Fossil feedstock originating from refineries (oil-based) or gas fractionating (natural or shale gas-based) will be challenged more in future in light of the requirement to reduce CO_2 emissions. Increased requests/demand for renewable feedstock, especially in the fuel business, will limit the accessibility and usage as feedstock for the chemical value chain. Enough renewable feedstock at affordable value might not be available to meet customer expectation (demand and price).

→ See next page

Results of the climate-related financial risk and opportunity assessment

Transition risks	**– Reputational risks** As one of the largest and most diversified industries in Europe, and as a significant emitter of GHGs, the chemical industry plays an important role in helping to achieve long-term GHG emission reductions in a European and global context. This leads to a negative impact on the image of Borealis and the industry sector and a potential shift of consumer preferences to alternative materials. The opportunity for Borealis is to engage with stakeholders, such as consumer associations and environmental NGOs, in an active dialogue to learn about their expectations and create a mutual understanding about the necessary actions and their feasibility. During 2021, Borealis has developed a clear and ambitious climate strategy. → chapter Energy & Climate, p. 74
Physical risks	**– Disruption of supply chain: Impacts of extreme weather events on production sites** Climate change can lead to acute impacts, such as extreme weather events, or chronic impacts, such as changes in precipitation or temperature over time. These can have diverse impacts on a business. Borealis' supply chain and operating sites might be disrupted by the effects of extreme weather events. The more global supply chains are, the higher the risks. For example, inland waterways can become a bottleneck in times of drought, leading to potential limitations in the supply of raw material to Borealis' production sites and thus potential business disruptions. Certain Borealis sites might also be at risk from natural disasters, such as floods or heat waves, which may increase in terms of impact and frequency due to climate change.
Transition opportunities	**– Capturing the opportunity of regulatory changes in support of the circular economy and the EU Green Deal** Regulatory changes have a positive impact on Borealis, as the Group provides solutions for a transition to a circular economy, in sectors such as electrification of the transport industry, the medical industry, the packaging industry and wind and solar farms. **– Expansion of product portfolio with low emission and bio-based products** Borealis is creating several new product groups that make use of bio-based materials or that contain a considerable proportion of recycled materials, thereby reducing the environmental impacts of its products. As the market for such products is growing and legislative standards are changing in favour of renewable materials, Borealis aims to increase its profits and market shares in such product groups. **– New business models** New business models will arise in future to drive the transformation towards climate neutrality, where partnerships will need to play a crucial role.

EU Taxonomy

Goals 2021	Key Achievements 2021
Provide training and raise awareness in the organisation regarding the EU Taxonomy	Training sessions held with Finance, Health, Safety and Environment and Sustainability communities within Borealis.
Ensure reporting readiness for 2021, according to the legally required scope	Identified relevant economic activities and assessed for eligibility. Developed and documented specific definitions and calculation logic for each of the three key performance indicators (KPIs) (% eligibility of turnover, operating expenditure (OPEX) and capital expenditure (CAPEX)). Developed a reporting concept. Fulfilled the complete reporting obligations for 2021, according to Regulation (EU) 2020/852.
Prepare for 2022 reporting requirements on EU Taxonomy alignment	Identified reporting requirements for 2022. Prepared an assessment concept.

As part of the European Commission's Sustainable Growth Financing Action Plan, Regulation (EU) 2020/852 establishing an EU classification system for ecologically sustainable economic activities (EU Taxonomy) entered into force on 12 July 2020 [1].

The EU Taxonomy is a key instrument for the European Union to redirect capital flows towards sustainable investments and to create market transparency. It encourages increased channelling of investments by companies, investors and policymakers to where they are most needed for sustainable development [2]. Therefore, the EU Taxonomy Regulation will play an important role in scaling up sustainable investments and implementing the European Green Deal. [3]

Reporting Requirements According to Regulation (EU) 2020/852

As a company subject to non-financial reporting obligations according to Article 19a of Directive 2013/34/EU of the European Parliament and of the Council, Borealis falls within the scope of the EU Taxonomy. Applying the EU Taxonomy enables Borealis to be transparent about its sustainable economic activities and to demonstrate the development of the sustainability performance of all business areas within the Group.

According to the EU Taxonomy, Borealis is obliged to disclose how, and to what extent, its activities are classified as sustainable, as defined in the EU Taxonomy Regulation. Compliance with the EU Taxonomy's minimum social safeguards (human rights and occupational safety) is also required. For 2021, the EU Taxonomy Regulation only requires reduced reporting and Borealis is therefore disclosing the share of taxonomy-eligible and non-taxonomy-eligible economic activities in its total turnover, CAPEX and OPEX. Taxonomy-eligible in this context means that the economic activities concerned are those that could be classified as ecologically sustainable according to the EU Taxonomy Regulation and for which technical screening criteria are already defined. Disclosure of the taxonomy-aligned share of Borealis' KPIs is not mandatory until 2022 and will be reported from then onwards.

Approach

Borealis' values for the KPIs are derived from the figures reported in the Group's consolidated IFRS financial statements. The Fertilizers, Melamine and Technical Nitrogen Products (TEN) business (except Rosier S.A.) was not considered in the EU Taxonomy assessment, in accordance with the recommendation of the European Securities and Markets Authority (ESMA), as this disposal group is a non-current asset held for sale under IFRS 5 [4]. The exclusion of

1) See: Delegated Regulation C(2021) 4987 // 2) See: Regulation (EU) 2020/852 // 3) See: EU Taxonomy for sustainable activities | European Commission (europa.eu) //
4) See: ESMA Final Report, 2021 – note 58.

the disposal group in the EU Taxonomy assessment leads to a discrepancy with the financial report of Borealis Group, as the classification as asset held for sale was completed at the end of Q1 2021. Thus, Q1 additions to the fixed assets are still included in the financial report of the Borealis Group, but not in the EU Taxonomy CAPEX (→ Financial report, p. 137). Subsidiaries that are not fully consolidated and joint ventures were excluded from the assessment as per the reporting requirements of the EU Taxonomy Regulation. The KPIs and the determination approach of turnover, CAPEX and OPEX were defined to avoid double counting, e.g. exclusion of maintenance cost centres that are allocated to production cost centres.

Turnover

The turnover KPI is based on Borealis' consolidated net sales (→ Financial report, p. 137). Government grants have been excluded according to ESMA's Advice on Article 8 of the EU Taxonomy Regulation [5]. In general, turnover was linked to the revenue streams of the products or services and assigned to the respective economic activity in the EU Taxonomy Regulation.

CAPEX

CAPEX was derived according to the definition in the Financial report, p. 137. IT as well as Administration & Sales CAPEX were excluded from the EU Taxonomy assessment due to a missing link to one specific activity. CAPEX was assigned to economic activities at project level, based on the Borealis CAPEX plan. Projects with CAPEX below EUR 0.5 million in 2021 were automatically allocated to the economic activity of the associated location.

Any intangible asset additions of allowances for CO_2 emissions related to the disposal group have been excluded from the CAPEX reported under the EU Taxonomy.

OPEX

The OPEX KPI consists of R&D expense, building renovation measures, maintenance and repair costs, other direct expenditure related to day-to-day servicing of assets and short-term leases. Every OPEX category was evaluated individually in the EU Taxonomy assessment. Additionally, IT and Administration & Sales costs were excluded from OPEX in the EU Taxonomy assessment due to a missing link to one specific activity in the sense of direct cost.

Performance 2021

Borealis' economic activities included in the EU Taxonomy assessment are all related to the environmental objective of climate change mitigation.

Borealis' core business consists primarily of the economic activities: 3.17 "Manufacture of plastics in primary form" (in the Polyolefin (PO) segment) and 3.14 "Manufacture of organic base chemicals" (in the Hydrocarbons & Energy (HC&E) segment). Part of the HC&E production, namely the phenol & acetone business, fertilizer production at Rosier as well as turnovers from the catalyst business or technology transfer are non-eligible economic activities.

An activity that is exclusively considered in the turnover KPI is:
– 5.9 Material recovery from non-hazardous waste

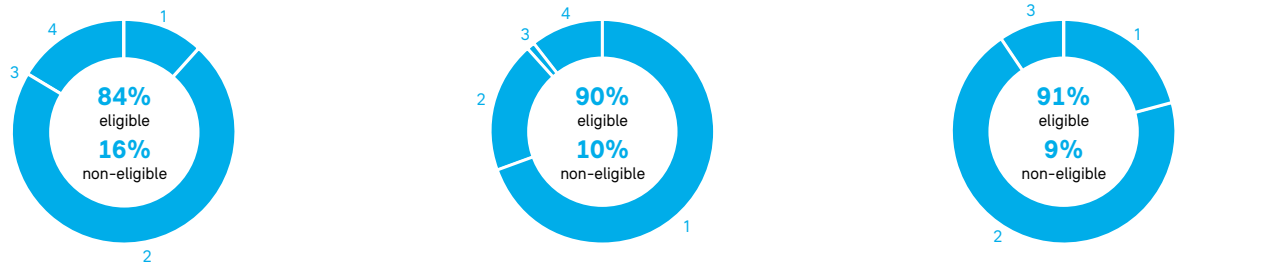
Turnover

84% of Borealis' turnover KPI can be classified as taxonomy-eligible. The largest share of turnover relates to economic activity 3.17 "Manufacture of plastics in primary form" and reflects the activities of the Polyolefins segment. The second largest turnover share stems from economic activity 3.14 "Manufacture of organic base chemicals", which reflects part of the external revenue of the HC&E business. Activity 5.9 "Material recovery from non-hazardous waste" is listed under other eligible activities and refers to the turnover for acceptance of plastic waste as input material for the mechanical recycling of plastics at mtm plastics GmbH and Ecoplast Kunststoffrecycling GmbH.

Non-eligible activities include the trading of Borouge products or feedstock trading and the manufacture of individual products that are non-eligible, such as phenol and acetone, catalysts or turnover from technology transfer.

5) See: ESMA Final Report, 2021 – note 58.

Fig. 21: **Share of eligible and non-eligible economic activities of the Borealis Group 2021**



Turnover	in EUR mn.
1. Manufacture of organic basic chemicals	1,023
2. Manufacture of plastics in primary form	6,173
3. Other eligible activities	5
4. Non-eligible [1]	1,391
Total	**8,592**

CAPEX	in EUR mn.
1. Manufacture of organic basic chemicals	486
2. Manufacture of plastics in primary form	132
3. Other eligible activities	8
4. Non-eligible [1]	72
Total	**698**

OPEX	in EUR mn.
1. Manufacture of organic basic chemicals	47
2. Manufacture of plastics in primary form	156
3. Non-eligible [1]	21
Total	**224**

1) e.g. Rosier, phenol & acetone, Borouge products trading, feedstock trading, Innotech catalyst business technology transfer

CAPEX

The CAPEX KPI includes a share of 90% taxonomy-eligible activities. A major part of CAPEX can be allocated to economic activities 3.14 "Manufacture of organic base chemicals" – for the largest part the new propane dehydrogenation plant in Kallo – and 3.17 "Manufacture of plastics in primary form". Furthermore, there are a few other investments in taxonomy-eligible economic activities, such as the installation of photovoltaic systems in Monza and Schwechat (economic activity 4.1 "Electricity generation using solar photovoltaic technology") or the leasing of company cars (economic activity 6.5 "Transport by motorbikes, passenger cars and light commercial vehicles").

OPEX

91% of operational expenditures within the scope of the EU Taxonomy Regulation are related to taxonomy-eligible activities. For the OPEX KPI, the different cost types were assessed separately, so the shares of OPEX attributable to eligible activities vary between the different cost types. Maintenance cost, short-term leases and R&D expenses were assigned to the main activities of the Borealis Group's locations whenever feasible. Hence, only an allocation to the two main activities 3.14 and 3.17 is considered for OPEX.

The maintenance and repair costs of the existing plants account for the largest share of the taxonomy-eligible OPEX (EUR 217 million). Short-term leases amount to EUR 1.2 million and are fully assigned to eligible activities (difference to reported figure in → Financial report, p. 137 stemming from eliminations of short-term leases for discontinued operation and administrative functions). R&D costs add up to EUR 5.4 million (matching the R&D cost reported in → Financial report, p. 137), thereof 71% are assigned to eligible activities.

Outlook

For 2022, the complete reporting requirements of the EU Taxonomy are applicable for the first time. This means that in addition to the assessment of taxonomy eligibility, Borealis will need to report taxonomy alignment next year. For this reason, all taxonomy-eligible activities will be assessed according to the technical screening criteria provided by the European Union in order to verify the current ecological sustainability of the activities.

Environmental Management

Goals 2021	Key Achievements 2021
Develop a third-party Operation Clean Sweep (OCS) audit and certification scheme	Proactively contributed, as a member of the Plastics Europe OCS taskforce, to the development of a third-party OCS audit and certification scheme, and was the first manufacturer to pilot the scheme, at two locations.
Prepare Borealis for the publication of the European Best Available Technique Reference document on the common Waste Gas management and treatment systems in the Chemical sector (WGC BREF)	Developed a template to fulfil Best Available Technique number 2 (BAT 2) and used it to build a full inventory for each of the Group's polyolefins plants.
Optimise handling of environmental compliance obligations	Developed and tested a new tool and handed it over to locations, along with user training.
Improve environmental awareness and cooperation within the Group	Dedicated sessions on environmental topics included in location leader forums and environmental networking sessions established, with representatives from all locations.

The most relevant environmental impacts Borealis creates are those from emissions that contribute to climate change, acidification and eutrophication, and the effect on air quality and human health.

Borealis' emissions to air result from its production processes and from combustion for energy generation. In addition to carbon dioxide and nitrous oxide (→ chapter Energy & Climate, p. 74), these emissions comprise:
- nitrogen oxide (NO_x) emissions, created by the burners in steam boilers, thermal oxidisers, flares and furnaces;
- volatile organic compounds (VOC), which are fugitive emissions of hydrocarbons, occurring due to high pressure and temperature; and
- dust and ammonia (NH_3) emissions, from production and handling solid material in fertilizer plants.

Flaring is a necessary safety measure used in the Group's hydrocarbon and polyolefin plants, in which excess gases which cannot be recovered or recycled are safely burned. However, it also causes a small proportion of the Group's CO_2 emissions, as well as NO_x emissions, inefficient use of the Group's resources, nuisance to Borealis' neighbours and legal implications (→ chapter Energy & Climate, p. 74).

Borealis requires water for its operations. Industrial water has less strict purity standards than drinking water and is used in production processes such as cooling, steam generation and product handling. Lower quantities of water are needed for drinking, cleaning, sanitary uses and firefighting. The Group looks to minimise its water use by recycling water in its production process. It also looks to improve the quality of the water it discharges and to comply with its legal obligations through filtration, neutralisation and biological wastewater treatment.

The most common types of waste produced in Borealis' operations include the non-recyclable polymers included in the polymer waste input to our recycling plants, as well as excavated soil, wastewater treatment sludge, solvents, mixed industrial waste and inert construction material. Borealis aims to minimise the production of waste where possible, but its main objective is to treat waste as a resource and to better handle end-of-life products by making them circular.

The loss of plastic pellets and particles could lead to marine litter, while emissions of NO_x, dust and VOC could affect the air quality of the Group's neighbours. If such failures occurred, they could result in fines, loss of business, reputational damage, loss of permits and enforcement action by the relevant authorities, all of which could affect the Group's financial performance.

Managing Environmental Impacts

Borealis' approach to environmental management encompasses managing its emissions to air, its use of water and discharge of wastewater, its production and use of secondary resources in the form of waste and its overall environmental compliance.

Borealis is committed to implementing the principles of Responsible Care®, the chemical industry's voluntary commitment to continuous improvements in health, safety and environmental (HSE) performance (→ chapter Corporate Governance, p. 113), as well as the Product Stewardship standard of Fertilizers Europe. Borealis will also use CEFIC's new self-assessment web tool annually, to help it continually improve its approach to Responsible Care. The tool has numerous features, including benchmarking performance against peers and cross-referencing performance against the United Nations Sustainable Development Goals and other standards.

At least every three years, the Group performs a detailed and systematic environmental risk and opportunity assessment for every plant, in all locations. The assessments are also performed if there have been major changes, near misses, incidents or accidents, or if potential improvements have been identified. The risk assessments are based on an evaluation of the legal framework and possible upcoming changes, any deviations from permit limits and stakeholder input.

Based on these assessments, Borealis defines and documents HSE objectives and targets for each location. Clear responsibilities and timelines are agreed and reviewed at Group HSE level twice a year. The consolidated outcomes, including HSE performance, are reported to the Executive Board.

Reducing CO_2 emissions and energy consumption are the main drivers of Borealis' performance improvement and have the biggest impact on the environment. The Group's latest materiality assessment also confirmed that the circular economy is a key driver, including a strong focus on packaging waste management.

Nevertheless, emissions to air of NO_x, NH_3, dust and VOC, as well as water, waste and effluents, also play a significant role in high-quality HSE management. As a consequence, they are included in the Group's HSE management processes and are monitored as part of the environmental objective of each location. All Borealis production locations are part of an ISO 14001-compliant environmental management system.

Borealis uses an integrated environmental data management system and reporting software. This ensures control of data flows from varied sources, in multiple formats and on different schedules, as well as the traceability and transparency required for reporting and auditing.

Borealis is committed to complying with all relevant environmental laws, regulations, standards and other legal requirements, such as operational permits. This ensures that the Group can continue to operate and is protected from fines, reputational damage and the costs of impact mitigation. The Group reviews all cases of non-compliance and takes action to prevent them from reoccurring. In 2021, no significant fines or non-monetary sanctions for non-compliance with environmental laws were imposed on Borealis.

Activities 2021

Implementing a New Tool for Managing Environmental Compliance

To further improve and streamline the Group's environmental management, a new tool was developed and rolled out in 2021, along with employee training. In addition to ensuring that Borealis meets its environmental compliance obligations, which are contained in legislation, permits, voluntary agreements and standards, the new tool enables Borealis to manage other compliance obligations, such as workplace safety, transportation of dangerous goods and chemicals safety.

Holding the Group's First Environment Day

World Environment Day is an annual environmental awareness day, organised by the United Nations each year in June. In 2021, Borealis celebrated its first Environment Day for the Fertilizers, Melamine and Technical Nitrogen Products business group. The aim was to raise awareness of the environment and related issues, ranging from pollution to global warming and from sustainable food production to the protection of wildlife.

Enhancing Water Management

In 2020, Borealis carried out a very detailed water inventory, which served as the basis for a risk assessment in 2021 and fostered the Group's understanding of its water usage, water emissions and water-related risks at each site and across the Group as a whole. As a consequence, Borealis developed a water management template in 2021, which will be rolled out to the sites over the next three years, depending on priority.

Preparing for Publication of WGC BREF

Borealis' preparations for WGC BREF during 2021 included building a full inventory for each polyolefin plant in accordance with BAT 2. Work will intensify in 2022, both before and after the expected publication of the WGC BREF, including a gap assessment of plants versus best available technique, and defining study needs and the investment budget.
The revision of the BREF LVIC "Large Volume Inorganic Chemicals" will start in 2022, defining the new mandatory emission limits for fertilizer plants.

Improving Environmental Awareness and Cooperation within the Group

During the year, dedicated sessions on environmental topics were included in location leader forums and environmental networking sessions have been established, with representatives from all locations.

Key environmental challenges and projects are reviewed in detail with location leaders to align resources and approach. The networking sessions improve collaboration and cross-learning between the locations on key environmental topics.

Working with Partners to Reduce Pollution

The Group's location at Grand Quevilly, France, is one of 14 industrial operations that jointly created a new association, UPSIDE, in 2021. This association is designed to communicate better with elected officials and residents, and to pool financial resources to purchase anti-pollution systems.

Performance 2021

Emissions to Air

With all emissions, the Group follows its legal requirements and the stipulations in its permits. In addition, Borealis has established its own requirements for measuring and following up on key pollutants. Deviations from the norm are reported within the Borealis incident management system and then investigated and addressed through corrective actions. The approach taken depends on the magnitude of the emissions' impact and their criticality.

Actions are prioritised using the principles following the Group's Risk Management Policy, in line with Borealis' sustainability management approach. High-risk issues and proposals with significant potential for improvement are regularly discussed and addressed to the Borealis Executive Board.

Volatile Organic Compounds (VOC) Emissions

Borealis' goal is to reduce its VOC emissions by detecting and repairing leaks quickly. In 2021, Borealis' VOC emissions were 3,260 tonnes, compared to 2,942 tonnes in 2020. With the Stenungsund cracker being out of operation for 7 months in 2020 we have an increase in 2021 as it was running the full year.

Flaring

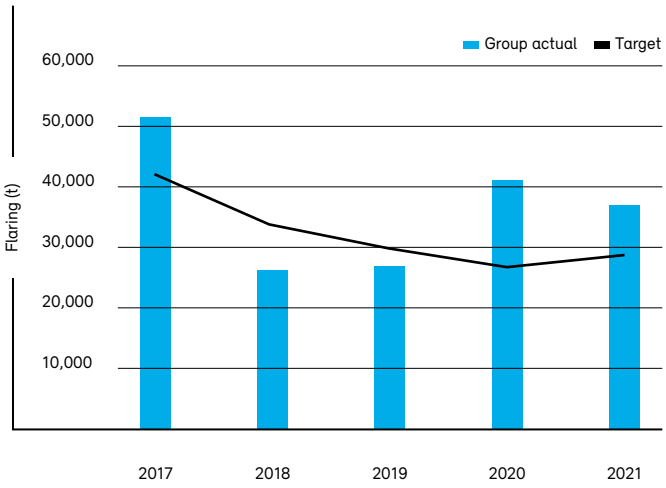
Flaring losses in 2021 were 38.5 kilotonnes, compared to 42.5 kilotonnes in 2020. The effort to reduce upsets and implement flaring improvements continued, but severe upsets led to significant emergency flaring during shutdowns, due to a lack of recycling capacity.

In 2020, the Stenungsund cracker was out of operation for seven months and there was a major turnaround of the plant in Porvoo which led to in increased flaring.

Every year, the Group defines its targets for flaring. Turnarounds, regular maintenance of the plant's assets and other internal and external factors influence the achievement of these targets. In particular, flaring increases in years with higher numbers of turnarounds. These regular maintenance programmes inevitably lead to more flaring, as plants or lines must be shut down, emptied and ramped up again.

At 15,950 tonnes, non-emergency flaring losses for 2021 were lower than in 2020 (17,589 tonnes) and below target (16,192 tonnes), which means that the improvement projects have delivered as planned.

Fig. 22: **Flaring performance 2017–2021**



Year	Group actual	Target
2017	51,620	42,355
2018	26,273	34,200
2019	27,619	30,000
2020	42,543	27,500
2021	38,538	29,000

Dust Emissions

Dust reduction and prevention is a focus for all Borealis operations and for improvement projects. In the Group's fertilizer locations, which are the main contributor, these emissions are continuously measured. Borealis' polyolefin production plants monitor dust emissions using spot samples, which is why only dust emissions from the fertilizer production sites are reported below.

In 2021, the total dust emissions from the fertilizer production units totalled 511 tonnes compared to 342 tonnes in 2020. Several production units have encountered problems in measuring dust emissions.

Nitrogen Oxides (NO_x) Emissions

Borealis measures most of its NO_x emissions, with the remainder being calculated using a standardised emission factor. Absolute NO_x emissions in 2021 were 2,589 tonnes, compared to 2,842 tonnes in 2020.

Ammonia (NH_3) Emissions

Ammonia emissions are a consequence of either failures during the ammonia production process or leaks during storage or transportation. These emissions amounted to 435 tonnes in 2021, compared to 686 tonnes in 2020. The decrease in emissions is due to lower production.

Sulphur Oxide (SO_x) Emissions

Borealis does not produce SO_x emissions, as it only uses gaseous fuels (natural gas and hydrocarbons) where no sulphur is present.

Water

Borealis needs water to operate its plants and sites. Cooling is the largest use of water. Other uses include cleaning, feeding boilers and sanitary purposes.

Borealis' environmental experts in each operation continuously monitor water consumption as part of the Group's environmental monitoring programme, as well as to comply with the permit limits set by the respective local authorities.

In addition to ensuring legal compliance, Borealis uses tools such as the WWF (Worldwide Fund for Nature) water risk filter to assess areas of concern, such as baseline water stress or interactions with neighbours and other stakeholders. This helps the Group to steer and prioritise improvement projects.

Water availability and scarcity varies by location. A detailed water review carried out in 2020 and 2021 showed that water stress is a non-critical issue for Borealis, except in four locations with water-stressed basins. As a consequence, water consumption for these sites is already subject to stringent permit requirements. Borealis has also prioritised these locations to be the first to implement the Group's newly developed water management principles as of 2022.

Fig. 23: **Borealis' water withdrawal by source in 2021**

Sources	2021
Water withdrawal	**735 mn. m³**
Surface water	97.5%
Groundwater	1.9%
Municipal water	0.4%
Water from 3rd party	0.2%
Rainwater	0.0%

In addition to setting minimum requirements for measurement and reporting, the principles require the locations to define, evaluate and report water withdrawal reduction measures, such as rainwater collection and usage, water saving, substitution, recycling and closed loop systems.

Water Withdrawal

Borealis' water withdrawal was 735 million m^3 in 2021, compared to 755 million m^3 in 2020. The 3% decrease in consumption is part of the normal fluctuations due to the varying intensity of maintenance activities and weather conditions. For example, if the rivers, lakes and the sea is getting very warm due to heat waves, then we need much more water to keep our production levels during summer period.

The majority of the water Borealis uses in its operations is withdrawn from surface water, for example, from water bodies such as rivers and oceans. The remainder is extracted from groundwater, wastewater from another organisation, municipal water supplies or other water utilities. In some locations, rainwater is also collected and used.

Water Discharge

The volume and nature of the wastewater Borealis generates depend on the type of production at its locations. Borealis therefore installs water treatment techniques that are appropriate for each plant's production process. These techniques can include filtration, neutralisation, osmosis, gravimetric and biological water treatment.

All Borealis plants are connected to wastewater treatment installations, consisting of internal treatment units, external plants or both. Water is then discharged primarily into a surface water body such as the sea or river. This is also likely to be the water body the water was originally withdrawn from, thereby limiting the environmental impact as much as possible.

In Grandpuits, France, Borealis has no surface water body close by and no permit to discharge into one. Discharges are therefore made into a special salted groundwater aquifer instead.

Each of the Group's operations carefully monitors wastewater flows and contaminants, to ensure that all parameters are within permitted levels, and reports this regularly to the relevant authorities.

Recycling and Reusing Water

To increase water-use efficiency, Borealis seeks, whenever possible, to recover its process water or to reuse wastewater. For example, in some operations cooling towers use recycled water or rainwater. This is not possible in all locations, as it depends on permit stipulations and on the water body.

As noted above, Borealis prioritises reductions in energy consumption and CO_2 emissions. As water consumption and energy use are linked, due to the energy recovery from cooling water, the Group may on some occasions decide to increase its water withdrawal in order to recover more energy.

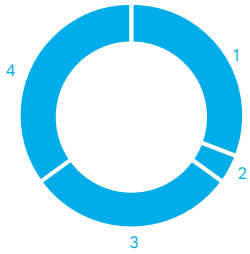
During maintenance operations, the cleaning of equipment generates water containing nutrients. These used to be partly recycled, with the excess sent to a waste treatment plant. In 2021, the Grandpuits plant implemented actions to enable the valorisation of this waste stream as liquid fertilizer with low nutrient content. A dedicated storage tank and a quality control plan were implemented. This helps the plant to recover 3,000 tonnes of waste every year.

Waste

Borealis generates waste during production and during short regular shutdowns and plant turnarounds. Turnarounds are regularly scheduled events, during which a plant is temporarily taken out of operation to ensure asset integrity and process safety by carrying out important maintenance works and inspections.

Borealis monitors waste production and implements control measures in all its operations, based on the requirements of regulations and ISO 14001 standards. The Group has waste

Fig. 24: **Waste treatment in 2021** [1)]



1. Energy recovery 30%
2. Landfill 4%
3. Recycling 30%
4. Other treatment 36%

1) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time this report was finalised.

management plans for each location, which are coordinated by local environmental experts. All locations follow the "4R" rules: reduce, reuse, recycle and recover.

Borealis' aim is to avoid producing waste. The Group has therefore implemented integrated manufacturing processes which recover as much co-product as possible.

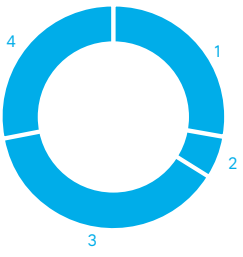
For example, the CO_2 emitted by the ammonia production site in Linz, Austria, is used in the production of urea at the same site. In the fertilizer production process, condensate from steam contains co-products which are reinjected into the process to minimise loss of resources. If a co-product cannot be reused and therefore becomes waste, the Group's preference is to recycle it, taking into account relevant regulations and environmental considerations. The Group only employs accredited contractors for handling its waste streams. By-products of polymer production, such as non-prime material or material from cleaning activities, are used to the extent possible in the Group's recycling plants.

Following the integration of the recycling companies Borealis acquired in Germany and Austria, the total amount of waste and its composition has changed significantly.

Non-recyclable waste has become one of the largest proportions of total waste for the Group and a main driver of the significant drop in the overall recycling percentage. Currently, this stream is used as secondary fuel in steel or cement production, but considerable research effort is going into finding a recycling solution for this stream as well.

In 2021, the Group's total waste volume was 102 kilotonnes, compared to 98 kilotonnes in 2020. Approximately 30% of Borealis' waste volume was recycled, 30% was recovered and 40% was disposed of, with 4% going to landfill and 36% receiving a different treatment.

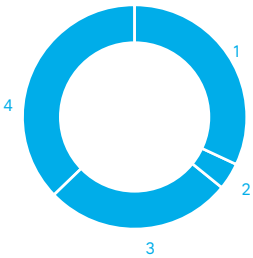
Fig. 25: **Hazardous waste treatment in 2021** [1)]



1. Energy recovery hazardous 29%
2. Landfill hazardous 6%
3. Recycling hazardous 38%
4. Other treatment hazardous 27%

1) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time this report was finalised.

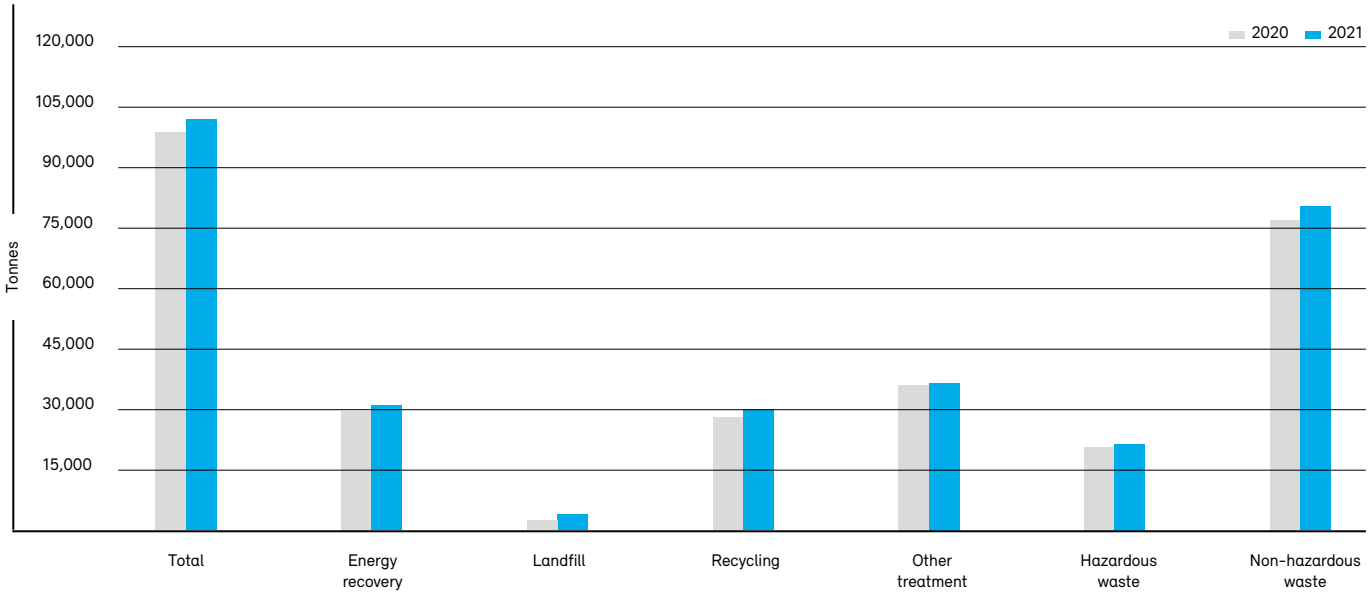
Fig. 26: **Non-hazardous waste treatment in 2021** [1)]



1. Energy recovery non-hazardous 31%
2. Landfill non-hazardous 3%
3. Recycling non-hazardous 27%
4. Other treatment non-hazardous 39%

1) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time this report was finalised.

Fig. 27: **Waste treatment comparison between 2020 and 2021 for all total waste, all treatments and the ratio of hazardous and non-hazardous waste** [1)]



1) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time this report was finalised.

Pellet Spills

Preventing spillage of plastic pellets is a core responsibility for the industry. Pellets released unintentionally during production, transportation, conversion and recycling can end up in nature, rivers and oceans. Borealis is fully committed to zero pellet loss. Achieving this is a challenging journey and requires continuous leadership, effort, targeted and effective work practices and investment.

Borealis' commitment to Zero Pellet Loss encompasses:

- **Leading by example:** Operation Clean Sweep® (OCS) is an international programme initiated by the Society of the Plastics Industry and the American Chemistry Council and rolled out in Europe by Plastics Europe. Borealis was among the first signatories of the Plastics Europe OCS pledge and the Group is also a signatory of the "Zero Pellet Loss" pact in Austria, which is the equivalent to OCS. In addition, together with Total, Borealis has pioneered and developed the world's first OCS audit scheme. Most recently, the Group has supported the development of an OCS certification scheme.
- **R&D investments:** Borealis continuously invests in research and development, in its work processes and in separation technology, applicable to both pellets and powder.
- **Value chain:** Borealis engages with the value chain, including customers, distributors, warehouses and logistic providers, and works with governmental bodies and universities to increase the Group's knowledge and further improve best available technologies.
- **Operational excellence:** the Group's actions include ongoing analysis, awareness campaigns and training for employees and contractors, reinforcing work practices and behaviours, putting in place effective pellet retention measures, such as sieves and pellet separators, as well as effective skimmer ponds and filtration units based on the best available technology.

In parallel to the Group's continuous efforts to improve its own performance, Borealis has proactively contributed to Plastics Europe's OCS task force to:
– develop detailed and auditable requirements that every OCS signatory must comply with;
– develop a joint EU-wide approach for auditing and certification against the OCS requirements; and
– update a self-assessment tool, combining the lessons learned as well as the new mandatory requirements.

As part of the Group's contribution to the development of a European OCS certification standard, Borealis was the first primary plastic producer to pilot an external certification audit at two of its sites in Belgium, Antwerp and Kallo.

This pilot certification audit confirmed that the joint group of Plastics Europe (including a Borealis representative) and European Plastics Converters (EuPC) has been successful in developing a standard that can be used for OCS certification. It also showed that Borealis' internal preparations, such as internal audits, regular follow-up of the audit actions, and development and implementation of a Group-wide internal OCS instruction, have led to a high level of compliance with the soon-to-be-released OCS standard, which should enable a full certification of Borealis' locations in 2022.

The European Commission has also begun an initiative to address unintentional releases of microplastics. The current focus of the planned regulatory instruments is on tyres, synthetic textiles and pellets. The primary impact on pellets will be the cost and administrative requirements for labelling, reporting and certification (→ chapter Public Affairs, p. 46).

Outlook

The Group's priorities for 2022 are in line with those of previous years, with a focus on enhancing valorisation of side streams and researching industrial symbiosis. The purpose is to minimise the production of waste, consume fewer resources and better handle the end-of-life of Borealis' products.

For example, one area of progress is a collaboration between producers and distributors of fertilizers in France, to work on the design of packaging to facilitate its recycling, while not degrading their resistance and permeability for safety and quality.

In 2022, Borealis will continue its preparations for the WGC BREF, as discussed under Activities 2021 above.

A major focus area will be to put the water management templates into use, as well as to finalise the work of the OCS certification standard and achieve full certification of all Borealis sites.

Fig. 28: **Key environmental performance indicators 2017–2021** [1)]
See detailed background explanation of the performance in the respective section of this chapter

Issue	Unit	2021	2020	2019	2018	2017
EU ETS CO_2 emissions	kilotonnes	3,878	4,050	4,625	4,302	4,210
N_2O emissions	tonnes	750	1,143	1,351	1,330	866
Flaring performance	tonnes	38,538	42,543 [2)]	27,619	26,273	51,620
VOC emissions	tonnes	3,260	2,942	3,122	3,784	3,333
NO_x emissions	tonnes	2,589	2,842	3,000	3,035	2,891
Dust emissions	tonnes	511	342	455	437	477
NH_3 emissions	tonnes	435	686	881	727	862
Energy consumption	GWh	21,730	22,340	25,831	24,476	22,400
Water withdrawal	m^3 (million)	735	755	750	675	752
Waste generation	tonnes	102,023	97,905 [3)]	86,109 [4)]	53,713	61,398

1) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time this report was finalised. // 2) Severe upsets led to significant emergency flaring during shutdowns; in addition, there was a lack of recycling capacity. // 3) Value has been recalculated in retrospect due to ongoing audits and missing third-party data at the time the last report was finalised. // 4) The main reason for the increase is the integration of the plastics recycling company mtm plastics GmbH into the monthly group reporting.

Definitions

EU Emission Trading Scheme (ETS) CO_2 emissions: All greenhouse gas emissions (GHG) as per the European ETS expressed in CO_2 equivalents (since 2009 this indicator has replaced the reporting of direct carbon dioxide emissions).

Nitrous Oxide (N_2O) emissions: Emissions of N_2O (also known as laughing gas) are generated by the production of nitric acid in the fertilizer plants. N_2O is a GHG with a global warming potential (GWP) 310 times higher than CO_2.

Flaring losses: All streams sent to the flare, except streams that assure a constant flame (e.g. fuel gases to pilot burners, fuel gas purges to flare lines for safety reasons, steam, nitrogen).

Volatile Organic Compound (VOC) emissions: Emission of all organic compounds (from C1 to Cn) with a vapour pressure of 0.01 kilopascal (kPa) or more at either room temperature or at actual temperature when processed. The quantification is based on measurements and estimates. Total volatile organic carbon, expressed as C, includes methane.

Nitrogen Oxide (NO_x) emissions: Emissions of all nitrogen oxides from all relevant sources, including flares. The emissions are quantified as NO_x. When NO_x measurements are not carried out, emission factors correlated to the fuel type and heating value are used.

Dust: Emission of dust from the production of fertilizers.

NH_3 (Ammonia): Emissions of NH_3 from fertilizer plants, loading stations and water treatment of fertilizer locations.

Energy consumption: Consumption of all energy vectors (i.e. fuels, electricity and steam). Electricity and steam are converted into primary energy with standard conversion factors of 40% (electricity) and 90% (steam).

Water consumption: Total amount of fresh water withdrawn from surface or groundwater sources for any type of usage (e.g. cooling, steam generation, cleaning, sanitation).

Waste generation: Generation of all waste at company locations during normal operation as well as during special projects. Any substance or object that is to be discarded is included in the definition of waste. Exceptions are atmospheric emissions, liquid effluents and by-products with commercial value.

Innovation

Goals 2021	Key Achievements 2021
Develop technology and products for mechanical recycling of Polyolefins	Achieved start-up of the recycling pilot plant. Began commercialisation of Borcycle™ products. Borcycle M AH1040MO-90, an injection moulding product based on 100% post-consumer recyclate, was launched in 2021.
Develop technology enabling reduction in the Group's CO_2 footprint	Signed collaboration agreement with Renasci Oostende Recycling, securing supply of the entire chemically recycled feedstock output. First quantities of the chemically recycled material have been successfully test-processed at the Porvoo cracker.
Achieve step changes in Pipe Speciality products	Launched the PE100 RC product family, which is among the best performing pipe materials on the market.
Achieve step changes in Speciality products needed for design for recyclability	Launched the stiff/tough film grade FX1003, the best performer on the market.

Innovation is fundamental to Borealis' ability to contribute to the circularity of polyolefins and create a more sustainable way of life. It also helps the Group to improve its competitiveness and enhance its efficiency and sustainability, and therefore has a direct impact on people, the planet and profit. The change in Borealis' ownership structure and subsequent partnership with OMV has further increased the Group's focus on the circularity of polyolefins and the availability of renewable hydrocarbons.

Borealis' global innovation community comprises more than 500 employees and presents one of the largest departments in the organisation. This is in line with Borealis' position as the technology powerhouse of the industry.

In Polyolefins (PO), innovation focuses on providing solutions to societal challenges, as defined in the United Nations Sustainable Development Goals. Examples include best-in-class materials for producing water and gas pipes, insulation for cables and capacitor film used for transporting renewable electricity and solutions for e-mobility.

This approach to innovation enables Borealis to remain among the leading European polyolefins producers, as the only producer that operates all types of polymerisation processes. Borealis is also able to use its leading technology position in venture-based licensing, in which the Group provides the technology and its partners bring their complementary strengths.

Similarly in Hydrocarbons & Energy, Borealis looks to find innovative approaches to using new feedstock sources, improving resource efficiency and reducing energy consumption and flaring, which in turn reduces emissions of greenhouse gases and other substances such as dust. Hydrocarbons & Energy's innovation activities also include CO_2 avoidance and CO_2 utilisation opportunities, as well as chemical recycling.

Organisational Structure

Borealis' key innovation sites are its Innovation Headquarters in Linz, Austria, and two Innovation Centres in Stenungsund, Sweden, and Porvoo, Finland. Three polyethylene (PE) and polypropylene (PP) pilot plants are also integral to Borealis' competencies in innovation and technology. Two of these pilot plants are in Porvoo and one is in Schwechat, Austria. Borealis' Innovation and Technology Department recently went through a substantial reorganisation, creating a true project-driven research and development function that is fully focused on delivering new and advanced products.

Innovation Strategy and Culture

The Group's technology strategy was renewed in 2020 and confirmed in 2021, with a strong focus on the circularity of materials. In particular, it:

- addresses the technologies for recycling plastics in the Circular Economy Solutions (CES) part of the strategy;
- enables value creation by developing highly specialised materials via new catalyst technologies, and/or via

compounding that enables design for recyclability; and
– prepares for and enables the Group's further growth by preparing Borealis' proprietary technologies for venture-based licensing, making them attractive for various markets and geographical regions.

The Visioneering Philosophy™ describes this drive towards Value Creation through Innovation. This philosophy is about pushing the boundaries of science to develop customer solutions with exceptional performance. This means understanding what the customer wants and leveraging the right competencies, tools and expertise to develop the best solution with a specific service level. Borealis therefore works to address the challenges of society with smarter, more sustainable solutions for the future.

Hydrocarbons & Energy is following Borealis' open innovation strategy in its partnership with OMV. Together, Borealis and OMV are looking to advance the monomer recycling of post-consumer plastics and the availability of renewable hydrocarbons as a feedstock for manufacturing polyolefins. The evaluation of monomer recycling technologies is ongoing, in order to obtain virgin polymer products based on feedstock from recycled plastics. Borealis is also participating in the "Cracker of the future" consortium, targeting a new furnace concept that uses renewable and carbon-neutral energy sources rather than fossil fuels, to significantly reduce carbon emissions.

Engagement with Industry Stakeholders

In addition to its internal collaborations, Borealis undertakes a wide range of engagement with relevant stakeholders in innovation. It is a member of the Dutch Polymer Institute (DPI), attends polyolefins industry conferences and publishes papers. Borealis' Innovation and Technology management team and some of the lead scientists are invited to present at numerous leading conferences around the globe each year, such as the Society of Plastics Engineers International Polyolefins Conference and the Polyethylene-Polypropylene Chain Global Technology & Business Forum. Borealis is also a member of the European Ethylene Producers Conference (EEPC) and participates in a number of EEPC issue groups.

The Borealis team uses every opportunity to actively participate in these gatherings, contributing with the highest level of research results and describing the Group's successes in developing diverse technologies. In 2021, due to the continued travel and gathering restrictions in most countries, many of these meetings were mostly online, with the new practice of hybrid meetings emerging as restrictions gradually eased.

To accelerate Borealis' progress towards achieving circularity in manufacturing and using polyolefins, and reducing its CO_2 footprint, Borealis entered into collaborations with various organisations with complementary competencies in 2021. In particular:
– Borealis reached an agreement with Renasci Oostende Recycling to acquire the entire output of its chemical recycling plant. The first quantities of the raw material obtained through chemical recycling were successfully processed at the Porvoo cracker during a test run in September 2021. Borealis expects to establish regular supply of the recycled material, which will be used as an important source of raw materials for polyolefin production (→ chapter Circular Economy, p. 67).
– Together with TOMRA and Zimmerman, the Group has started a state-of-the art recycling plant to produce recyclates that perform very similarly to a virgin material (→ chapter Circular Economy, p. 67).

Borealis has cooperated with the Department of Particulate Flow Modelling at the Johannes Kepler University (JKU) in Linz, Austria. The institute's Professor Pirker received the Christian Doppler Gesellschaft Award for developing an efficient method of modelling particulate flows and processes via computational fluid dynamics. The new method speeds up this type of modelling by a factor of 10,000, enabling real-time applications and the creation of 'Digital Twins' for industrial processes. Borealis will pilot the technology for the Borstar Gas Phase Reactor operation in full-scale production.

Borealis is also co-operating with the Christian Doppler Laboratory at the JKU. This offers the potential for essential insights into implementing the circular economy on an industrial scale. These insights will be reflected in innovative products, such as more durable photovoltaic modules or novel energy storage systems for electromobility, and help improve the affordability, performance and availability of renewable energy sources and more efficient energy storage systems.

The Group supported and presented at an online symposium called "Recycling Days 2021 – Circular Plastics 2030". The symposium covered topics in recycling, ranging from collection and sorting to mechanical recycling and chemical recycling. It gave an overview of the current and future recycling market and showed business models for a circular economy.

Borealis Innovation Process

The Borealis innovation process comprises idea, innovation project and portfolio management.

Idea management is the front-end phase of the innovation pipeline. It involves scouting and generating ideas and selecting the right ones, either as an innovation project or as a pre-study, in the case of an investment project.

Innovation projects serve to develop new product platforms, new or improved process or application technologies or new catalysts. Borealis is a truly market-driven organisation and the main driver for establishing an innovation project is an unsatisfied market need that requires new products and/or technologies to deliver the products.

An important reason to push the boundaries of technology is to ensure a strong intellectual property right (IPR) position and strengthen Borealis' position as licensor. Innovation portfolio management ensures that the right innovation programmes are executed to achieve specific innovation objectives and support venture-based licensing. Portfolio management also ensures that the allocation of resources is consistent with Borealis' strategy.

Once the project has achieved certain predefined goals, it is transitioned to the business within Advanced Products, where development and growth of this emerging business continues.

Protecting Intellectual Property

Borealis has an extensive patent portfolio, comprising around 8,300 granted patents and around 2,900 pending patent applications. In 2021, Borealis filed 133 new priority patent applications, a record amount of applications filed in the history of Borealis. With this, the company further contributes to safeguarding Borealis' proprietary technologies and protecting its licensees. Many patents also protect products and applications.

Risks and Opportunities

Borealis faces both general and business-unit-specific risks in relation to innovation.

In general, the Group must ensure that it protects the confidentiality of its innovation projects and that it can attract and develop the talent it needs. There is a diminishing talent pool available, which Borealis looks to address by attracting young people into the industry.

Borealis raises its profile with talented individuals through the Borealis Student Award, which goes to the students with the best Diploma, Masters and PhD thesis. The Group also develops its own R&D talent, for example, through its Talent Expert Pool. Through this activity, ten or twelve colleagues are engaged in learning over a period of two years. The Borealis Business Academy also offers an extensive range of training, covering a wide variety of skills.

In Polyolefins, market volatility affects Borealis' profitability, but the business continues to invest similar amounts in R&D and innovation each year, independent of the market situation. The industry is mature, which means that step-change product development, rather than small improvements, is needed to drive growth. Borealis' philosophy includes a long-term commitment to innovation and technology.

In Hydrocarbons & Energy, potential legislation regarding CO_2 emissions is both a risk and a driver for innovation.

The robustness and flexibility of the Borealis' Innovation Process was tested during 2021. The team created quick and effective responses to rapidly changing market conditions so that Borealis could turn the challenges into opportunities by developing and advancing the products that became important in the new circumstances.

Innovation Success Stories

Polyolefins

In the Polyolefins business unit, key achievements in 2021 included:

– in Pipes, the PE100 RC Pipe product family was completed with the introduction of coloured and low-sagging grades, offering performance that is among the best in the market and enabling even wider application of PE pipes in the construction industry;

– in consumer products, the stiff/tough film product FX1003 was launched. The product performs at least as well as the best available materials on the market and it has a superior ability to blend with post-consumer recyclates;
– in Advanced Products, new sustainable solutions were developed for markets including appliances, concentrates and polymer modifiers, healthcare, oil and gas and structured products;
– in Circular Economy Solutions, Borealis launched white 100% post-consumer recyclate grade AH1040MO-90, which has been developed for injection moulding for houseware products and large thin wall packaging items; and
– PO commercially launched 47 new products, beating its "21 in 2021" target. Achieving these launches in such a challenging year demonstrates that Borealis is a market leader in innovation and is true to its purpose of re-inventing for more sustainable living.

Hydrocarbons & Energy

In Hydrocarbons & Energy, feedstock prices are volatile and innovative new sources of feedstock are required. This means that Innovation and R&D focused, among other things, on:
– benchmarking and implementing a new ethane hydrogenation catalyst, with higher selectivity and yield which is also adapted to light feedstock;
– evaluating bio-feedstock opportunities for Porvoo (Finland), Stenungsund (Sweden) and Kallo (Belgium), including lignin as feedstock for aromatics production;
– recommending furnace coil materials, which are leading to increased run-lengths and hence improved efficiency;
– modelling of a propane/propylene separation unit for improved operation and yield; and
– qualification of a new absorbent material for purification of propylene at Porvoo's cracker unit, as a drop-in solution with improved health, safety and environmental performance and sustainability.

Innovation Highlights

Further Launches of the Bornewables™ Portfolio of Circular, Premium Polyolefins

During 2021, Borealis launched six new grades produced with renewable feedstock material, as part of the Bornewables portfolio. Bornewables offer product properties equal to fossil-based product. This allows our partners to have a quick and easy transition from fossil-based polypropylene to a renewable feedstock-based polypropylene (→ chapter Circular Economy, p. 67).

Launch of RJ908MO for Homeware and Non-Food Thin Wall Packaging

Borealis RJ908MO offers a unique combination of flow, transparency and impact for large articles demanding products with excellent flow ability. The main market will be home and kitchenware, such as large storage boxes, racks and under-the-bed boxes. Borealis RJ908MO will also be used in non-food thin-wall packaging items such as media boxes or DIY articles. Customers benefit from ease of injection and they are also able to decrease their injection temperatures by a minimum of 20°C, helping to reduce energy consumption and corresponding CO_2 emissions.

Starting Up a Heat-Recovery Unit at the Plant in Antwerp

Borealis started up a heat recovery unit based on the revolutionary Qpinch technology at the plant in Antwerp. The technology makes it possible to transform low-temperature waste heat into useful heat at higher temperature. The unique Qpinch technology mimics the natural chemical reactions that take place in the human body in the so-called ATP/ADP cycle (in which ATP refers to adenosine triphosphate, and ADP to adenosine diphosphate).

Outlook

Borealis, in partnership with OMV, will continue making a significant effort to develop and implement technologies that enable the circularity of polyolefins. It will also continue to strive to be the leading contributor to solving overall environmental issues, in particular climate change and pollution. This includes developing new materials that enable design for recyclability and recyclates that are suitable for use in various applications, developing technologies for monomer recycling and the use of bio-feedstock, improving the energy efficiency of the Group's polymerisation and hydrocarbon plants and reducing the CO_2 footprint of the Group's manufacturing technologies.

Digital Transformation

Goals 2021	Key Achievements 2021
Increase usage of the online ordering portal for Polyolefins customers	18% of order volume was via the portal at the end of 2021, compared with 14% at the beginning of 2021.
Roll out interactive safety training for the Five Life Saving and Process Safety Rules	Over 14,000 game-based training sessions conducted.
Create four digital prototype solutions relating to sustainability and safety	CO_2 calculation tools, digital platforms to support plastic reuse systems and safety training using VR technology have been prototyped.
Ensure value-adding project selection is reached by partly charging projects to the businesses to fund the building of a solution after the prototype phase. Target is to charge at least 30% of the build solutions.	80% of the custom build solutions are charged to the businesses, to the extent possible.

Increasing use of Digitalisation will be one of the transformational enablers for Borealis to deliver its strategy 2035. Not only will it increase the Group's productivity and improve the customer experience, it will also support the realisation of Borealis' sustainability strategy. In particular, digital solutions for the circular economy of plastics will become more important in achieving the Group's CO_2 neutrality journey.

For that reason, Borealis decided in 2017 to implement a Digital Programme, which led in 2018 to the creation of the Borealis Digital Studio. The Digital Studio is Borealis' creative and agile enabler for developing smart solutions for customers and employees. It consists of a diverse, cross-functional team of digital professionals, including designers, usability experts, business analysts, software developers and engineers. It has the mission to support the Group's businesses to adapt to a rapidly changing environment and to keep Borealis sustainably profitable by creating digital, innovative solutions that have a positive impact on the Group's people and business and the environment. Adding value is key when creating digital solutions and the end-users are always at the heart of the process, as the solutions are built both with and for them, following the agile methodology.

The Borealis Digital Studio's role is to:
- radically improve the customer and employee experience;
- build new value propositions for customers and innovate the Group's business;
- help to use resources and plan processes more efficiently and effectively; and
- enable Borealis to make better decisions, based on improved use of data.

The Borealis Digital Studio cooperates very closely with the Borealis IT team and, in particular, the IT Innovation team, which has created a technology radar to keep Borealis informed of emerging and potentially valuable technologies.

Digitalisation Programme

The Borealis Digital Studio helps the business to collaborate with digital professionals and users, whether they are consumers, Borealis' employees, suppliers or others. When reviewing ideas, the Borealis Digital Studio aims to score each one consistently, objectively and transparently on four key factors:
- business viability: what value does it bring to Borealis and at what cost?
- technological feasibility: can Borealis do it?
- user desirability: do users want it? and
- strategic fit: does this fit into the Group's strategy?

This all happens in an innovative setting, where business and technical know-how is combined in co-located teams, focused on building, learning and adapting and the real business value they are aiming for.

In addition to improving productivity and the customer experience, the digital tools created by the Borealis Digital Studio are key to further driving the circular economy of plastics, such as reuse systems for consumers which promote multiple use of plastics (for example, coffee cups and food trays). These systems use a digital platform built by the Borealis Digital Studio and give Borealis the necessary data insights to maximise reuse, accommodate closing the loop and recycle plastic waste once reuse stops and the plastic is at its end of life. The systems thereby create new and profitable business solutions.

Activities 2021

Customer Online Portal (My Borealis)

The online portal for Polyolefins customers supports customer service representatives and sales managers in their daily interactions with customers. It puts easy order management at the customer's fingertips, as well as a complete library of order, product or complaint documentation. The application works round-the-clock, providing instant access to up-to-date information, with ordering fully integrated with supply chain and IT processes. A single global portal supports eight languages, allowing organisations in Europe, North America and South America to use it. By the end of 2021, 18% of the order volume was via the portal, up from 14% at the start of the year.

Autonomous Robots, Virtual Reality, 3D Scanning & Printing and Smart Glasses

A project was kicked off to explore the possibilities of using autonomous robots in Borealis' production plants. The activities suited to such robots, such as carrying out inspections, are being researched in a proof of concept to assess the feasibility of this kind of solution.

Prototype building or setup is also taking place for technologies such as virtual reality (for safety training and technical instructions/training), smart glasses (for remote assistance in the field) and 3D technology (for printing machinery parts).

Interactive Safety Training for the Five Life Saving and Process Safety Rules

This innovative gamed-based interactive learning solution helps employees and contractors to learn the five Life Saving Rules, by offering them remote training and tests. The training combines a 3D-modelled plant environment, an engaging story and motivating gamification elements to simulate scenarios, enabling better knowledge retention and faster learning than traditional methods. Employees learn the Life Saving Rules and Process Safety Rules in a very immersive way and can apply theory to practice without stopping production or risking actual injury. Around 14,000 training modules have already been completed across the entire Borealis population. Each employee has therefore completed at least the introduction and the first level of the training. In total, the training has three levels.

Circular Economy Solutions (CES)

In 2021, the Digital Studio continued to work with the new business development group and the circular economy programme to launch a proof of concept and internal and external pilots for circular business. The project explores collaboration opportunities with start-up companies to create product and digital solutions for scaleable and traceable closed-loop material flows.

Two projects were launched to enable carbon footprint calculation, communication and decision-making for producing and transporting Borealis' products. A project to consider offering polymers as a service and explore new business models was also progressed.

Creating Prototypes

Several prototypes were created during 2021, including in the key areas of safety and sustainability. The insights gained by creating prototypes are used to build minimum viable versions of the final digital tools and applications. Tools to calculate the carbon footprint of the Group's products and of transporting those products to customers are high on the agenda for the business functions. Progress was made with both, by building valuable prototypes that can be used by Borealis employees and by the customers themselves.

The Group's sustainability journey is also supported by the prototypes that were built for digital platforms, which accommodate reuse schemes and partnerships that the Borealis Circular Economy Solutions teams are setting up. In the safety area, Borealis explored building prototypes based on virtual reality technology as a way to find newer, better or different training methods that complement the existing ones and support Borealis' journey to reach Goal Zero.

Project Selection

To support innovation, Borealis has a central budget to fund exploration and creating proof of concepts. Commitment and involvement from a Borealis business is required at this stage to find the right innovation routes.

To go beyond this stage, Borealis believes that the businesses themselves need to fund projects, since this ensures that the right selection filters are applied before starting an initiative, and reflects the fact that both money and time are scarce. Borealis has therefore created a business endorsement procedure for both proof of concepting and starting projects, including a supportive business case that considers funding, return on investment, the people commitment and other relevant parameters.

Inspiration Event

Digitalisation was one of the key topics at the annual Borealis senior leaders' meeting, which was held in January 2021. Executive Board members shared with the senior leaders their views on the importance of digitalisation and how it can enable Borealis to reach its targets.

The statements and insights shared by the Executive Board provided the "tone from the top" for the inspiration event in February 2021, which was designed to inspire and reveal new ideas and digital opportunities. This was a fully virtual event for more than 100 attendees from middle management level across all of the different functions, providing information and inspiration to fuel the Group's digital journey. This was the third inspiration event and it resulted in a list of more than 20 new ideas being brought forward to the Borealis Digital Studio. After thorough workshops to explore the ideas in more detail, a number of the topics moved forward as solution proposals and projects.

Outlook

In 2022, the Borealis Digital Studio aims to support Borealis' overall business strategy by supporting Borealis' transformation through the development of digital solutions and services that transform the way Borealis works. The Digital Studio will continue to emphasise safety, circular economy, sustainability and commercial solutions, and will explore how to support the Group's digital communication strategy. The medium-term strategy foresees the Borealis Digital Studio incorporating digital functions into the different business areas, while keeping the Borealis Digital Studio in place as a core innovative digital accelerator.

Our People

Goals 2021	Key Achievements 2021
Continue the digitalisation journey in all Human Resources (HR) transactional areas to ensure efficiency and data quality	Conducted a tender process for an electronic document creation tool, with the aim of starting implementation in 2022. Introduced quality checks for electronic workflows to improve data quality.
Conduct the next Pulse Check, with the aim of an increased response rate and engagement level	Conducted a Pulse Check, which achieved an increase in participation rate of 2% and identified a decrease in employee engagement of 6%.
Continue close alignment with the legal department, especially with the Group Data Protection Expert, to regularly follow up on data protection topics, provide ongoing training for relevant stakeholders and further develop the guiding tool for documentation	Aligned with OMV on GDPR, in particular on intercompany data exchange. Rolled out GDPR-related e-learning modules.
Implement a "Working from Home" Group Guideline	Introduced hybrid workplace Group guidance globally, which gives employees the flexibility to work partially from home when appropriate.
Implement Discover Resilience Together	Implemented a Group-wide initiative on wellbeing, Discover Resilience Together, with a focus on the mental, physical and social wellbeing of employees.

Borealis puts people at the centre of all of its activities. The Group's People Strategy therefore supports the implementation of Borealis' business strategy through talent management and organisational development. During 2021, Borealis started a process to update the Group Strategy, and the People Strategy will therefore also be updated as necessary.

HR continued to focus on five areas during 2021: employee engagement, diversity and equal opportunity, training and people development, process automation and fair remuneration. Achieving the Group's goals in these areas supports Borealis' profitability, helps to ensure high levels of employee engagement and satisfaction, contributes to operational excellence, encourages a strong health and safety performance and continuous improvement and broadens the talent pool from which the Group can recruit.

Borealis' Workforce

In 2021, Borealis employed 7,606 people. This compared to 7,465 in 2020. Of these, 98% worked for Borealis on a permanent basis (2020: 98%) and 2% were employed on a temporary basis (2020: 2%). This workforce was supported by 226 (132 in 2020) leasing employees who are not employed by the Group, primarily in Austria and France, and some 300 summer workers, job students, apprentices and interns.

Organisational Structure

Borealis' HR organisation provides people-related support and guidance to leaders and employees throughout their careers. The services provided by HR include talent acquisition and onboarding, organisational, cultural and individual development, change management and compensation and benefits.

The Vice President (VP) HR reports to the CEO and, together with the Executive Board, identifies how HR can best support the Group's strategy and initiatives. The VP HR and the HR leadership team ensure that the Group has the relevant competences, as well as the necessary people-management tools and resources.

The Borealis HR Handbook sets out the Group's HR governance, which is managed through the Borealis People Policy and a number of Group procedures and operative instructions. These cover areas such as performance management, including bonuses and development, the Borealis Incentive Plan, succession planning and talent management. The Borealis Management System (→ chapter Corporate Governance, p. 113) collates all these documents in one system. Documents are reviewed and updated at least every three years or as needed.

Borealis measures performance related to recruitment, performance management, mobility, people engagement and data quality via key performance indicators in the HR Dashboard.

Improving the Human Resources Information System

Borealis' core HR administration is centrally managed using SAP. The system includes payroll, employee data, organisational management, time management, competence management, merit and long-term incentive plans. All employees' data are also documented in SAP.

Borealis uses SuccessFactors – a cloud solution interfaced with the SAP system – to help employees and leaders make better use of important HR processes. SuccessFactors includes Employee Profile, Learning, Succession Planning and Talent Management, Performance and Recruitment modules.

In 2021, HR started a tender process for an electronic document creation tool and electronic personal file database, with the aim of starting implementation in 2022. This will further automate the Group's HR processes and increase efficiency and data quality. In addition, Borealis implemented automated quality checks for its electronic workflows to increase data quality.

Employee Engagement

The Corporate Co-operation Council (CCC) is a forum for exchanging information between the works councils at the various Borealis locations and top management. It is therefore an important platform for dialogue between management and employee representatives. The CCC holds four meetings and one conference each year. In 2021, the CCC Conference was held in October and scheduled as a physical meeting, focusing on wellbeing and positivity in the workplace.

Borealis also has open forums and other opportunities for interaction at all of its locations, many of which were already moved to a virtual format in 2020 due to the COVID-19 pandemic. Common topics discussed at these events include the Group's financial performance, Group initiatives and other topics of interest.

One of Borealis' four core values is Respect. This value includes respecting employees who wish to organise themselves and be represented by unions or works councils. In Borealis, 91.8% of all employees are covered by collective bargaining agreements. In some countries (especially in Eastern Europe, where these instruments do not exist), there are no comparable agreements.

In 2021, Borealis decided to continue using the Pulse Check, first introduced in 2020, rather than undertaking a full People Survey. This enabled the Group to understand employee engagement and drive meaningful actions, while minimising the organisation's workload in these challenging times. All employees were asked to answer ten questions. The Pulse Check achieved an increase of 2% in response rate from 69% to 71% but showed a decrease in employees' engagement of 6%, with lower engagement seen in all business groups and business units and in most locations.

While ongoing organisational changes and strategic transformation always cause a certain level of uncertainty, and engagement in Borealis is still above the chemical industry benchmark, this result is not satisfying and requires in-depth analysis and an action plan.

In 2021, HR continued to focus on supporting operations and businesses in managing the impact of COVID-19. Given employees' exposure to the effects of a prolonged pandemic and its related challenges, a broader, Group-wide initiative on wellbeing, "Discover Resilience Together", was implemented. This focused on mental, physical and social wellbeing and covered a wide range of initiatives, taking the Group and employees on a journey to become more resilient to the negative effects of impactful events.

The initiative kicked-off with a recorded radio show hosting Executive Board members talking about resilience and its significance to them. By showcasing vulnerability and openness to the topic, they greatly supported a culture where employees feel they can openly talk about wellbeing issues. The programme also included numerous webinars, coaching slots, training sessions, meditation and relaxation sessions and a podcast series, where employees shared their "resilience stories" with the rest of Borealis.

Discover Resilience Together was designed to act as a springboard within the organisation, to build further local initiatives around mental, physical and social health. It also went beyond the physical workplace to include the flexibility of the hybrid working model (see Hybrid Workplace below). In addition, it encompassed digitalising the Group's learning offer to provide development possibilities to Borealis' people wherever they are.

Fig. 29: **Total number of employees by employment contract (permanent or temporary) by gender & by region/ and total number of employees by employment type (full-time or part-time) by gender & by region in 2021** [1) 2) 3) 4)]

M ... male // F ... female	Gender	Permanent	Temporary	Total	Full-time	Part-time	Total
Total	M	5,912	110	6,022	5,604	418	6,022
	F	1,552	32	1,584	1,214	370	1,584
	Total	**7,464**	**142**	**7,606**	**6,818**	**788**	**7,606**
Austria	M	1,578	34	1,612	1,556	56	1,612
	F	468	12	480	321	159	480
	Total	**2,046**	**46**	**2,092**	**1,877**	**215**	**2,092**
Belgium	M	1,039	19	1,058	914	144	1,058
	F	266	5	271	180	91	271
	Total	**1,305**	**24**	**1,329**	**1,094**	**235**	**1,329**
Finland	M	691	10	701	687	14	701
	F	200	3	203	176	27	203
	Total	**891**	**13**	**904**	**863**	**41**	**904**
France	M	732	6	738	725	13	738
	F	142	3	145	134	11	145
	Total	**874**	**9**	**883**	**859**	**24**	**883**
Sweden	M	694	15	709	648	61	709
	F	229	4	233	201	32	233
	Total	**923**	**19**	**942**	**849**	**93**	**942**
Other Europe	M	791	13	804	731	73	804
	F	159	3	162	124	38	162
	Total	**950**	**16**	**966**	**855**	**111**	**966**
Non-Europe	M	387	13	400	343	57	400
	F	88	2	90	78	12	90
	Total	**475**	**15**	**490**	**421**	**69**	**490**
Borealis AG	M	117	0	117	115	2	117
	F	130	5	135	113	22	135
	Total	**247**	**5**	**252**	**228**	**24**	**252**

1) Total number: headcount (employees hired for more than three months, excluded: externals, trainees, apprentices, summer workers, long-term absences, temporary employees hired for less than three months). Permanent: employee contract without end date. Temporary: employee contract with an end date. Full-time: working 100% or work in a shift model (even if that does not add up on average to the weekly working hours). Part-time: working only a certain percentage as agreed in an individual contract. // 2) Austria, Belgium, Finland, France and Sweden are Borealis' significant locations of operation with more than 500 employees. All other European production or sales locations are summarised under Other Europe. Non-Europe covers all production or sales locations outside Europe. // 3) All numbers as of 31.12.2021. // 4) Borealis AG is included in the Austrian figures and displayed separately.

Fig. 30: **Percentage of employees by employee category & by gender & by age in 2021** [1) 2) 3)]

in % M ... male // F ... female	Gender	<30	30–50	>50	% per gender per employee category
Senior leaders	M	0.00	34.09	52.27	86.36
	F	0.00	5.68	7.95	13.64
Managers	M	0.45	45.48	32.08	78.01
	F	0.60	15.96	5.42	21.99
Team leaders	M	2.49	54.24	29.43	86.16
	F	1.62	9.60	2.62	13.84
Experts	M	2.54	40.76	27.89	71.19
	F	1.77	19.80	7.24	28.81
Administration	M	6.62	32.35	19.51	58.48
	F	5.98	23.05	12.49	41.52
Blue-collar	M	16.59	46.57	29.39	92.55
	F	1.58	4.06	1.81	7.45

1) Employee category grade refers to the internal role classification system (grade 1 to 21): Senior leaders: all line managers grade 16 and above. Managers: all line managers grade 12 to grade 15. Team leaders: all line managers grade 11 and below. Experts: all non-line managers grade 10 and above; Administration (white-collar employees): non-line managers grade1 to grade 9. Blue-collar employees: non-line managers grade 1 to grade 9 // 2) All numbers as of 31.12.2021 // 3) Numbers are correct to two decimal places in order to maintain granularity.

Diversity, Equity & Inclusion

Diversity and equal opportunity – in terms of gender, age, religion, nationality or any other facet – are integral elements of Borealis' open culture and enrich the Group's working environment. Borealis strongly believes that diverse teams are more creative, resourceful and knowledgeable, and that they generate broader perspectives and ideas and improve engagement.

After the launch of Borealis' diversity, equity and inclusion (DE&I) journey in 2020, it was agreed to continue that journey and intensify the alignment with the OMV Group on that topic. This resulted in delivering a joint programme of activities and events throughout the year. Notably, in March 2021 Borealis organised a joint DE&I week with OMV. During this week, several initiatives, keynote speeches and activities were offered to the OMV and Borealis organisations, with the aim to inform, discuss, inspire, galvanise and guide all employees through the DE&I journey.

At all levels of the organisation, Borealis is continuously working to encourage more women to join its workforce and to take on more responsibilities. For example, the Group's approach includes engagement with national institutions such as universities and chemical schools, a more conscious and inclusive talent acquisition process, in which unconscious bias is addressed, and actively encouraging line managers to nominate women to take part in Borealis' talent programmes. In addition, DE&I is becoming a more prominent discussion topic in forums such as the CCC, management meetings and works councils, which fosters insights and strengthens the journey.

During 2021, Borealis expanded its DE&I focus to encompass a broader range of diversity aspects, such as age, nationality and diversity of thought. Ultimately, the Group's goal is to encourage and support all forms of diversity within the workforce and create an environment where all employees are valued. This means having an inclusive culture, in which the same opportunities are in place for all people to feel supported and be successful.

Training and People Development

Borealis looks to routinely train and develop employees, as well as external people who work with and for the Group. The Group's ambitions require employees to understand how their work affects customer satisfaction and to have a zero-accidents mindset that puts safety first. Providing appropriate training for functional and workplace skills that are rooted in Borealis' values, safety and ethics ambitions helps the Group to protect the health and safety of all employees, conduct business ethically and ensure production processes and products are safe. It also helps employees to develop their skills and advance their careers within Borealis.

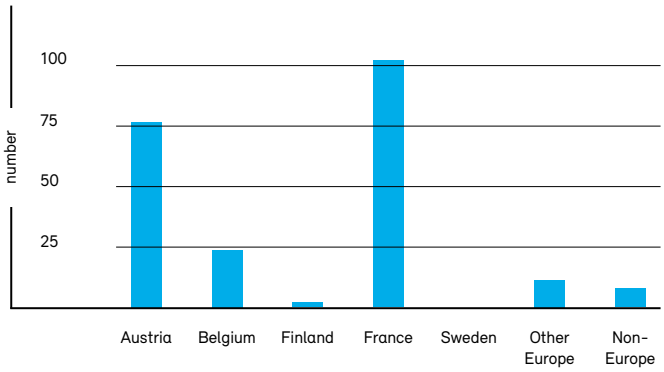
The Group identifies each employee's training and development needs through its yearly performance management process. This results in line managers and employees agreeing on Individual Development Plans (IDPs). Employees with performance gaps have mandatory Performance Improvements Plans (PIPs). Learning solutions continue to be developed with internal customers and reviewed and steered by the Executive Board.

Due to the close cooperation with OMV, the Group's digital learning offers increased significantly in 2021, with the launch of two LinkedIn Learning-based offers for leaders and employees, with gamified learning solutions to drive safety performance.

Talent Management and Leadership Development

Offering meaningful careers and ways to unlock people's potential is essential for attracting and retaining a highly skilled, qualified and diverse workforce. The Borealis Talent Management Process focuses on attracting, identifying, promoting and developing potential for leadership and expert positions, using Leadership Talent Management Programmes and Expert Talent Programmes. In addition to global leadership programmes and courses, the key businesses have developed function-specific programmes such as the Commercial Trainee Programme in Polyolefins.

Fig. 31: **Total number of non-employees per region in 2021**



Region	
Austria	78
Belgium	24
Finland	2
France	102
Sweden	0
Other Europe	11
Non-Europe	9
Total	**226**

Fair Remuneration

Fair remuneration means ensuring pay for performance, based on transparent performance evaluation. It supports strong business results by incentivising high-performing individuals and teams, increasing employees' retention and enhancing Borealis' reputation in the labour market. Borealis is therefore committed to providing fair and transparent reward packages for all employees.

Every employee reward package at Borealis consists of a base salary and incentive compensation. The total package is based on the systematic evaluation of roles, using an external evaluation methodology linked to Borealis' internal grading structure. This requires up-to-date role descriptions which define core activities and responsibilities. The reward package is evaluated regularly in the context of insights into national remuneration market data and developments. This approach ensures that he reward package is competitive both internally and externally.

Fig. 32: **Percentage of new hires/turnover by gender & by region & by age in 2021** [1) 2) 3) 4)]

in %	% of new hires per total gender / per total region / per total age cluster	% of turnover per total gender / per total region / per total age cluster
Gender		
Male	6.36	7.80
Female	10.80	9.34
Region		
Austria	8.03	8.13
Belgium	5.12	7.50
Finland	6.31	5.19
France	6.80	8.08
Sweden	3.93	7.86
Other Europe	7.76	10.25
Non-Europe	18.16	17.55
Age		
<30	21.06	10.76
30–50	7.61	6.29
>50	1.99	10.31

1) The percentage of new hires is based on employee changes during the year in the respective category (e.g. 100 employees with 10 new hires is 10% new hires). // 2) Austria, Belgium, Finland, France and Sweden are Borealis' significant locations of operation with more than 500 employees. All other European production or sales locations are summarised under Other Europe. Non-Europe covers all production or sales locations outside Europe. // 3) Turnover refers to all employees who left Borealis (this is a change as of this year to align with OMV; in the past, only employees who left Borealis voluntarily were counted). // 4) Numbers are correct to two decimal places in order to maintain granularity.

Each grade in the Group's grading system has a country-specific pay range and the pay position of employees within this range is monitored at both country and Group levels to control overall gender pay equality. The Group shares this aggregated gender pay analysis with its employees, as legally defined in the various countries. Employees are also entitled to information about how their salary compares to the respective market. Borealis performs a yearly equal pay analysis to identify focus areas for improvement. Borealis' owners may also provide additional focus areas through the Remuneration Committee, which assists the Supervisory Board in reviewing and approving Borealis' compensation approach. The Pension & Benefits Council, which is led by the CFO, sets the overall principles for employee benefit programmes, monitors their implementation across the Group and decides on significant changes to them. Based on the output from the Pension & Benefits Council and the Remuneration Committee, the Executive Board then gives HR a mandate to design new concepts for remuneration and to propose changes when needed.

Fair remuneration requires an effective performance management process. Borealis is therefore collaborating on the development of a shared performance management strategy for the wider OMV Group.

In 2021, the Long Term Incentive (LTI) Bonus, a reward scheme for Borealis Senior Management, was reviewed and a new LTI Plan was implemented. The new plan is harmonised with the OMV LTI Plan, fostering a strong focus on the overall goals of the wider OMV Group.

In addition, a set of sustainability related KPIs was integrated into the LTI Bonus Plan (where a sustainability KPI is one of ten KPIs on the Group scorecard) and the LTI Plan (→ chapter Sustainability Management, p. 38).

Fig. 33: **Percentage of total employees by gender and by employee category who received a regular performance and career development review in 2020** [1) 2)]

in %	Female	Male
Senior leaders	100.00	100.00
Managers	87.67	91.70
Team leaders	93.69	93.49
Experts	94.39	96.97
Administration	88.11	82.52
Blue-collar	89.82	89.24

1) As the performance and career development cycle ends with 31 March, figures are only available from the previous cycle (2020). // 2) Numbers are correct to two decimal places in order to maintain granularity.

Data Protection

Borealis ensures that it protects employee data by following a clearly defined data protection procedure, outlined in an Operative Instruction specifically for HR.

The Operative Instruction covers HR Authorisation and defines, for example, who has access to which HR data or how to request authorisation and approval workflows. Borealis also ensures that it complies with the 8th EU Directive, which requires the Group to monitor critical authorisations (such as salary data) and ensure segregation of duties.

HR closely aligns with the Group Data Protection Expert in the Legal function to regularly follow up on data protection issues and ensure ongoing training for relevant stakeholders. Trust Arc is the Group's guiding tool for documenting GDPR-relevant processes. The Group also continuously aligns with OMV on data protection topics and, in particular, on intercompany data exchange matters. The Group also rolled out GDPR e-learning modules during the year.

Hybrid Workplace

In 2021, Borealis implemented hybrid workplace Group guidance, which gives employees the flexibility to work partially from home, when appropriate. Flexible homeworking benefits both Borealis and employees. It provides a choice of when and where employees may work for optimal results, with homeworking allowing for increased focus, productivity and execution of tasks and office working refocused on collaboration, interaction and meetings. Hybrid working also supports Borealis' wellbeing commitments to support employees' work-life balance.

External benchmarking shows that hybrid workplace solutions have a positive influence on work performance and productivity, increase employee engagement and loyalty, foster a more diverse workforce and improve overall attraction and retention.

Outlook

The Group's HR goals for 2022 are to:

- build a "Wellbeing" platform with a yearly calendar of activities and develop "Discover Resilience Together" initiatives at local level;
- finalise the DE&I strategy for the OMV Group of Companies and roll out across the organisation;
- develop a capability roadmap as an input for strategic workforce planning;
- update and align Borealis' Employer Value Proposition and employer brand to fit the Group's new strategic direction; and
- review and update the process for continuous people performance and development.

Corporate Governance

Goals 2021	Key Achievements 2021
Recertify the Management System, including certification to ISO 45001, and transfer to new certification body	The Management System was recertified, including certification to ISO 45001 by the new certification body, with only one minor non-conformance.
Implement OMV regulations and new management system nomenclature	Postponed, although all preparations have been finalised.
Prepare the plants certified according to the Automotive standard IATF 16949 for the transfer to the new certification body in 2022	All plants are prepared to transfer to the new certification body in 2022.
Follow-up on classification changes affecting Borealis products	Updated safety data sheets (SDSs) and label information for 54 products due to classification changes of raw materials.

Good corporate governance creates a system of management and control for Borealis that is accountable, transparent and geared to creating sustainable, long-term value, serving the needs of all parties whose wellbeing depends on the success of the enterprise. In particular, this extends to Borealis' stakeholders who are interested in or impacted by Borealis, including employees, customers, suppliers, governments, capital markets and the general public.

Borealis' approach to governance is documented in the Borealis Management System (BMS). Managing risks and opportunities is an integral part of the BMS, to ensure the Group continuously improves and identifies mitigating actions where needed.

The Group's governance is supported by compliance with industry-accepted standards, such as ISO. Being certified to these standards provides independent confirmation that Borealis applies best practices in its daily activities. Embedding ISO standards also requires Borealis to continuously improve so it generates more value for customers and other stakeholders.

Borealis is headquartered in Austria and voluntarily follows the recommendations of the Austrian Code of Corporate Governance, which aims for companies and groups to establish a system of management and control that supports creating sustainable, long-term value. For more details on the Governance of Sustainability (→ chapter Sustainability Management, p. 38).

Corporate Governance Structure

The Supervisory Board governs the Borealis Group and consists of members of OMV and Mubadala, Borealis' two shareholders. The Supervisory Board currently comprises the chairperson, the vice-chair and three additional members. It has established Audit and Remuneration Committees and delegated the respective responsibilities to those sub-committees. The Supervisory Board met seven times in 2021, including two extraordinary meetings. The Audit Committee and the Remuneration Committee each met three times.

The Supervisory Board appoints the members of the Borealis Executive Board, who manage Borealis' business activities and lead their respective areas of responsibility.

Borealis Management System

Borealis' corporate governance model is based on its four values (Responsible, Respect, Exceed and Nimblicity™) and is supported by five corporate governance principles:

1. Borealis is managed as one cross-cultural Group;
2. the Borealis Executive Board steers the Group through directional guidance and empowerment of its people;
3. Borealis is steered by centrally organised functions and businesses;
4. Borealis promotes a performance culture based on clear accountabilities for delivery; and
5. Borealis' leaders follow explicit processes and pursue transparent and effective decision-making.

The values and governance principles run through the Group at all levels and are the foundation for the BMS. The principles ensure a common understanding of leadership throughout the Group and establish effective organisational structures and control.

Following the full consolidation of the Borealis Group into the OMV Group, which was effective from 29 October 2020, relevant BMS documents have been updated in line with OMV's governance principles. The harmonisation of OMV and Borealis Group Directives began in early 2021 and will be continued in 2022.

Group Policies

A set of ten Group Policies define how Borealis works as a company and thus guide subsequent governance documents. All employees must adhere to the policies in their day-to-day activities.

The ten Group Policies are:

1. Authority Schedule
2. Commercial Policy
3. Communication Policy
4. Ethics Policy
5. Innovation Policy
6. People Policy
7. Project Policy
8. Quality Policy
9. Responsible Care® Policy
10. Risk Management Policy

Each Group Policy is owned by the Chief Executive Officer (CEO) or Chief Financial Officer (CFO) and is issued by an Executive Vice President (EVP), (Senior) Vice President (S(VP)) or Director responsible.

The Authority Schedule defines how authority is delegated in all business and functional areas and establishes the approval levels for senior management within key processes. Any material change to the Authority Schedule must be approved by the CFO as the Policy Owner, by the Executive Board and subsequently by the Borealis Supervisory Board. Any material change to one of the other Policies must be approved by the CEO or CFO as the Policy Owner and subsequently by the Borealis Executive Board.

Secondary BMS Documents and BMS Setup

In addition to the Group Policies, the BMS encompasses Procedures and Handbooks, Process Descriptions and Operative Instructions, as well as Committee and Meeting Charters.

Below the Group Policy level there are about 40 Procedures and Handbooks. These provide specific guidance, describe key processes and explain the purpose, scope and setup at departmental level. The subsequent Process Descriptions and Operative Instructions have a more operative focus and provide detailed guidance on the execution of activities at Group, business or location level.

Fig. 34: **The Borealis Management System**

The Borealis Management System forms the basis for Borealis' governance

Policies
10 Group Policies define how Borealis works.

Procedures and Handbooks
About 40 procedures/handbooks provide specific guidance, connecting key processes, organisational purpose/scope and setup.

Processes
Processes provide detailed guidance on the execution of activities at group, business or location level.

Instructions
Instructions provide detailed guidance on the execution of activities at group, business or location level.

The BMS includes both Group and location aspects, which together document the complete way of working at Borealis.

The Group BMS is managed in a centrally controlled document management database. It applies to all locations and to Borealis' affiliates, such as joint ventures, customers or suppliers, unless the Executive Board has approved an exception. The Policies and governance documents in the Group BMS are revised at least every three years.

Local BMS documents apply to a particular location and can be written in the local language to ensure local employees fully understand them. Controlled documents in the local BMS are revised at least every five years.

Committees

For particularly important social and environmental matters, Borealis has set up committees to provide additional governance and ensure continuous improvement in these areas. These committees are cross-functional and are overseen by Executive Board members. Notable examples of these committees are:

- The Borealis Responsible Care Committee, which comprises all the Executive Board members and is sponsored by the CEO and chaired by the Health, Safety, Environment & Quality (HSEQ) Director. The committee oversees implementation of the Group's Responsible Care Policy and programmes and monitors overall health, safety, energy and environmental performance against key performance indicators. The committee also assesses any serious health, safety or environmental (HSE) incidents to help avoid future risk to human safety and the environment (→ chapter Occupational Health & Safety, p. 54).
- The Product Stewardship Council, which is responsible for defining and executing the Group's strategy for dealing with hazardous substances, by identifying and addressing the biggest business risks and opportunities that result from the use or substitution of hazardous substances. The team's decisions impact the innovation project portfolio, the Borealis Banned Substances List and existing uses of substances (→ chapter Product Safety, p. 62).
- The Ethics Council, which consists of senior leaders or senior representatives from Legal, Internal Audit, HSE, Human Resources and the different businesses. The council aligns the Group's approach to ethics and provides updates on compliance and ethics matters to ensure consistent Group-wide ethics standards. It also has the exclusive right to decide on important and strategic ethics-related matters, such as disciplinary actions, high-value sponsorships and conflicts of interest, which are binding for the Borealis Group.
- The Quality Committee, which comprises all the Executive Board members and is sponsored by the CEO and chaired by the HSEQ Director. The committee sets the Group's quality management priorities and drives implementation of all quality management programmes and initiatives. It also evaluates the BMS' effectiveness and efficiency each year during the management review and develops continuous improvement actions. In particular, the committee discusses market requirements, customer feedback and changes to industry standards as input for improvement programmes.

Ensuring Compliance with the Borealis Management System

Compliance with the BMS is monitored at multiple levels and by various stakeholders:

- Process owners across the organisation use performance indicators to continuously monitor the effectiveness and efficiency of their respective processes. Processes are also reviewed regularly through internal system audits.
- The BMS is reviewed annually at location level by the location leadership teams and at Group level by the Executive Board.
- In addition to audits by external certification bodies and governmental institutions, a number of Borealis' customers select different locations for an audit as part of their supplier qualification and review process. Borealis uses these audits as a key source of continuous improvement initiatives. In 2021, Borealis successfully passed all mandatory third-party audits. Voluntary second-party audits, such as customer audits, were pursued as requested.

Activities 2021

With regards to corporate governance, the focus in 2021 was to maintain the maturity of the management system while preparing it for upcoming changes, namely:

- successfully recertifying the management system, including the certification to the ISO 45001 standard by a new certification body;
- starting to align the OMV and Borealis management systems, which triggered cross-learning in both companies and stimulated further improvement opportunities; and
- preparing the plants certified to the Automotive standard IATF 16949 for the transfer to the new certification body in 2022. This will provide Borealis with synergies from having one certification body for all ISO standards and

IATF 16949, while keeping the audit load for the locations as low as possible.

Managing Customer Complaints

The Group has a tightly integrated set of controls to ensure delivery of the agreed goods and services to customers. These controls operate before, during and after production, for example, while supplying the products to the customer. Despite these controls, customers might not be fully satisfied with Borealis' products and services. In such cases, Borealis uses a formalised customer complaint handling process, recognising that effective complaint handling can enhance its reputation, customer relationships and customer satisfaction, even when it has initially not lived up to the customer's full expectations. The information obtained through the complaint handling process therefore helps Borealis to improve its products, services and processes. The Group also uses regular customer satisfaction surveys as a source of information for continuous improvement.

Internal Control Systems and Audits

Borealis has established a system of internal controls in line with EU regulations. These controls assess the robustness of the Group's systems and processes, and support the monitoring, management and reporting of related risks. The system of internal control is owned by the CEO and senior management. The Audit Committee is responsible for monitoring its effectiveness.

Internal controls are defined for core processes and require control owners to complete self-assessments. Borealis has an independent Internal Audit function, which supports and monitors these self-assessments to ensure compliance, while external auditors assess the effectiveness of the internal controls. Borealis follows the guidelines set by the Institute of Internal Auditors.

Internal Audit is headed by the Director of Internal Audit and Risk Management, who reports directly to the Audit Committee. The Audit Committee reviews the effectiveness of Internal Audit and Risk Management and approves the annual internal audit plan proposed by Internal Audit. All audit results are reported to and discussed by the Audit Committee.

In 2021, Internal Audit performed more than 20 audits, special investigations and internal control reviews for key processes. The audits covered all business groups, as well as Group functions. Audit areas encompassed: compliance; operations; strategic and financial topics including risk management, ethics and management control; sustainability; procurement; strategy execution; joint ventures; and innovation. Internal Audit also conducted prevention, risk management and process-safety-related audits at Borealis' locations.

The Audit Coordination Forum, headed by the Director of Internal Audit and Risk Management, coordinates and aligns the approach for audits carried out by Internal Audit with the audits carried out directly by HSEQ.

Risk and Opportunity Management

Borealis' approach to risk management is based on the core objectives of identifying, assessing and managing risks that could affect the performance of any part of its operations and gaining a better understanding of how the explicit consideration of risk may affect the Group's strategy. Risk management therefore contributes to achieving Borealis' long-term strategy and short-term goals, and is designed to enrich management dialogue. Risk management also enhances Borealis' enterprise resilience, which is the ability to anticipate and respond to change, and enables the organisation to identify factors that may affect performance and require an adjustment to the strategy. This process, known as Enterprise Risk Management (ERM), is driven by Internal Audit.

Both non-financial and financial risks are identified, assessed and reported through the Group-wide ERM process. This process is continuously expanded and adapted to ensure compliance with developing regulatory reporting standards related to ESG. In addition to the identification of risks, the assessment of financial, market, operational, tactical, strategic, sustainability and reputational risks helps the Group to assess business opportunities systematically.

Borealis' Risk Management Policy is owned by the CFO. Its objective is to establish sound risk management practices in all business areas and in all places where Borealis operates. The Risk Coach Network, which is a cross-functional risk committee chaired by the CFO, with senior representatives from across the Group, ensures that the ERM process effectively captures and manages material risks across Borealis.

The Group's risk management process ensures that all parts of Borealis routinely identify and assess their risks, including sustainability-related risks, and develop and implement appropriate mitigating actions. Key risks across the Group are periodically discussed at a Group-wide level and consolidated to produce the Group's overall risk landscape. Each quarter, Executive Board members review these key risks, validate the Group's risk tolerance levels and risk appetite, monitor the implementation of mitigating actions and ensure that they are integrated into strategic planning. The process consists of individual process steps starting with risk identification, risk analysis, risk evaluation, risk treatment, reporting and risk review, through continuous monitoring of changes to the risk profile.

While each Borealis employee is responsible for managing risk within their own areas of activity, the Executive Board owns the Group-wide risk landscape and frequently reports on it to the Supervisory Board. The Supervisory Board reviews the effectiveness of Borealis' risk management practices and processes, the Group's risk exposure and the effectiveness of its mitigating actions. The Supervisory Board delegates some of these responsibilities to the Audit Committee.

When evaluating risks, Borealis also assesses any impact its activities might have on sustainability matters. For details on the management of climate risks, please refer to the section on the Task Force on Climate-related Financial Disclosure (TCFD) (→ section Climate-related Risks and Opportunities, p. 84). Risks that Borealis poses on non-financial matters (according to the NaDiVeG) and taxonomy are also summarised in → chapter Sustainability Management, p. 38.

The Three Lines of Defence

Borealis applies the "three lines of defence" approach to risk management. This approach recognises that each line of defence has a distinct role in identifying, assessing and mitigating risk, and overseeing the effectiveness of these processes. It ensures that risk management is embedded in Borealis' daily business rather than being a standalone process, and that it is a key part of the Group's decision-making, for example, for investments and capital allocation.

The three lines of defence are:

1. Operational management, which is responsible for maintaining effective internal controls and for carrying out risk and control procedures on a day-to-day basis.
2. Risk management and compliance functions, which ensure that the first line of defence is well designed and working effectively.
3. Internal Audit, which provides independent and comprehensive assurance about the effectiveness of governance, risk management and internal controls, including how well the first and second lines of defence are achieving their risk management objectives.

Responsible Care®

Borealis' determination to control sustainability risks is stipulated in the Group's Responsible Care Policy Statement, which sets out the Group's aim to be a recognised leader in Responsible Care. The statement is the basis for all of Borealis' activities and the development of processes in areas such as occupational health and safety, energy and environmental management, process safety, product stewardship and others, with the aim of achieving world-class performance in all these aspects.

The Group follows the legal and other requirements to which it subscribes, or looks to exceed them when they do not meet the Group's standards. Borealis is also committed to advancing sustainable development along the value chain, prioritising innovative, value-creating solutions according to the principles of Product Safety. The Group has a Responsible Care management system, based on continuous improvement and verification of its performance, and openly discusses Responsible Care issues with its stakeholders to further promote health, safety and the environment and to save energy along the value chain.

Outlook

In 2022, additional focus will be given to a number of topics, such as sustainability reporting requirements related to the EU Taxonomy, the Group's transformation towards a business model that increasingly integrates circular processes, and compliance aspects such as the General Data Protection Regulation (GDPR).

Responsible Care®

Borealis is committed to implementing the guidelines of the Responsible Care Global Charter, which is the chemical industry's voluntary initiative aimed at continuous improvement in HSE performance. The guidelines contained in the charter, such as efficient use of natural resources and efforts to avoid the production of waste, are also among the central principles guiding Borealis.

Through Responsible Care, Borealis commits to:

- Ensuring it has a corporate leadership culture which proactively supports safe chemical management, through the global Responsible Care initiative.
- Safeguarding people and the environment by continuously improving the HSE performance and security of Borealis' facilities, processes and technologies, and by driving continuous improvement in chemical product safety and stewardship throughout the supply chain.
- Strengthening chemicals management systems by participating in the development and implementation of life cycle-oriented, science- and risk-based chemical safety legislation and best practices.
- Influencing business partners to promote the safe management of chemicals within their own operations.
- Engaging stakeholders, understanding and responding to their concerns and expectations for safer operations and products, and communicating openly on Borealis' performance.
- Contributing to sustainability through improved performance, expanded economic opportunities and the development of innovative technologies and other solutions to societal challenges.

Ethics & Compliance

Goals 2021	Key Achievements 2021
Provide ethics and compliance training to more than 80% of the Borealis workforce	In 2021, 87% of the entire workforce received at least one ethics training session.
Set up a new Ethics Reporting Line, in compliance with the EU Whistleblower Directive	In August 2021, Borealis successfully implemented the "Integrity Hotline" from the German service provider EQS Group AG.
Integrate DYM / Korea into the Group's ethics and compliance framework	The Ethics Policy was translated into Korean and communicated to the entire workforce and two local Ethics Ambassadors were appointed. In March 2021, the Group extensively rolled out Ethics e-learning courses including CodeOne, anti-trust law and anti-bribery.

Maintaining the highest standards of integrity is essential for securing and maintaining the trust of Borealis' customers, suppliers, employees, shareholders and other key stakeholders, and for protecting the Group's reputation. Failure to meet its ethical and compliance obligations could expose Borealis to the loss of stakeholder trust and reputational damage, as well as to fines, legal claims, loss of business, contracts or licences, or even the imprisonment of management and employees involved. An unethical or non-compliant culture can also affect employees' engagement and job satisfaction.

Borealis' commitment to ethical business conduct is clearly reflected in its core values of Responsibility, Respect, Exceed and Nimblicity™. The Ethics Policy lays down the Borealis principles of ethical business conduct and gives guidelines to its employees. The main areas covered by the Ethics Policy are ethical principles, anti-corruption, business and personal integrity, compliance with competition laws and data privacy.

Organisational Structure

The Group's Compliance & Ethics function has both preventative and controlling roles. It looks to prevent infringements of laws, ethical principles and compliance matters, and to mitigate risk, react to issues and implement lessons learned. The function is headed by the Group Compliance & Ethics Officer, who reports to the Chief Legal Officer and also has a reporting line to the Audit Committee, which receives an annual report on compliance and ethics issues. The Group Compliance & Ethics Officer is supported by an Ethics & Compliance Manager and a network of more than 90 Ethics Ambassadors. The Ethics Ambassador network is a key tool for promoting and strengthening Borealis' ethics culture. The network has global coverage, with one ambassador at almost every location and across all hierarchy levels.

Borealis' Compliance & Ethics function has regular exchanges of information with its counterparts at the Group's owners, OMV and Mubadala. In addition, Group Compliance & Ethics regularly provides ethics-related information and updates to the CEO and the Audit Committee. In particular, this information includes major new projects and a report on substantiated unethical misconduct.

Borealis Ethics Policy (Code of Business Conduct)

The Borealis Ethics Policy applies to the entire Borealis workforce and is accessible to the public on Borealis' website.

Borealis' contractors, suppliers and other business partners are asked to adhere to the Ethics Policy or to have their own policies which are of a similar standard. Borealis has also created a Supplier Ethics Policy to reflect the specific ethics aspects needing to be managed in its supply chain. All major and strategic Borealis suppliers must adhere to the Responsible Sourcing Policy, which is accessible on the Borealis website. It defines the Group's approach to key aspects of business ethics when sourcing, such as anti-corruption, anti-slavery and child labour, as well as health, safety and the environment (HSE) (→ chapter Procurement of Raw Materials, Packaging and Technical Supplies, p. 127).

Key areas covered by the Ethics Policy are:

Corruption and Bribery

Before entering into a relationship with business partners from countries which are rated as high risk in Transparency International's Corruption Perceptions Index, Borealis conducts a compliance clearance review. This is supported by an IT application provided by Thomson Reuters, which verifies legal entities and associated individuals. Borealis will only proceed with the business relationship if the review shows no negative results. In all other cases, Borealis will not enter into any business relationship or will conduct further thorough due diligence to clarify any concerns.

Borealis' anti-corruption and anti-bribery rules include not accepting or tolerating any kind of facilitation payments. The Group also strictly prohibits offering, giving or accepting gifts or anything of value in order to obtain or grant an improper business advantage. Any gift or hospitality in connection with Borealis' business activities must be reasonable and appropriate, and must have a legal and reasonable business purpose. In accordance with Borealis' Ethics Policy, gifts and hospitality offered or received by Borealis colleagues must be registered in an internal gift registry, which is maintained and monitored by Group Compliance & Ethics.

Human Rights

Borealis does not tolerate any form of harassment, bullying, discrimination, disrespect, exploitation of a person's vulnerability or dependency, or any other violation of human rights. The Group expects all its suppliers, customers and other business partners to strictly comply with human rights laws. Borealis has an Operative Instruction in place to comply with the requirements of the UK Modern Slavery Act. The Group is also strongly committed to the Ten Principles of the United Nations' Global Compact and the International Labour Standards of the International Labour Organization.

Before doing business with an external partner, Borealis conducts a compliance check by applying an automated IT screening system called Securimate. The checks primarily involve human rights aspects and highlight any convictions, ongoing proceedings, suspicions or other red flags with regard to human rights violations. The checks continue to be carried out for as long as Borealis does business with the partner. An Operative Instruction determines the due diligence requirements and escalation procedure in the event of a higher risk rating or red flags being detected, with the Group Compliance & Ethics Officer having the ultimate responsibility for approving or rejecting a business partner.

In addition, Borealis conducts an annual human rights assessment in different regions to determine local human rights risks and recommend appropriate actions to mitigate those risks.

In its entire existence, Borealis has never been investigated, prosecuted or fined for human rights-related violations and the Group maintained this record in 2021.

Competition

Borealis is committed to healthy, lawful, equitable and ethical competition between companies. The Group applies policies to ensure full compliance with applicable competition laws in all of the jurisdictions where it performs its business. Borealis also puts special focus on anti-trust and competition requirements in its compliance training and workshops.

Data Privacy

Borealis must treat all personal information relating to its employees and business partners confidentially and in line with legal requirements. The Group takes its obligations under GDPR and any other applicable data protection laws seriously and makes sure to prevent unauthorised disclosure. Certain employees may, as part of their role, deal with personal information about other employees or third parties. Those employees receive specific training on what is required from them in relation to such data.

Borealis expects all employees encountering personal data to always treat it confidentially and in accordance with the applicable law (→ chapter Our People, p. 106).

Issuer Compliance

Since Borealis is fully consolidated into the listed OMV Group, issuer compliance and the application of the Market Abuse Regulation (MAR) has become significantly more important at Borealis. The Group is now an important contributor to OMV Group's financial performance and Borealis' business performance might therefore impact OMV's share price and other financial instruments. The Group therefore needs to consider an increased compliance risk related to insider dealing and other misuse of inside

information. Before the consolidation with OMV, Borealis was not a consolidated part of a listed group and the MAR was mainly relevant to Borealis as an issuer of fixed rate bonds, which involve minimal risk for insider trading and other market abuse practices. Group Compliance & Ethics has implemented and updated several procedures to create awareness and mitigate risks. Among others, there is a process in place to identify colleagues who are more exposed to MAR-related risks and who are annually trained and requested to sign an adherence declaration.

Activities 2021

New Ethics Hotline: Whistleblowing and Speaking Up

Borealis fully complies with the EU Whistleblower Directive. Looking away is not an option for Borealis employees and the Group's Ethics Policy requires employees to report witnessed or suspected unethical behaviour. All white-collar Borealis employees have to confirm annually that they have reported all unethical behaviour that they might have observed.

To file a report, employees can contact Legal, HR, an Ethics Ambassador, the Compliance & Ethics team or the Ethics Hotline, which enables individuals inside and outside Borealis to file reports. Reports can be anonymous, in which case the identity of the reporter is not tracked. Borealis does not accept any retaliation against any reporter or witnesses. Once a report is received, the Group follows an investigation and disciplinary procedure to ensure that potential ethical breaches are thoroughly, confidentially and professionally investigated and that there is appropriate action in any cases of substantiated misconduct.

Borealis continuously promotes "speaking up", which was also a focus question in the 2021 Pulse Check Survey (→ chapter Our People, p. 106), to encourage employees to report any actual or suspected ethical or compliance breaches. In 2021, Group Compliance & Ethics received almost 100 reports, of which 18 cases were investigated. Eight of these investigations substantiated or partially substantiated misconduct of Borealis colleagues; 6 did not substantiate misconduct and 4 are ongoing.

To make speaking up even easier and safer for employees, and more practicable for Borealis to manage, in 2021 Group Compliance & Ethics implemented a new "Integrity" Ethics Hotline, hosted by the German company EQS. The new system was in place from August 2021 and replaces the Group's previous tool. The system helps ensure full compliance with the GDPR and with the EU Whistleblower Directive (Directive (EU) 2019/1937), which became applicable in all EU jurisdictions on 17 December 2021. The system also provides the fullest technical protection of the information reported and strictly limits access to only those who are responsible for resolving the matter. Reports can also be made anonymously and in all languages spoken by Borealis employees.

In compliance with the new Whistleblower Directive (Directive EU 2019/1937), the new Ethics Hotline is available for reports related to the following categories:
- Anti-bribery and corruption
- Breach of confidentiality
- Competition law
- Financial crime
- Conflict of interest
- Data privacy
- Fraud and theft
- HR compliance (such as harassment or discrimination)
- Trade compliance
- Violation of policies
- HSE
- Environmental damage

Data Protection

Between April and December 2021, Group Compliance & Ethics, supported by external local consultants, conducted a thorough review of each EU location's data processing activities and their relevant entries in the Group's IT data processing archive, TrustArc. The purpose of this project was to update and complete the entries, together with the legal assessment, in accordance with GDPR requirements.

Ethics & Compliance Performance

Borealis, to the best of its knowledge, was not involved in any material violations of anti-corruption, anti-trust or competition law, human rights or data privacy restrictions during 2021. Consequently, no penalties, fines or other permanent sanctions were imposed on Borealis and no legal action was initiated against Borealis or any Borealis employee for non-compliance with these legal requirements.

Internal Communication

Group Compliance & Ethics sent out several ethics newsletters, articles and ethics updates, both to specific groups and to the entire workforce. The ethics newsletter includes important ethics-related updates and information, and anonymised information about substantiated misconduct.

Ethics Conference

Group Compliance & Ethics organised and hosted a number of conferences, workshops and tailored training sessions during 2021. Most importantly, on 19 October 2021 the team hosted a virtual Ethics Conference with more than 170 participants from Borealis, its joint ventures Borouge and Baystar™, its owners OMV and Mubadala and its partner company ADNOC.

Ethics Training

Borealis provides regular training to promote its Ethics Policy, which is based on the principles of honesty, integrity, working together, respect for each other, accountability and HSE.

Since December 2018, Borealis has provided e-learning for employees through its service provider, Learn Research Network Limited (LRN). LRN is one of the global market leaders for e-learning solutions. The training plan is illustrated in Figure 35, p. 123. It is reviewed annually and adapted as necessary. In 2021, 10,641 e-learning courses were completed by Borealis employees.

Borealis also conducted tailored classroom or virtual training sessions for 527 employees. Training sessions were provided by the Group Compliance & Ethics team, Legal and Ethics Ambassadors.

Training on human rights issues is part of every classroom training and Code of Conduct e-learning training. Topics covered include non-discrimination, respect, fair treatment and data protection.

Altogether, 87% of the entire Borealis workforce have completed an ethics-related e-learning course or in-person training.

Outlook

Anti-Bribery and Corruption and Anti-Trust Maturity Assessment

In 2022, Borealis plans to complete a thorough Group-wide anti-bribery and corruption and anti-trust maturity assessment, supported by the law firm Dentons UK. The assessment will include reviewing Borealis' business activities and policies, as well as interviewing Borealis managers, and will determine each business unit's compliance risk and Borealis' preparedness level.

Compliance Certification

In 2022, Borealis plans to start an external certification process with the aim to obtain ISO 37301 (Compliance Management) and ISO 37001 (Anti-Bribery Management Systems) certification by the end of 2022 or the beginning of 2023.

Fig. 35: **E-learning schedule**

Training title	Target group	Training description	Frequency
Annual Certification	All white-collar employees	Commitment by each white-collar employee that the Ethics Policy is understood and followed	Annually
Code of Conduct	All employees	Principal rules of the Ethics Policy	Annually
Combating Bribery in Business	Managers, Sales & Procurement	Anti-corruption requirements	Annually
Data Privacy & Safeguarding Information	All white-collar employees	GDPR and data security requirements	Every second year
Anti-Trust & Competition Law	Managers, Sales & Procurement	Legal requirements for complying with competition and anti-trust laws	Annually
Preventing Harassment in the Workplace	All employees	Training to ensure a work environment that is characterised by mutual courtesy and respect	Every second year
Trade Compliance	Managers, Sales, Procurement, Tax & Customs	Sanctions, embargoes and trade control requirements	Every second year
Issuer Compliance	All Borealis managers and employees who have access to Inside Information	Legal requirements related to the EU Market Abuse Regulation (MAR)	Annually
Ethical Leadership	All Borealis managers	Line managers are trained on how to create an ethical culture in their teams	Once for every manager

Procurement

Procurement of Feedstock, Electricity and Utilities

Goals 2021	Key Achievements 2021
Continue to execute Borealis' renewable electricity strategy	Signed two leading power purchase agreements (PPAs) in Finland and Belgium. Took the investment decision for a large (4.8 MWP) solar energy farm in Schwechat, Austria, and commissioned a 400 KWP solar energy farm in Monza, Italy.
Expand global feedstock sourcing	Established a permanent team for feedstock procurement in the US and placed order for construction of a Very Large Gas Carrier (VLGC) linked to the propane supply strategy for the new propane dehydrogenation plant (PDH) in Kallo, Belgium.
Offer Bornewables™ polypropylene (PP) with bio-content	Bornewables PP with bio-content produced in Kallo, Belgium.

To manufacture and deliver its products, Borealis purchases and sources feedstock, electricity and utilities, such as steam, nitrogen and boiler feedwater.

The products and services the Group procures have an important influence on its business performance, including critical areas such as safety, environmental impact, quality and customer service. The Group therefore looks to carefully manage its sourcing activities to optimise performance in these areas. Borealis does this by developing specific sourcing strategies for individual product and service categories. The Group also looks to further improve the reliability of its feedstock supply by approving alternative sources.

Sourcing of Feedstock

Olefins and Polyolefins

Borealis sources hydrocarbon feedstocks, such as naphtha, butane, propane and ethane, and converts them into ethylene, propylene and a range of co-products through its olefin units.

The Group's main focus is on the quality, availability and cost of feedstock. Global sourcing of feedstock is crucial as it gives the Group a more diversified supplier base so it can obtain the right quality, remain competitive and avoid supply disruptions. A dedicated team of feedstock traders and product managers is responsible for sourcing the whole Borealis feedstock range. Feedstock and olefins required for Borealis' olefins and polyolefin production plants are either sourced from Borealis' shareholder OMV or purchased globally via strategic long-term supply agreements, short-term contracts and spot trading, covering deliveries from the US, Russia and Europe.

The cost of feedstock is closely linked to swings in the crude oil price. Borealis therefore implements hedging strategies and ensures that it develops and maintains a high-performing commercial sourcing team. The Group actively screens specific new markets, maintains its market knowledge through report subscriptions and by attending industry and market conferences, and engages with industry partners to share best practices. Borealis is a member of a number of industry groups, such as the European Chemical Industry Council (CEFIC), and takes part in industry gatherings such as the European Petrochemical Association and the European Petrochemical Luncheon.

As part of the journey towards increased sustainability, Borealis has renewed International Sustainability & Carbon Certification PLUS (ISCC PLUS) in its plants in Kallo (Belgium), Beringen (Belgium), Schwechat (Austria), Porvoo (Finland) and Stenungsund (Sweden) and secured renewable feedstock deliveries in several locations.

Fertilizers, Melamine and Technical Nitrogen Products (TEN)

Borealis' Fertilizers, Melamine and TEN business consumes natural gas for its production sites as a primary feedstock. Natural gas is mainly consumed through its conversion to gaseous hydrogen through steam and is needed to produce ammonia.

Performance 2021

In 2021, the Group sourced 2,998 kilotonnes (kt) of feedstock for its olefins production units (namely the crackers and the PDH unit) and 1,496 kt of olefins for its polyolefin units. The Group also sourced 12,268 GWh of feedstock for fertilizer, melamine and technical nitrogen production, which includes natural gas as a raw material for the production of ammonia.

Fig. 36: **Feedstock sourced for production of olefins and polyolefins (kt) 2017–2021**

kt	2021	2020	2019	2018	2017
Feedstock for olefins	2,998	2,010	2,934	2,558	2,388
Olefins for polyolefin production	1,496	1,932	1,520	1,420	1,382

Fig. 37: **Feedstock sourced for production of fertilizers, melamine and TEN (GWh) 2017–2021**

GWh	2021	2020	2019	2018	2017
Feedstock for fertilizer production	12,268	14,034	14,777	13,117	13,887

Non-renewable feedstock sourcing

Ethane contributes to the competitiveness of Borealis' European cracker assets and deliveries linked to the long-term supply agreement for US-sourced ethane continued in 2021. European ethane was less competitive due to the high natural gas prices. Increasing propane and butane spreads against naphtha meant the light feedstock advantage deteriorated compared to historical performance.

In light of the new PDH plant in Kallo, which is planned to start operating during the third quarter of 2023, Borealis has begun to expand its feedstock sourcing capabilities on a more global basis through a new permanent team in the US. The Group has also placed an order for the construction of a Very Large Gas Carrier (VLGC) to supply propane for Kallo. The local logistical assets owned and operated by a third party to supply the new PDH plant are planned to start in Q1 2022.

During 2021, Borealis increased its efforts to source liquefied petroleum gas (LPG) from the US for the Porvoo location, driven by reduced availability from Russia and the possibility of sourcing bigger vessels at more advantageous prices from the US.

Renewable feedstock sourcing

The Group's strategic cooperation with Neste achieved another milestone in 2021, with Borealis being able to supply Covestro with several thousand tonnes of phenol and acetone made from Neste's renewable hydrocarbons. Neste produces these ISCC PLUS-certified hydrocarbons entirely from renewable raw materials, such as waste and residual oils and fats. Borealis then converts the hydrocarbons into ISCC PLUS-certified phenol and acetone, which are finally used by Covestro to produce high-performance plastic polycarbonate. The renewable phenol and acetone supplied by Borealis replaces part of the phenol and acetone previously manufactured from fossil resources.

Chemical recycling

In 2021, Borealis signed an offtake agreement with Renasci to acquire the entire chemically recycled feedstock output from its high-tech recycling centre in Oostende, Belgium, to convert into renewable product as per the ISSC PLUS mass balance methodology. The agreement enables Borealis to become one of the leading global suppliers of chemically recycled base chemicals and polyolefins. The portfolio of Borealis Borcycle™ C products enables the transformation of plastic waste into circular high-performance products and applications. For more on the agreement with Renasci see → chapter Circular Economy, p. 67.

As the Renasci chemically recycled material requires special treatment during transportation, a dedicated supply chain concept has been set up to transport the Renasci material in a safe and reliable way to the cracker in Porvoo, Finland.

In addition to sourcing chemically recycled material, Borealis is also investigating the viability of constructing its own chemical recycling plant at its location in Stenungsund, Sweden (→ chapter Circular Economy, p. 67).

Sourcing of Electricity & Utilities

Polyolefins and Olefins

Borealis sources electricity and utilities needed for its production processes. The Group's electricity contracts are generally spot-indexed and contracted on a one-to-five-year basis. Commodity pricing risk is managed using financial risk instruments.

The Group is actively scouting for industry alliances to prepare for a carbon-neutral future and has the goal for 50% of its electricity use to come from renewable sources by 2030 (→ chapter Energy & Climate, p. 74). In addition to the sustainability benefits, electricity and utilities represent an important cost for Borealis and renewable sources offer potential cost savings for the Group.

During 2021, Borealis continued to develop PPAs to source renewable electricity on a longer-term basis. In Finland, Borealis signed a PPA with Fortum, a Finnish energy supplier. The energy will be generated by two new onshore wind parks, located northwest of the Borealis production location in Porvoo, Finland. In Belgium, Borealis signed a PPA with Axpo, a Swiss energy trader and supplier, to acquire renewable electricity for the Group's production plants. The electricity will be generated by two existing onshore wind farms located in the Walloon region of Belgium. Borealis also approved investments in solar panels (4.8 MWP) at its production location in Schwechat, Austria, and successfully commissioned a rooftop solar farm (0.4 MWP) in Italy, with panels that incorporate Borealis' Quentys™ material.

The PPAs signed during 2021 and the commissioning of the solar farm means that Borealis will obtain 20% of its total electricity needs from renewable sources through long-term agreements, well on track to reach its goal by 2030.

Utilities are sourced on a longer time horizon of ten to fifteen years and very often within the context of petrochemical clusters, enabling delivery by pipelines from neighbouring industry.

Fertilizers, Melamine and TEN

Fertilizers, Melamine and TEN follows the same energy and utilities sourcing strategy as for olefins and polyolefins production described above, with a focus on spot indexation and a one-to-two-year horizon. Commodity pricing risk is also managed using financial risk instruments.

Outlook

Borealis' objectives for 2022 in feedstock, electricity and utility procurement are to:

- further increase global sourcing of feedstock for the crackers and PDH units at competitive prices;
- further increase renewable feedstock sourcing through increased volumes from existing renewable feedstock contracts and exploring alternative sources, including studying options for the Group's own chemical recycling plant; and
- continue to progress towards the target of sourcing 50% renewable electricity by 2030 through additional PPAs and solar panel investments, with a need to source an additional 210 GWh/a of electricity from renewable sources.

Procurement of Raw Materials, Packaging, Technical Supplies and Services

Goals 2021	Key Achievements 2021
Develop a concept on sustainability supplier management	Concept on sustainability supplier management ready for implementation in 2022.
Further increase the score in the EcoVadis sustainability assessment for procurement	EcoVadis gave Borealis a score of 80 points in its sustainability assessment, resulting in a Platinum rating which places Borealis' procurement in the top 2% of all assessed companies.
Collaborate with OMV Procurement to identify and increase synergies, with a primary focus on co-locations in Central Europe	An aligned approach with joint initiatives between OMV and Borealis has generated additional market power and created synergies.
Ensure security of supply for raw materials and packaging during COVID-19, to ensure plant operability	No major production interruptions or economic shutdowns due to lack of raw materials or packaging.

Organisational Structure

Borealis' Polyolefins procurement organisation is responsible for procurement at Group and location level, with the exception of Hydrocarbons & Energy's trading activities, which are managed directly by the Hydrocarbons & Energy organisation. The organisational structure of procurement includes separate areas for procuring raw materials and packaging (RMP), business services and technical equipment, as well as local procurement and project services. In order to mutually drive value creation and to foster synergies, OMV and Borealis have agreed to collaborate closely by setting up one integrated procurement organisation.

Procurement activities related to Fertilizers, Melamine and Technical Nitrogen Products (TEN) are handled by a different team, which also procures energy, gas and CO_2 rights for that business only. The team operates in compliance with the Borealis Group procurement procedures. The only exception, as a result of the ongoing divestment process for the business, is that it is not required to implement revised processes arising from Borealis and OMV progressively aligning their procurement processes.

Responsible Sourcing

Borealis follows a defined process when purchasing goods and services to ensure legal compliance, product quality, consistency, reliability of supply and sustainability.
To get the best value, Borealis applies the Total Cost of Ownership philosophy. This requires the Group to consider the full costs it will incur during the lifetime of the product or service, rather than looking only at the upfront cost.
When defining and adopting sourcing strategies, Borealis also considers market and technology intelligence and supplier innovation potential.

After defining Borealis' procurement needs (including scope and specifications), reviewing the supply market and defining the sourcing strategy, the suppliers are selected. This includes the use of questionnaires and on-site audits.

Every year, Borealis defines a set of strategic suppliers based on criteria such as revenue, innovation, impact on operability and potential for growth. The Group uses a supplier relationship management process for strategic suppliers, which combines KPI-based performance management with supplier segmentation and professional knowledge of business risks. Activities with strategic suppliers can include top management meetings and common innovation programmes. On a monthly basis, Procurement monitors the performance of around 100 strategic suppliers, evaluating risks and taking mitigating actions where needed.

The procurement process takes account of sustainability aspects and these are reflected in Borealis' Responsible Sourcing Policy (Code of Business Conduct), which is published on the Group's website and communicated to all major suppliers. It defines the Group's approach to key aspects of business ethics when sourcing, such as anti-corruption, anti-slavery, compliance and child labour, as well as health, safety and the environment. All major and strategic suppliers are required to reconfirm their commitment to the policy. New major and strategic suppliers must agree to the policy by signing the contract. The Group does not see significant sustainability risks with major suppliers in North America and Europe, where most have implemented similar codes of conduct and may also be members of Together for Sustainability (TfS).

Together for Sustainability

Borealis is a member of TfS, which is a joint initiative set up by the chemical industry. TfS enables its members to implement sustainable procurement by sharing the results of standardised supplier audits and assessments performed by independent experts, using a single standard of auditing and assessment. It is based on the principles of the UN Global Compact and Responsible Care®.

TfS covers areas of sustainable business practice, including environmental impact, health and safety, labour and human rights, management and governance. The audits and assessments benefit both members and suppliers, who only need to go through the process once and avoid multiple assessments by different customers. As an active member of TfS, Borealis participated in meetings and conferences in 2021 to exchange best practices for monitoring and improving sustainability in the supply chain in general and Scope 3 emissions in particular.

At the year end, 270 of Borealis' suppliers had been assessed against the TfS standard. All new Borealis suppliers are requested to provide a TfS or EcoVadis assessment or equivalent, with criteria on corporate social responsibility, sustainability and ethics. Future suppliers in higher-risk countries will be requested to provide a TfS audit report. EcoVadis is the world's largest provider of business sustainability ratings, having rated more than 75,000 companies worldwide. It scores companies across four themes (environment, labour and human rights, ethics and sustainable procurement), as well as providing a scorecard dedicated to carbon.

In 2021, Borealis' goal was to further increase its EcoVadis sustainability assessment score related to procurement. As a result of Borealis' efforts, it was awarded a score of 80 points for procurement, placing Borealis in the top 2% of all assessed companies. In 2021, Borealis reached Platinum level for the very first time.

A concept has been developed and will be implemented in 2022 on the consequences for business awarded to suppliers, based on their sustainability assessment score and GHG emissions.

Procurement of Raw Materials & Packaging (RMP)

Raw materials and additives play a vital role for Borealis, giving unique product properties which enable the Group to produce value-added speciality products. Reliable supply of these materials, on time and in accordance with the agreed quality and quantity, supports Borealis' operational excellence. When considering awarding contracts to RMP suppliers, greenhouse gas emissions and supplier sustainability efforts are given a formal weighting in the assessment.

Borealis buys polymer additives which are produced using renewable feedstock, such as palm oil or rapeseed oil. The majority of the additives that use palm oil are sourced from suppliers certified by the Roundtable on Sustainable Palm Oil.

Packaging materials are needed for all solid products that Borealis delivers to customers. They are essential for protecting Borealis' goods in transit and for preventing pellet losses into the environment. They also help customers to dose the goods accurately and are a vital means to support Borealis' ambition to continuously reduce transport energy consumption. The Group continuously looks to balance the cost of packaging with the volume of material used and its functionality, such as the packaging's ability to prevent damage, contamination or pellet spills. Packaging is an important part of the Group's approach to achieving a circular economy, and where possible, Borealis uses reusable packaging, such as pallets, and its own recycled material for the production of packaging material.

Borealis uses dedicated procurement teams to source its raw materials and packaging for polyolefins, primarily from suppliers in Europe, North America, Japan, China and Korea. The Group maintains an approved list of suppliers. In RMP, about 100 suppliers are considered strategic. They represent around 80% to 85% of the total yearly spend on RMP.

During 2021, the main focus in all procurement areas was business continuity in RMP, given the lockdowns in several countries caused by the COVID-19 pandemic. Borealis was successful in ensuring continuity of supply and, as a result, no major production interruptions occurred due to a shortage of RMP.

Fig. 38: **Packaging consumption based on 1,000 kg of fertilizers sold (kg) 2019–2021**

kg	2021	2020	2019
Fertilizers			
Big bags	0.74	1.02	0.96
Film	0.05	0.04	0.09
Total	**0.79**	**1.06**	**1.05**

Fig. 39: **Packaging consumption based on 1,000 kg of polyolefins sold (kg) 2019–2021**

kg	2021	2020	2019
Polyolefins			
Cardboard	1.63	1.57	1.60
Bags	2.07	2.05	1.96
Film	0.45	0.45	0.44
Other materials	0.03	0.02	0.02
Total	**4.18**	**4.09**	**4.02**

Procurement of Technical Supplies and Business Services

Technical Procurement encompasses all procurement activities related to the maintenance and growth investments of Borealis' assets globally. This includes engineering, construction contracting and procurement of equipment, materials, industrial and business services and spare parts.

The Technical Procurement organisation is set up in category teams, who consider the commercial and technical aspects of a purchase. The category teams establish and maintain procurement for core, non-core and business services.

Major engineering services or EPCM (engineering, procurement, construction and management) contracts are sourced globally, while maintenance services are predominantly sourced within Europe.

Group-wide equipment roadmaps are developed for the different disciplines, based on sustainable asset care location masterplans. A location masterplan applies a long-term view to maximise an asset's lifetime, reduce risk and steer investment for maximum efficiency. All location master plans build up to an equipment roadmap, in which standardisation and volume bundling opportunities are explored and implemented via Group-wide Enterprise Frame Agreements with suppliers.

The Group focuses on using high-performing strategic partners. These partners should deliver high-quality services in a consistently safe manner. In line with the Group's strategy, sustainability requirements are embedded in all new contracts. Together with its partners, the Group aims to continuously improve in HSSE, quality and cost optimisation, with special attention paid to a commitment to the circular economy.

During 2021, Technical Procurement continued to support Borealis' major construction projects in Texas, US, and Kallo, Belgium. Projects for mechanical and chemical recycling also progressed and required significant attention to support contract awards for new technologies and the related engineering activities.

Supply chain resilience and competitive pricing for goods and services were the major challenges throughout the year.

Outlook

In 2022, Procurement will:

- support Borealis' projects for mechanical recycling by awarding the contracts for equipment and services needed in the different steps of mechanical recycling;
- continue to increase cost efficiency and synergies through integrated management of procurement within the OMV Group;
- continue to support Borealis' growth projects and further develop technology projects, such as chemical recycling, to support the Group's journey towards a circular economy;
- improve sustainability in packaging usage, for example, through increasing the reuse of pallets and starting to use recycled material for packaging. Where possible, suppliers will be prompted to reuse packaging such as pallets and big bags;
- ensure price transparency of RMP as part of the final product recipe cost to help manage price volatility in the market; and
- continue its high focus on security of supply, due to continuing global logistic challenges.

Logistics

Goals 2021	Key Achievements 2021
Insource raw material logistics in France for Fertilizers, Melamine and Technical Nitrogen Products (TEN)	Cost savings achieved of EUR 750,000 per annum
Enhance supply chain cost transparency in Fertilizers, Melamine and TEN	Met the target of improving supply chain cost accuracy and completeness to above 90%
Improve logistics safety performance in Polyolefins (PO) and Hydrocarbons & Energy (HC)	Logistics safety performance did not improve in PO, with more Total Recordable Injuries (TRI) than in 2020. Severe incidents with external logistics providers did not decrease. In HC, overall logistics safety performance in 2021 was in line with target, with three severe incidents reported. An ambitious safety audit programme was scheduled (6 planned audits). 5 audits have been executed.
Maintain high supply chain reliability for PO customers, without a major cost increase	Despite COVID-19, PO was able to slightly increase its supply chain reliability performance in Europe. However, the maritime business saw reduced performance, driven by the volatility in the shipping industry.
Set up a dedicated supply chain for chemically recycled feedstocks to the Porvoo (Finland) cracker	Support was provided to test and implement the capability to crack chemically recycled feedstocks (pyrolysis oil).

Borealis' businesses transport a combined volume of up to 11.0 million tonnes of raw materials and finished products to the Group's sites or customers' premises each year.

Although Borealis sources its logistics services from external suppliers, they are required to adhere to Borealis' safety, ethics and environmental standards. When Borealis is awarding contracts, it takes costs, service, quality, safety and sustainability into account. The weighting applied to each of these factors depends on the business's needs and can vary according to customer requirements, the type of products transported (dangerous or non-dangerous) and the business environment. However, at all times, Borealis' safety and ethical standards must be met.

The primary sustainability aspects to be addressed relating to logistics are:
- safety, in particular potential accidents and spills, as well as smoking, speeding, alcohol use, working at heights without safety protection and a severe incident on the road; and
- greenhouse gas emissions, primarily in the form of carbon dioxide (CO_2), which are measured on the basis of tonnes per kilometre for different modes of transport.

Transport Modes

Polyolefins

Polyolefins has approximately 140 providers of road transport, container transport, maritime transport, warehousing and on-site logistics services. The business manages these providers through logistics contract managers who cover bulk transport, packed transport, maritime shipments and warehousing, respectively, and logistics operations managers.

Fertilizers, Melamine and TEN

Fertilizers, Melamine and TEN has around 300 providers of road, maritime and rail transport. About 110 logistics service providers carry out 90% of the business's transport. Logistics service providers transporting dangerous liquid cargo are required to have a Safety & Quality Assessment System (SQAS) certification, which is based on a predefined questionnaire supported by the European Chemical Industry Council (CEFIC).

Hydrocarbons & Energy

Borealis has long-term partnerships with strategic logistics partners for its sea transport, pipelines, rail and truck deliveries. These long-term partners are encouraged to obtain sustainability ratings from EcoVadis, the world's largest provider of business sustainability ratings. Road transport companies are required to have SQAS certification.

Borealis tracks the fleet's safety performance and energy efficiency, and promotes the use of environmentally friendly bunker solutions.

The Group also uses its dedicated time charter vessel, Navigator Aurora, as well as shorter-term time charter options (four to six months) to source US-based ethane or LPG for its flexible crackers in Stenungsund, Sweden, and Porvoo, Finland.

Fig. 40: **Total transported volumes per business segment in 2021** [1)]

Business segment	Transported volume (kt)
Polyolefins	3,726
Hydrocarbons & Energy	3,478
Fertilizers, Melamine and TEN	3,753

1) Total Hydrocarbons & Energy volume transported (all INCOTERMS) is 7,241 kt, of which 3,478 kt were transported via own contracted transport.

Activities 2021

Vetting of Tankers and Barges

Borealis carries out regular vetting inspections on sea-going tankers and inland barges, with every vessel and barge being subject to Borealis' vetting approval. Contracted shipping companies also regularly undergo a Tanker Management and Self Assessment (TMSA) audit.

An online vetting system, called Mainstay, is used to vet vessels and barges used in the HC supply chain.

Securing Charter Vessel Capacity

In 2021, HC entered into a shorter-term Very Large Gas Carrier time charter agreement, lasting approximately six months, to accommodate FOB transport of LPG from US sources to the Group's cracker in Finland. The estimated volume shipped in 2021 is 250 kilotonnes and this volume from US sources is expected to grow in the years to come, as it increasingly replaces supply sources from Russia.

Borealis successfully concluded negotiations for a newly built time charter vessel. This will support the future propane feed for the propane dehydrogenation plant in Kallo (Belgium) from the second quarter of 2023. The new vessel is designed with a dual fuel option, allowing the engine to run on LPG instead of conventional gas-oil-based bunkers, supporting the long-term strategy for reducing Borealis' environmental footprint.

Reviewing Logistics Contract Templates

During 2021, all frame agreements for road, rail, shipping and ports for the Fertilizers, Melamine and TEN business were reviewed. The purpose was to make the health, safety, environment and quality (HSEQ) clause stronger.

Insourcing Raw Material Logistics in France

Previously, raw materials such as anhydrite, limestone and gypsum were delivered by the product supplier to Borealis' production locations. In 2021, the setup was changed and Borealis now contracts and manages the logistics of raw material imports. A saving could be generated of EUR 750,000 per annum.

Implementation of Explosive Precursor Regulation (EPR)

As of 1 February 2021, the EPR ((EU) 2019/1148) requires stricter follow-up of goods in the whole supply chain network. Duly signed delivery notes have to be collected as proof that delivery was made to an authorised person and any suspicious transaction has to be reported to the authorities. Borealis made the necessary system and process changes to comply with these requirements.

Enhancing Customer Focus

In 2021, the PO business further improved its customer satisfaction for logistics. The business significantly reduced the number of claims related to logistics and, despite the very difficult environment, due to COVID-19 and Brexit, PO maintained very high service reliability, with the same on-time performance as in 2020. This was achieved by moving more volume to high-performance logistics partners.

Projects to Reduce CO_2 Emissions in Logistics

During the year, Borealis implemented several projects to move transport from road to intermodal or internal waterways. These included:

- switching to river barges for transportation from inland sites in Belgium to sea ports;
- increasing intermodal transport by 5% from the Group's site in Austria to northern Italy; and
- increasing the volume the Group moves with partners who are part of the Responsible Care® programme. In 2021, around 40% of the volume transported in Europe was undertaken by such logistics partners, up from around 35% in 2020.

Logistics Set Up for Renewable and Chemically Recycled Feedstock Sourcing

During 2021, HC has been developing and setting up dedicated supply chain solutions for transporting chemically recycled feedstock from Renasci to the Porvoo cracker, via a multimodal solution with iso-containers and vessels.

For deliveries of renewable feedstocks (bio-diesel and bio-propane) to the production locations in Porvoo and

Kallo, as well as customer deliveries of renewable products, dedicated barge contracts have been agreed.

Transportation Safety

Transportation safety is key for Borealis. The Group requires all its logistics partners to report the following accidents:

- any injury or fatality to their own personnel, as well as contractors;
- any damage to property of any party involved in the accident;
- all material damage while transporting Borealis' goods to the final customer;
- any public disruption; and
- any intervention by the emergency services.

Within 24 hours of an accident, the logistics partner must send a report to Borealis which includes information on the cause of the accident. The Group collaborates closely with its supply chain contractors and has a process in place to define improvement actions for every incident. In 2021, the Group introduced TRI as an indicator for logistics incidents.

Borealis looks to continuously improve transport safety in different modes of transport, as a submitting member of the Oil Companies International Marine Forum (OCIMF), Chemical Distribution Institute (CDI-Marine) and European Barge Inspection Scheme (EBIS). As part of this, the Group follows an annual transport safety audit plan. The plan for 2021 was defined in line with the overall Group HSE safety audit plan. During 2021, the HC business initiated a safety taskforce for truck loading phenol and acetone in Porvoo, Finland. The taskforce formulated recommendations and actions for improving the safety standards of truck loading and transport from Porvoo.

Borealis tracks the transport safety performance of its logistic providers using a key performance indicator (KPI) based on definitions provided by the CEFIC to classify incidents. The KPI score for 2021 for HC was three severe incidents (target: three). PO also reported one severe incident (target: zero). Corrective actions with service providers are being taken to avoid reoccurrence of those incidents.

Safety Boost Programme

As part of the safety boost programme for Fertilizers, Melamine and TEN, logistics undertook various initiatives to improve safety during transportation and port activities. These included reviewing and documenting the accident emergency procedure, setting up an audit checklist to improve safety performance at the river ports in southeast Europe, introducing a process to improve and better control the safety performance of subcontractors, and the introduction of a stronger HSE clause in all logistics contracts.

Spills or Losses During Transportation

Spills of hydrocarbons are potentially dangerous and may create significant exposure for people and the environment, given the nature and volumes of the products being moved. Extra-high precautionary safety measures are therefore put in place and followed up with the supply chain contractors to mitigate the risks of spills, including pellet spills (→ chapter Environmental Management, p. 90).

Drivers transporting dangerous goods require a special licence and training, and must operate under restrictions, such as parking only in secure areas. Any loss of ammonium nitrate must be reported to the authorities, as it can be used as an ingredient for explosives.

CO_2 Emissions from Transport

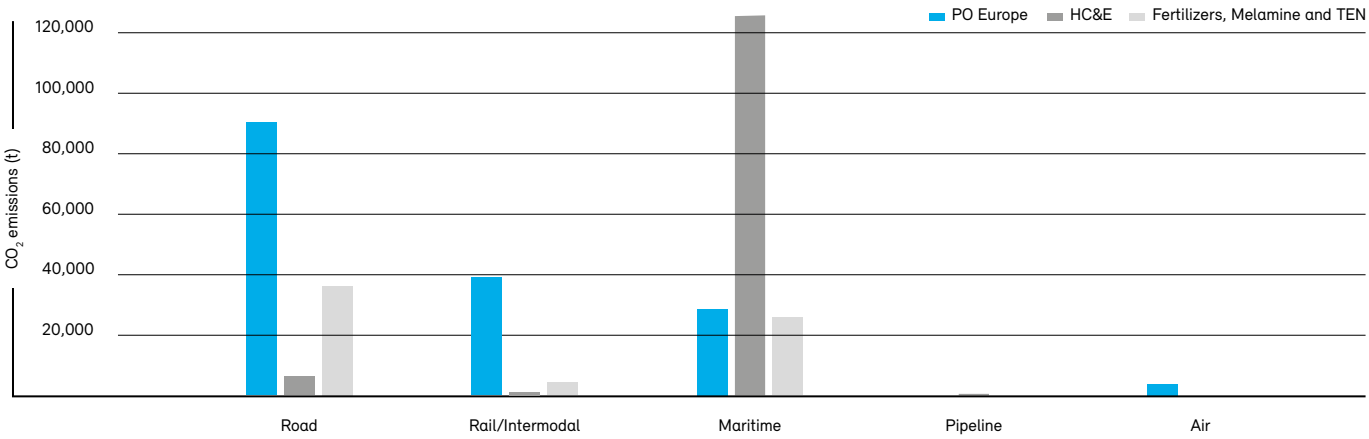
The Group looks to balance the cost of transport with the potential to reduce CO_2 emissions. Wherever possible and economically feasible, Borealis seeks to transport products off-road via rail, barges, vessels or pipelines. The Group looks to maximise deliveries by transport modes with lower emissions. Borealis also aims to optimise logistics by using terminals which are closer to the customer, requiring shorter transport distances.

In total, around 45% of Borealis' polyolefins and around 65% of its fertilizer products are transported by road, with the result that road transport generates the large majority of Borealis' emissions from logistics activities, as shown in Figure 41. The Group is trialling LNG trucks to replace trucks using diesel, thereby reducing emissions from road transport. A project has been started to assess the risks of LNG/CNG trucks and to determine which additional measures need to be taken to allow them on-site.

Borealis has participated in a CEFIC initiative, alongside a number of other chemicals companies, to pilot the Global Logistics Emission Council framework for calculating and reporting transport emissions. The pilot project kicked off at the start of October 2020 and was finished in September 2021.

For further information on CO_2 reduction in logistics, see → chapter Energy & Climate, p. 74.

Fig. 41: **Borealis' CO_2 emissions by mode of transport in 2021 (t) [1)]**



1) According to GLEC calculation methodology. For PO, maritime emissions come directly from shipping lines.

Performance 2021

Analysis of Borealis' transportation modes shows that the Group's downstream transportation produced 362 kilotonnes of CO_2 emissions. As part of the newly adopted industry-wide GLEC methodology for 2021 CO_2 reporting, transport mode emission factors have been reviewed significantly upwards, mainly related to the maritime transports. Therefore, a comparison to the previous year is not possible.

Deep sea shipping produces significant emissions of CO_2, sulphur oxides and nitrous oxides, which may be subject to stricter global targets in future. Since 2020, the engine of the Navigator Aurora vessel is fully running on ethane to reduce its environmental footprint. When contracting new long-term shipping capacity, a key decision element is the option to run ships on cleaner gas fuels than traditional gas-oil-based bunkers.

Additional smaller initiatives for road transport, replacing regular gas-oil-fuelled trucks with alternative environmentally friendly fuels, are being investigated with selected partners.

Outlook

Borealis' goals in logistics for 2022 are to:

Polyolefins

- continue to work with logistics providers to improve the safety performance on-site, with a special focus on Borealis' life savings rules;
- continue to focus on Operation Clean Sweep (an international industry programme to prevent pellet and plastic powder leaking into the environment) and further reducing CO_2 emissions;
- introduce recycled materials into various components of Borealis' packaging; and
- manage the impact of the European Mobility Package, which is a collection of initiatives concerning the governance of commercial road transport in the European Union, which will increase cost and reduce transport capacity.

Fertilizers, Melamine and TEN

- convince logistics service providers to use digital solutions to improve efficiency, such as real-time visibility, E-CMR (electronic consignment notes) and transport management systems for shipping;
- educate both the Group and its logistics service providers on the impact of the EU Green Deal on logistics; and
- explore and develop sustainable transport solutions, such as switching to greener modes of transport and alternative fuel for trucks.

Hydrocarbons & Energy

- maintain a high focus on transport safety, as a main priority for suppliers and customers;
- continue to reduce costs through the optimisation of transport routes and contract negotiations with key service providers; and
- continue to reduce the environmental footprint of transportation, to reduce GHG emissions.

Vienna, 17 February 2022
Executive Board:

Thomas Gangl m.p.
Chief Executive Officer

Mark Tonkens m.p.
Chief Financial Officer

Wolfram Krenn m.p.

Philippe Roodhooft m.p.

Lucrèce De Ridder m.p.

Independent Limited Assurance Report on the Consolidated Non-financial Report 2021 [1)]

We have performed a limited assurance engagement of the consolidated Non-financial Report 2021 of Borealis AG, Vienna, and its subsidiaries (the "Group") for the year ended 31 December 2021.

Management's responsibility

The Management is responsible for the preparation of the consolidated Non-financial Report 2021 in accordance with the requirements of Section 267a UGB and the "EU Taxonomy" (EU Regulation 2021/852) as well as the GRI Standards: Core option. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of the consolidated Non-financial Report 2021 that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express a limited assurance conclusion based on our procedures performed and evidence obtained.

We performed our engagement in accordance with the professional standards applicable in Austria with regard to KFS/PG 13 "Other assurance engagements", KFS/PE28 "Selected issues in connection with the assurance of non-financial statements and non-financial reports pursuant to sections 243b UGB and 267a UGB as well as sustainability reports" and the International Standards on Assurance Engagements (ISAE) 3000 (Revised) "Assurance engagements other than audits or reviews of historical financial information". These standards require that we comply with our ethical requirements, including rules on independence, and that we plan and perform our procedures by considering the principle of materiality to be able to express a limited assurance conclusion based on the assurance obtained. As provided under Section 275 (2) UGB (liability provision regarding the audit of financial statements of small and medium-sized companies), our responsibility and liability towards the Company and any third parties arising from the assurance engagement are limited to a total of EUR 2 million.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement; consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

The selection of the procedures lies in the sole discretion of the auditor and comprised the following:

- Critical assessment of the Group's analysis of materiality considering the concerns of external stakeholders by interviewing the responsible employees and inspecting relevant documents.
- Obtaining an overview of the policies pursued by the Group, including due diligence processes implemented as well as the processes used to ensure an accurate presentation in the non-financial report by interviewing the Company's management and inspecting internal guidelines, procedural instructions, and management systems in connection with non-financial matters/ disclosures
- Obtaining an understanding of reporting processes by interviewing the relevant employees and inspecting selected documentations
- Evaluating the reported disclosures by performing analytical procedures regarding non-financial performance indicators, interviewing relevant employees and inspecting selected documentations. All interviews as well as audit activities were conducted virtually due to the ongoing Covid-19 pandemic and the respective Corona protective measures.
- Critical appraisal of the disclosures in accordance with the requirements of the "EU Taxonomy Regulation" (EU Regulation 2021/852).
- Examining the non-financial report regarding its completeness in accordance with the requirements of Section 267a UGB and the "EU Taxonomy Regulation" (EU Regulation 2021/852) as well as the GRI Standards: Core option.
- Evaluating the overall presentation of the disclosures and non-financial information

1) We draw attention to the fact that the English translation of this report is presented for the convenience of the reader only and that the German wording is the only legally binding version.

The following is not part of our engagement:
- Examining the processes and internal controls particularly regarding their design, implementation, and effectiveness
- Performing procedures at individual locations as well as measurements or individual evaluations to check the reliability and accuracy of data received
- Examining the prior-year figures, forward-looking information, or data from external surveys
- Checking the correct transfer of data and references from the (consolidated) financial statements to the non-financial report; and
- Examining the information and disclosures on the website or further references on the internet

Neither an audit nor a review of financial statements is objective of our engagement. Furthermore, the disclosure and solution of criminal acts, as e.g., embezzlement or other kinds of fraud, and wrongful doings, nor the assessment of the effectiveness and profitability of the management are objectives of our engagement.

Conclusion

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the consolidated Non-financial Report 2021 is not prepared, in all material aspects, in accordance with the requirements of Section 267a UGB and the "EU Taxonomy Regulation" (EU Regulation 2021/852) as well as the GRI Standards: Core option.

Vienna, 17 February 2022
PwC Wirtschaftsprüfung GmbH

Alexander Riavitz m.p.
Austrian Certified Public Accountant

Financial **Report 2021**

Consolidated Financial Statements
including Group Management Report

Auditor's Report [1) 2)]

Report on the Consolidated Financial Statements

Audit Opinion

We have audited the consolidated financial statements of Borealis AG, Vienna, and its subsidiaries (the Group), which comprise the consolidated balance sheet as of 31 December 2021, the separate consolidated income statement, the consolidated statement of comprehensive income, the consolidated cash flow and the consolidated statement of changes in equity for the financial year then ended, and the notes to the consolidated financial statements.

In our opinion, the accompanying consolidated financial statements comply with legal requirements and give a true and fair view of the financial position of the Group as of 31 December 2021, and of its financial performance and cash flows for the financial year then ended in accordance with International Financial Reporting Standards as adopted by the EU (IFRSs) and the additional regulations of section 245a Austrian Company Code.

Basis for Opinion

We conducted our audit in accordance with Regulation (EU) No. 537/2014 (hereinafter EU Regulation) and Austrian Generally Accepted Standards on Auditing. Those standards require the application of the International Standards on Auditing (ISAs). Our responsibilities under those provisions and standards are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements" section of our report. We are independent of the Group in accordance with Austrian Generally Accepted Accounting Principles and professional requirements, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained until the date of the auditor's report is sufficient and appropriate to provide a basis for our opinion by this date.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the financial year. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

We have structured key audit matters as follows:
– Description
– Audit approach and key observations
– Reference to related disclosures

1. Recoverability of Property, Plant and Equipment and Intangible Assets including Goodwill

Description

In the consolidated financial statements of Borealis AG, Vienna, as of 31 December 2021, an amount of EUR 2,943.9 million (22.7% of total assets) is presented under "property, plant and equipment" and an amount of EUR 658.6 million (5.1% of total assets) is presented under "intangible assets" which includes goodwill in the amount of EUR 132.2 million (1.0% of total assets).

Goodwill is tested for impairment at least annually. The carrying amounts of property, plant and equipment and intangible assets are reviewed for impairment triggers on each reporting date and whenever triggering events occur that indicate that property, plant and equipment and intangible assets including goodwill may be impaired. For this purpose, Borealis AG, Vienna, estimates the recoverable amount using the discounted cash flow method.

Property, plant and equipment and intangible assets including goodwill are allocated to cash-generating units ("CGUs"). The carrying amounts of the CGUs are compared to the recoverable amounts (value in use) derived from the valuation model. The valuation models also had to take into account the effects of the COVID-19 pandemic on the consolidated financial statements as of 31 December 2021. As far as the recoverable amount is lower than the carrying amount, an impairment is recognised.

1) We draw attention to the fact that the English translation of this auditor's report according to section 274 UGB (Austrian Company Code) is presented for the convenience of the reader only and that the German wording is the only legally binding version.

Based on the impairment tests performed, an impairment in the amount of EUR 38.6 million was recognised for the Rosier CGU.

Given the complexity of the impairment model, the estimation uncertainty involved in the derivation of data and parameters used and the immanent discretionary decisions, the recoverability of property, plant and equipment and intangible assets including goodwill is considered as a key audit matter.

Audit Approach and Key Observations
As part of our audit of the consolidated financial statements, we have evaluated the determination of CGUs.

We have assessed the annual process, the procedure for budgeting and the impairment test for property, plant and equipment and intangible assets including goodwill. In particular, we have verified the appropriateness of the significant assumptions used in the valuation model.

We evaluated whether the assumptions used to derive the future cash flows are based on the most recent five-year plan prepared by management and approved by the Supervisory Board. We verified whether the effects of the COVID-19 pandemic were adequately taken into account in the current planning. We confirmed the accuracy of the five-year plan by performing an analysis of historic budget deviations.

We have further evaluated the tenability of assumptions used to determine the discount rates. Our internal specialists have evaluated whether the assumptions used for the discount rates as well as the growth rates for the perpetuity are in line with external market and industry data.

Additionally, we carried out own sensitivity analyses to determine the impact of parameter changes (changes in discount rate and cash flows) on the recoverable amount. Furthermore, we have assessed whether the long-term profitability in the terminal value period is plausible. We also evaluated whether the disclosures on impairment made by Borealis AG, Vienna, in the notes to the consolidated financial statements are complete and accurate.

Our audit procedures have verified the appropriateness and tenability of the valuation model used by the entity to carry out an impairment test as required by IFRS (impairment test in accordance with IAS 36) and to estimate the impairment amount as of 31 December 2021. The assumptions and parameters used in the valuation – also taking into account the effects of the COVID-19 pandemic – are appropriate. The disclosures required by the relevant standards are complete and appropriate.

Reference to Related Disclosures
Management has disclosed this key audit matter under "7. Depreciation, Amortisation and Impairment" in the consolidated financial statements.

2. Discontinued Operation – IFRS 5 – NITRO

Description
On 4 February 2021, Borealis announced the start of the process to divest its nitrogen business unit ("NITRO") including fertilizers, technical nitrogen and melamine products, excluding its interest in Rosier S.A., Belgium. Management determined the criteria of IFRS 5 to be met and presents NITRO as asset held for sale and as a discontinued operation as of 31 December 2021. On 2 February 2022, Borealis received a binding offer by EuroChem Group AG, Switzerland, for the acquisition of NITRO, which values the business on an enterprise value basis of EUR 455 million. This enterprise value indicated a fair value less cost of disposal below the carrying amounts and the need for an impairment. Based on the fair value less cost of disposal, management has recognized an impairment in the amount of EUR 443.7 million in line with IFRS 5 as of 31 December 2021.

We considered the accounting treatment of this transaction in the consolidated financial statements as a key audit matter because of the size of the transaction, the complexity of the accurate and complete classification of assets and liabilities of the disposal group and the measurement of the fair value less cost of disposal in line with IFRS 5.

Audit Approach and Key Observations
We held meetings and performed inquiries with the Borealis M&A and legal departments to obtain an understanding of the status of the negotiation and the disposal process.

We read and reviewed the information available in relation to the status of the sales process as of 31 December 2021 to evaluate whether the criteria of IFRS 5 have been met and whether the accounting treatment of NITRO as asset held for sale and as a discontinued operation is appropriate.

We performed procedures to verify the completeness and accuracy of the assets and liabilities presented as held for sale and the results stated as discontinued operation, including measurement in accordance with IFRS 5.

Our audit procedures included reviewing and challenging management's valuation of the impairment loss based on the fair value less cost of disposal of NITRO; we noted that up to closing of the transaction, the calculation of some amounts is based on judgment.

Our audit procedures have verified the appropriateness of NITRO being classified as asset held for sale and as a discontinued operation. Our audit procedures have furthermore confirmed the impairment amount recognised based on the fair value less cost of disposal. The disclosures required by the relevant standards are complete and appropriate.

Reference to Related Disclosures

Management has disclosed this key audit matter under "8. Discontinued Operation and Other Changes" in the notes to the consolidated financial statements.

Other Information

Management is responsible for the other information. The other information comprises the information included in the financial report, but does not include the consolidated financial statements, the management report for the Group and our auditor's report thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and the Audit Committee for the Consolidated Financial Statements

Management is responsible for the preparation of the consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards as adopted by the EU (IFRSs) and the additional regulations of section 245a Austrian Company Code, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

The Audit Committee is responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the EU Regulation and with Austrian Generally Accepted Standards on Auditing, which require the application of ISAs, will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with the EU Regulation and with Austrian Generally Accepted Standards on Auditing, which require the application of ISAs, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risks of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.

– evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
– obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit.
We remain solely responsible for our audit opinion.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Audit Committee with a statement that we have complied with all relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Audit Committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

Comments on the Management Report for the Group

Pursuant to Austrian Generally Accepted Accounting Principles, the management report for the Group is to be audited as to whether it is consistent with the consolidated financial statements and as to whether the management report for the Group was prepared in accordance with the applicable legal regulations.

Management is responsible for the preparation of the management report for the Group in accordance with Austrian Generally Accepted Accounting Principles.

We conducted our audit in accordance with Austrian standards on auditing for the audit of the management report for the Group.

Opinion
In our opinion, the management report for the Group was prepared in accordance with the applicable legal regulations, comprising the details in accordance with section 243a UGB, and is consistent with the consolidated financial statements.

Statement
Based on the findings during the audit of the consolidated financial statements and due to the obtained understanding concerning the Group and its circumstances no material misstatements in the management report for the Group came to our attention.

Additional Information in Accordance with Article 10 of the EU Regulation
We were elected as statutory auditor at the ordinary general meeting dated 24 February 2021. We were appointed by the Supervisory Board on 24 February 2021. We have audited the Company for an uninterrupted period since the financial year 2016.

We confirm that the audit opinion in the "Report on the Consolidated Financial Statements" section is consistent with the additional report to the Audit Committee referred to in Article 11 of the EU Regulation.

We declare that no prohibited non-audit services (Article 5 para. 1 of the EU Regulation) were provided by us and that we remained independent of the audited company in conducting the audit.

Responsible Engagement Partner
Responsible for the proper performance of the engagement is Alexander Riavitz, Austrian Certified Public Accountant.

Vienna, 17 February 2022
PwC Wirtschaftsprüfung GmbH

Alexander Riavitz m.p.
Austrian Certified Public Accountant

2) This report is a translation of the original report in German, which is solely valid. Publication and sharing with third parties of the consolidated financial statements together with our auditor's report is only allowed if the consolidated financial statements and the management report for the Group are identical with the German audited version. This auditor's report is only applicable to the German and complete consolidated financial statements with the management report for the Group. For deviating versions, the provisions of section 281 para. 2 UGB apply.

Group Management Report

We draw attention to the fact that comparatives have been restated, for details see the Restatement section in the Notes to the Consolidated Financial Statements. All amounts in the management report are not considering the reclassification of the discontinued operation and related balances held for sale.

Safety Performance

In 2021, Borealis reported a Total Recordable Injury Rate (TRI[1)]) per million working hours of 2.3. This is an improvement compared to the 3.9 TRI rate in 2020. In line with its "Goal Zero" objective, Borealis continues to strive to eliminate all accidents and incidents in process and personal safety. The Borealis leadership team maintains its efforts to sharpen the focus on safety among its employees and contractors.

Safety thus continues to be the Group's number one priority. Borealis has remained vigilant in its efforts to prevent coronavirus infections, particularly in light of the rapid global spread of new variants. Throughout the year, measures first enacted in 2020 to protect employees, contractors and business partners were maintained and optimised where necessary. These included physical distancing, the use of personal protective equipment and protective barriers, increased cleaning frequency, stringent hygiene, and working remotely when feasible.

Market Environment

Following its unprecedented 2020 slump as a consequence of the global COVID-19 pandemic, the Brent Crude oil price rebounded in 2021. As countries around the world began lifting COVID-related restrictions, the subsequent economic recovery drove demand. The price of oil surged from 55 USD/bbl in January 2021 to a peak of 84 USD/bbl in October, its highest level since 2014. Overall, the average 2021 Brent Crude oil price of 71 USD/bbl exceeded both the 2020 average of 42 USD/bbl as well as the pre-COVID average of 64 USD/bbl in 2019, a clear indication of recovery.

Naphtha developed in a similar vein as the oil price, increasing steadily from 500 USD/t in January 2021 to a peak of 763 USD/t in October 2021, before tapering off slightly to end the year at 698 USD/t. Ethylene and propylene contract prices have also been positively affected by rebounding markets, with the ethylene price starting the year at 860 EUR/t and hitting a high in November at 1,283 EUR/t, before ending the year at 1,273 EUR/t. The price of propylene moved upwards from 800 EUR/t in January to reach 1,288 EUR/t in November, ending the year at the same level.

Borealis Polyolefins sales volumes increased in a market environment which continues to be impacted by the pandemic. In 2021, Borealis Polyolefins sales volumes reached 3.95 million tons, 2% higher than in 2020, and an increase of 4% over the pre-COVID sales volumes achieved in 2019. This exceptionally strong result is due to robust demand for Borealis Polyolefins which became apparent even prior to the initial signs of economic recovery at the beginning of 2021, which was particularly strong in the energy, pipe and advanced product sectors. At the same time, we saw ongoing supply constraints rooted in logistics problems and industry production outages. Integrated polyolefin industry margins climbed to record levels, thus leading to an outstanding profit contribution from the Borealis Polyolefins business.

The olefin industry margin also increased in 2021, albeit not as much as the polyolefin industry margin. This may be attributed to increased demand in a recovering economy in which supply, however, was still negatively impacted by industry production outages. As a result, the profit contribution delivered by the hydrocarbons business was higher than in 2020, but remained below 2019 levels as the advantage from cracking light feedstock became less favourable.

Within the Borealis nitrogen business unit, Fertilizers reported sales of 3.9 million tonnes from January to December versus the 4.3 million tonnes sold in 2020. This drop is due in part to extremely strong demand in the fourth quarter of 2020 which caused a temporary spike in sales volumes and inevitably lower demand at the start of 2021; and to some operational issues. In a recovering market environment,

1) TRI definition was adjusted to be aligned with IOGP (International Association of Oil & Gas Producers).

melamine sales remained on par with the previous year, with total 2021 sales volumes of 143 kilotonnes (kt) compared to 147 kt in 2020.

Strategy

The Group Strategy 2035 has several central components. One is the geographical expansion undertaken to establish Borealis as the global partner of choice for high-value material solutions. Acquisitions and partnerships, particularly in North America and the Middle East and Africa (MEA), are key. Another is transformation, especially from a linear to a circular economy. Value Creation through Innovation is an essential part of this evolution to a fully customer-centric approach and more circular polyolefins solutions. Finally, leading from the core builds on the unique Borealis mindset and established values and culture. It puts people first and strives for excellence in all it does. Sustainability is deeply embedded in this component, because leading from the core means that all types of resources are used wisely in all areas of operation. Borealis is further increasing its efforts towards the ultimate goal of carbon neutrality as well as complying with legislation and increased legal requirements (for example, EU Taxonomy).

Global Growth and Acquisitions Continue

Despite the ongoing effects of the pandemic, Borealis has been able to make meaningful progress on its important global growth projects in 2021. In November, Borealis and ADNOC signed a USD 6.2 billion final investment agreement to build the fourth facility at the Borouge polyolefin manufacturing complex in Ruwais, UAE. Borouge expansion is vital in order to serve growing customer demand in Asia and MEA for differentiated polyolefins solutions in energy, infrastructure and advanced packaging. Borouge will become the world's largest single-site polyolefin complex, with an annual polyethylene production capacity of 6.4 million tonnes. The project entails the construction of an ethane cracker, two state-of-the-art Borstar® polyethylene (PE) plants, a cross-linked polyethylene (XLPE) plant and a 1-hexene unit. Cutting-edge technologies will be employed to improve energy efficiency and reduce emissions. Continuous flaring will be eliminated altogether. The new facility will draw on renewable energy sources to power some of its operations. An exploratory study currently underway will determine whether the installation of a carbon capture unit could lower Borouge 4 emissions by up to 80%.

The Baystar™ project in Texas, USA, is a 50/50 joint venture between Borealis and TOTAL Petrochemicals & Refining USA, Inc. Baystar is building a 625,000-tonne-per-year Borstar polyethylene unit at our production site in Pasadena, Texas, US. Baystar is also currently building a one-million-tonne per year steam cracker in Port Arthur, Texas, US. This undertaking will add more than one million tonnes of annual polyolefins production capacity and, most crucially, enable Borealis to supply locally manufactured Borstar products to its North American customers for the first time. The unusually hard winter freeze of 2021 had adverse effects on nearly all petrochemical operations on the Gulf Coast; the Baystar project was no exception.

The new world-scale propane dehydrogenation (PDH) plant under construction in Kallo, Belgium, adjacent to the existing PDH facility, is progressing despite negative pandemic-related effects. With an investment of around EUR 1 billion, this is among the largest projects in the petrochemical industry in Europe, and the largest ever for Borealis on the continent. A stellar safety record has been achieved despite the enormity of the project, which included the delivery of one of the largest single pieces of equipment ever shipped in one piece to the Port of Antwerp.

In July, Borealis announced it had acquired a 10% minority stake in Renasci N.V. (Renasci), a Belgium-based provider of innovative recycling solutions and creator of the novel Smart Chain Processing concept. This purchase was subsequent to an earlier offtake agreement with Renasci to source around 20 kilotonnes per year (kt/y) of circular pyrolysis oil, a product of chemical recycling which can be used as feedstock. Taken together, the agreements help accelerate the shift to plastics circularity in an eco-efficient way.

Borealis announced in December that it had purchased a minority stake in Bockatech Limited (Bockatech), a green tech business based in the UK. The agreement deepens and extends the existing partnership between Borealis and Bockatech in the area of sustainable packaging. Founded on the principles of design for recycling, reuse and eco-efficiency, the joint collaboration aims to expand the range of lighter weight, foam-based applications in packaging, and make these available to a larger number of global customers and value chain partners.

Circular Economy

The Borealis commitment to closing the loop on plastics circularity is cemented in the Group Strategy 2035. The Company has pledged that by 2025, 100% of its consumer products will be recyclable, reusable and/or made using materials from renewable sources. Borealis has also pledged to produce up to 350,000 tonnes of recycled plastics each year by 2025. Progress was made in 2021, as Borealis sold 77,000 tonnes of recyclates while at the same time building an annual production capacity of 100,000 tonnes. Taken together, these aims are accelerating the Group's transition to the use of more renewably-sourced feedstocks instead of conventional fossil fuel-based feedstock.

The Borealis dedication to leading the way to circularity is embedded in its EverMinds™ platform, which seeks to promote change and unite value chain partners and stakeholders. Borealis invests, innovates and engages in value chain collaboration to ensure that all products and applications are designed with eco-efficiency in mind. The activities described below are indicative of the broad gamut of those undertaken throughout 2021, yet this list is by no means exhaustive.

- Borealis continues to expand its activities in the area of mechanical recycling. In January, operations commenced at an ultramodern demo plant in Lahnstein, Germany. In this strategic partnership with TOMRA, rigid and flexible post-consumer plastic waste is sorted, then processed using the proprietary Borcycle™ M platform technology into fully formulated, ready-for-market polymer pellets. In this way, Borealis is helping ensure the ample availability of high-quality recyclate for sophisticated applications, thus further closing the loop on plastics circularity.
- Chemical recycling is used to supplement mechanical recycling, and to valorise residual waste streams which would otherwise be incinerated or sent to landfill. An added benefit of chemical recycling is that products manufactured with chemically recycled feedstock offer the same high performance as those produced with fossil fuel-based feedstock. This enables the production of high-end polyolefin-based applications that fulfil stringent quality and safety regulations, such as in healthcare and food packaging. In June, Borealis secured the supply of the entire output of chemically recycled material produced by Renasci – around 20 kt/y – in the form of circular pyrolysis oil. This chemically recycled feedstock will be used to manufacture Borcycle™ C circular polyolefins and circular base chemicals at various Borealis production locations. These activities complement existing collaboration with OMV in which the patented OMV ReOil® technology is used to chemically recycle post-consumer plastics into raw materials which are processed by Borealis into polyolefins.
- In September, the first test of feedstock derived entirely from vegetable-based waste streams commenced at a Borealis cracker in Stenungsund, Sweden. The aim is to evaluate whether, and to what extent, this renewably-sourced feedstock could serve as a replacement for fossil fuel-based feedstocks. Because renewable feedstocks form the foundation of The Bornewables™, the Borealis portfolio of premium circular polyolefins launched in 2020, the ability to offer a viable alternative to conventional feedstocks would not only reduce the Stenungsund plant's overall CO_2 footprint, but also help Borealis customers maintain high product quality while meeting their own sustainability goals.
- Borealis announced that it is scaling up Project STOP. This programme uses a "system-enabler" approach to support local authorities in Indonesia in establishing more sustainable and cost-efficient waste management and recycling systems. Its holistic approach involves the collection, recycling and proper disposal not only of plastic, but all kinds of waste, including organic, to ensure that no waste ends up in the environment. The programme expansion in East Java will extend waste management services to cover two million Indonesians by 2025.
- Borealis formed a partnership with Lafarge, OMV and VERBUND called C2PAT for the joint planning and construction of a full-scale plant to capture CO_2 and process it into synthetic fuels, plastics or other chemicals on an industrial scale.

Value Creation through Innovation in 2021

The relentless dedication to Value Creation through Innovation applies to the entire polyolefins value chain, and is circular at its core. It is applied to all life-cycle phases: idea generation, design, processing, deployment and ultimately recovery for reuse or recycling.

A step-change innovation for the power industry value chain was announced in September: Borealis and TOPAS Advanced Polymers are currently developing a new class of engineering material for film capacitor applications. The EPN (ethylene-propylene-norbornene) material being

developed will bridge the performance gap between standard polymers and high-end plastics by substantially increasing the temperature resistance of film capacitors in a cost-efficient way. Drawing on their respective strengths in polymers excellence – Borealis in PP capacitor film, and TOPAS Advanced Polymers in cyclic olefin copolymers (COC) – the partners will accelerate the green-energy transition. Traction inverters for electric mobility will be made more energy efficient at higher temperatures, and inverters will be able to transform power from renewable sources like wind or solar more efficiently.

In April, Borealis and Sulzer, a global leader in fluid engineering, announced that they had successfully developed an innovative process for the cost-effective extrusion of expanded polypropylene (ePP) beads, thus enabling broader and more rapid uptake of this highly effective material, which boasts advanced properties and good suitability for reuse and recycling.

In November, Swiss running shoe brand On announced that, as part of their efforts to identify viable replacements for fossil fuel-based materials, they had created a new foam material called CleanCloud™ in which carbon waste (emissions) is repurposed to create EVA (ethylene vinyl acetate) foam. As a cooperation partner, Borealis is contributing the circular and renewable-based materials required to produce the high-performance, easy-to-process EVA foam used in shoe bottoms and other parts.

In 2021, the combination of Value Creation through Innovation and value chain collaboration gave rise to numerous circular products and processes. Tens of thousands of environmentally friendly drinking cups produced through Bockatech and Borealis collaboration made an appearance at the COP26 in Glasgow, Scotland. These lightweight cups can be collected and washed for reuse before being recycled. Dutch PPE Solutions announced that it is reducing the climate impact of its meltblown fibre production by using Bornewables PP, polypropylene made from bio-based feedstock derived entirely from waste and residue streams. Borealis and pipe and fittings maker, Uponor Infra, announced that their collaboration had produced a new generation of PP sewer pipes made using a product from the Bornewables portfolio and boasting a significantly lower carbon footprint. Borealis and a leading Austrian plastic packaging manufacturer, The Jokey Group, agreed to step up their joint efforts to accelerate circularity through more aggressive development and marketing of recyclable plastic packaging. Borealis, Swiss dairy giant Emmi and Greiner Packaging announced plans to incorporate chemically recycled PP in their ready-to-drink cups for the iced coffee brand Caffé Latte. Earlier in the year, Greiner Packaging produced its first food cup prototypes with in-mould labelling made using Bornewables PP.

Around 500 employees work in R&D at the Borealis Group. This figure includes scientists and researchers at the Innovation Headquarters in Linz, Austria, and the two innovation centres in Stenungsund, Sweden and Porvoo, Finland.

An upward trajectory in the number of priority patent filings is clear. Borealis filed 133 new priority patent applications at the European Patent Office, a record amount of applications filed in the history of Borealis, compared to 114 in the previous year. As of March 2021, the Borealis Group holds around 10,000 individual patents or patent applications which are subsumed in approximately 1,200 patent families. The growing number of patents underscores the Group's position as a leading industry innovator.

Energy and Climate

Borealis is fully committed to reducing the carbon footprint of its operations and to achieving climate neutrality by 2050 or sooner. The Company is making significant changes in the way it operates its own production facilities by following three main approaches to reducing and/or avoiding emissions: drawing on renewable energy sources to power its operations; implementing further energy efficiency improvements and eliminating non-emergency flaring; driving innovation to develop solutions that mitigate greenhouse gas emissions, including bio-based and circular technologies and materials.

In Europe, Borealis aims to increase its energy efficiency by an additional 10% by 2030 (compared to 2020 levels); this gain is on top of the initial 10% efficiency improvements obtained in the years 2015 to 2020, and is due in large part to investments made in upgrading and modernising production facilities.

Sourcing a larger share of renewable energy to supply own operations is key to reaching the goal of climate neutrality by 2050 or sooner. To achieve its intermediate goal of drawing on 50% renewable electricity for its own operations

by 2030, Borealis employs the combination of onsite investment in tandem with long-term contracts known as power purchase agreements (PPAs). In September, Borealis signed a nine-year PPA with Axpo, a renewables producer and trader, which enables Borealis to draw on green electricity generated by Axpo wind farms in Belgium to power its own plants there. A ten-year PPA was signed with the energy company Fortum to source electricity from an onshore windfarm to power Borealis operations in Porvoo. This PPA is the fourth and largest to date for Borealis. In total, the amount of energy supplied by PPAs to Borealis operations is equivalent to the annual energy consumption of 160,000 European households.

Pioneering efforts are underway with the creators of the revolutionary Qpinch technology for heat recovery. As of May, the first-ever application of this technology at commercial scale is being tested at the Borealis low-density polyethylene (LDPE) production site in Antwerp. This open-innovation collaboration enables Borealis to take major strides in its efforts to lower CO_2 emissions, while at the same time increasing production efficiency and maintaining cost competitiveness. In June, a new photovoltaic array using the proprietary Quentys™ technology was installed at the Borealis production site in Monza, Italy. It is only the first of several that will be used in the future to power portions of Borealis production operations in locations around the world. In February, Borealis announced that it would invest EUR 17.6 million in a regenerative thermal oxidiser for its polyolefins plants in Porvoo.

Borealis commenced development of its updated climate goals as part of the strategy in the second half of 2021. The new strategy will take upcoming legislative changes (such as the EU's Fit for 55 package) into account. It will also reflect the need to support the Group's customers in their own efforts to achieve climate neutrality by offering innovative and more circular technologies and material solutions. Once the Climate Strategy has been finalised and approved by the Borealis Executive and Supervisory Boards, the updated goals will be communicated, most likely in the first quarter of 2022.

Review of Results

Sales

Borealis sold 3.95 million tonnes of polyolefins in 2021, 2% more than the sales volume in 2020. Borealis Fertilizers sales reached 3.91 million tonnes in 2021, a decrease compared to the sales volume of 4.25 million tonnes in 2020. Melamine sales volumes were 143 thousand tonnes in 2021, which is a similar level compared to 2020.

Cost Development

The higher feedstock price environment saw an increase in 2021 production costs compared to 2020. Furthermore, higher inflation caused by the global economic recovery has driven the increase in sales and distribution costs from EUR 681 million in 2020 to EUR 721 million in 2021; administration costs increased accordingly from EUR 223 million in 2020 to EUR 251 million in 2021. Driven by the unchanged commitment to Value Creation through Innovation, spending on research and development (consisting of costs for Borealis Innotech organisation and deprecation from R&D assets) rose to EUR 123 million in 2021, an increase of EUR 2 million compared to 2020. At the end of 2021, the number of full-time equivalent employees (FTE) was 6,934, an increase of 14 on the previous year.

Operating Profit

Operating profit amounted to EUR 1,517 million compared to EUR 351 million in 2020, achieved in an industry environment still impacted by the pandemic. Borealis was well positioned to benefit from the stronger polyolefins demand, in conjunction with record integrated polyolefin industry margins. Operating profit was also supported by a recovery of the contribution from the nitrogen business, particularly from the melamine business, despite the spike in the price of natural gas. Following the announcement of the start of a divestment process of its nitrogen business unit, including fertilizers, technical nitrogen and melamine products in February 2021, the nitrogen business unit assets within the scope of the divestment project have been classified as assets held for sale and have benefitted from the stopped depreciation.

The strong business result was, however, negatively impacted by an impairment charge of EUR 39 million in relation to Rosier, which is not within the scope of the divestment project.

Financial Income and Expenses

The decline in net financial expenses from EUR 19 million in 2020 to EUR 9 million in 2021 was mainly due to higher interest income from the member loan granted to the Baystar joint venture with Total and a lower net debt level.

Taxes

Income taxes amounted to EUR 263 million, an increase of EUR 144 million from tax charges of EUR 119 million in 2020. The higher overall tax charge in 2021 was mainly driven by the improved business performance.

Net Profit and Distribution of Dividend

The record net profit for the year amounted to EUR 1,396 million, compared to a net profit of EUR 589 million in 2020. In addition to the strong operating profit, the profit contribution from Borouge and Baystar increased significantly in 2021 compared to 2020, both having benefitted from the improved market environment. The strong business result was negatively impacted by an impairment charge of EUR 444 million in relation to the assets within the scope of the divestment of the nitrogen business unit.

In 2021, Borealis distributed a dividend of EUR 150 million to its shareholders from the 2020 result.

Financial Position

At year end, total assets and capital employed stood at EUR 12,985 million and EUR 9,936 million, respectively, compared to EUR 10,600 million and EUR 8,343 million at the end of 2020.

In 2021, Borealis net debt decreased by EUR 1,611 million to EUR 223 million, driven by an extraordinary dividend payment of EUR 1,305 million from Borouge, strong operating cash flow and regular dividend payments from Borouge. This resulted in a gearing ratio of 3% at the end of 2021, compared to 29% at the end of 2020. This gearing reflects a very strong balance sheet. Borealis benefits from a well-diversified financing portfolio and a balanced maturity profile. The solvency ratio was 62% at year end 2021, compared to 59% at year end 2020.

Return on capital employed (ROCE) after tax of 19% in 2021 was eleven percentage points higher than in the previous year. This strong result was mainly driven by the high profitability despite the continued investment in growth projects. The five-year average ROCE of 13% also remains well above the Company's target of 11% through the cycle.

Cash Flows and Liquidity Reserves

Cash flow from operating activities was EUR 967 million, driven by strong operating profitability, and partially offset by a negative working capital development due to the increasing price environment. Liquidity reserves, composed of undrawn committed credit facilities and cash balances, amounted to EUR 2,717 million at year end 2021, compared to EUR 1,142 million at year end 2020. Net interest-bearing debt decreased to EUR 223 million at year end, down from EUR 1,833 million at the end of 2020. The table below shows the change in net interest-bearing debt.

EUR million	2021	2020
Change of net interest-bearing debt		
Cash flow from operating activities	967	1,083
Capital expenditure	-720	-675
Capital contributions to and financing of associated companies and joint ventures	-366	-299
Dividends of associated companies and joint ventures	1,943	510
Acquisition of non-controlling interests	-4	0
Acquisitions of subsidiaries net of cash	0	-603
Other (mainly relating to foreign exchange differences)	-38	36
Dividend paid to equity holders of the parent and non-controlling interests	-150	-300
Additions lease liabilities	-21	-16
Total decrease (+)/increase (-) of net interest-bearing net debt	**1,611**	**-264**

Capital Expenditure

Investments in property, plant and equipment amounted to EUR 660 million in 2021, compared to EUR 614 million in 2020. A large portion of the total investment relates to the new, world-scale PDH plant in Kallo and the upgrade and revamp of four cracker furnaces in Stenungsund. Health, Safety and Environment (HSE) capital expenditure amounted to EUR 88 million, compared to EUR 49 million in 2020.

Depreciation, amortisation and impairment amounted to EUR 427 million, including an impairment charge of EUR 39 million in relation to assets in Rosier, compared to EUR 464 million in 2020. Additionally, assets within the scope of the nitrogen business unit divestment project have been impaired by EUR 444 million.

Shareholders' Equity

Shareholders' equity at year end 2021 was EUR 8,176 million.

EUR million	2021	2020
Equity development		
Net result attributable to the parent	1,406	594
Exchange and fair value adjustment (net)	452	-333
Gross increase/decrease	1,858	261
Dividend paid	-150	-300
Reclassification of cash flow hedges to balance sheet	51	11
Net increase/decrease	1,759	-28
Opening equity	6,417	6,445
Closing equity	**8,176**	**6,417**

Risk Management

Borealis has a documented risk management process ensuring that all parts of the Group routinely identify and assess their risks and develop and implement appropriate mitigation actions. Risk management contributes to achieving the Group's long-term strategies and short-term goals. Borealis believes that an effective risk culture makes it harder for an outlier, be it an event or an offender, to put the Company at risk.

The Group's overall risk landscape is periodically consolidated, reported, and reviewed. Borealis distinguishes between different risk categories as outlined below. While this list is not exhaustive, it does illustrate the most relevant risk types.

Strategic and reputational risks are those that may severely impact the Borealis Group's strategy or reputation. Often, strategic risks are related to unfavourable long-term developments, such as market or industry developments, technology, innovation, a change in the competitive environment or a threat to the reputation of the Group.

Operational and tactical risks usually refer to unfavourable and unexpected short-term or mid-term developments, and include all risks that may have a direct impact on the Group's daily business operations. All operational risks are assessed according to documented guidelines and procedures that are administered by the respective business functions. A proactive approach to risk prevention management has been implemented in the Operations function, covering risks in the areas of Production; Health, Safety and Environment (HSE); Product Stewardship; Plant Availability and Quality. The risk management approach also safeguards the Responsible Care® approach towards risks in operations. The standard risk management process includes a common risk matrix and risk registers, built bottom-up from plant to portfolio level, enabling a common risk rating system for the whole of operations.

HSE risks are assessed according to the procedures and framework described in the Borealis Risk-based Inspection Manual. The HSE Director is responsible for managing all HSE-related risks and periodically reports the Borealis HSE risk landscape to the Executive Board.

Borealis assesses and discloses the potential negative impact of its activities on the environment and society, and related mitigation measures in its Non-financial Report in accordance with legal obligations (NaDiVeG). The main risks analysed are:

- Unplanned emissions from operations that might cause additional emissions to air or soil and water pollution, waste, noise and other disturbances to the local community,
- Process safety incidents causing the sudden and uncontrolled release of explosive materials and release of potentially harmful toxins,
- Chemical substances that, if not handled properly and according to their intended use, could lead to negative impacts on human health,
- Environmental pollution caused by pellet loss or plastic littering, and finally,
- COVID-19 pandemic-related risks to business as well as Borealis employees.

Climate-related risks and mitigation actions are also specifically analysed according to TCFD (Task Force on Climate-Related Financial Disclosures) guidelines and disclosed in the Borealis Non-financial Report. Related transition risks are, for example, higher GHG emission prices, increasing operating costs, increasing pressure on usage of fossil fuel-based feedstock and a negative industry image. Physical risks are mainly related to potential supply-chain disruptions, due, for example, to extreme weather events or political unrest. However, the risks associated with climate change also represent opportunities for innovation, such as product portfolio extensions that include low-emission, circular and/or bio-based products as well as partnerships that help transform the industry towards climate neutrality.

Project-related risks are assessed in the Borealis project approval process. The applicable key risks related to an individual project are assessed. These risks include financial, market, technical, legal, patent infringement, strategic, operational, country-related and political factors. The risk assessment also reflects the probability of project completion within the estimated time frame and forecasted resource requirements, and the likelihood that key project objectives will be achieved. Project-related risks are managed by the project manager and reported to the Project Steering Committee.

Financial and market risks may refer to risks arising for instance from unexpected changes in market supply, demand, commodity prices, services or financing costs. Risks may also arise from liquidity, interest rates, foreign exchange rates, credit and insurance, the inability of a counterparty to meet a payment or delivery commitment, and may, for example, extend to incorrect assumptions or the inappropriate application of a model. The assessment of financial risk management is described in detail in note 17 of the consolidated financial statements. The Treasury & Funding Director and the General Counsel are responsible for reporting and coordinating the management of all financial risks.

Compliance risks focus on legal and regulatory risks, code of conduct (ethics policy), standards as well as contracting compliance. Doing business in an ethical manner is vital to the Group's good reputation and continued success. Tactical or generic risks are risks identified as part of standards or compliance. These risks mainly relate to processes or control weaknesses.

Information security risks relate to the confidentiality, integrity and availability of critical company information. The IT Director and the General Counsel support line managers with the assessment of information security risk and the development and implementation of risk mitigation actions.

The Executive Board periodically reviews the Group's key risks, defines the Group's risk tolerance levels, monitors the implementation of mitigation actions and reports the key risks and mitigation steps to the Supervisory Board. The Executive Board safeguards the integration of risk assessment in its strategic planning.

The Supervisory Board is responsible for reviewing the effectiveness of Borealis risk management practices and processes, risk appetite and tolerance levels, the Group's risk exposure and the effectiveness of mitigation actions. The Supervisory Board delegates some of these responsibilities to the Audit Committee, which is a sub-committee of the Supervisory Board.

All Borealis employees are responsible for managing risk, within their authority and in their field of work, in order to ensure that risk management is properly embedded in the organisation and reflected in the daily decision-making processes.

Changes to the Executive Board and the Supervisory Board

Significant changes to the Borealis Executive Board occurred in 2021. As of 1 April 2021, Thomas Gangl succeeded Alfred Stern as Borealis CEO. Alfred Stern was appointed OMV Executive Board Member for Chemicals & Materials effective April 2021 and has also been appointed to the Borealis Supervisory Board effective April 2021. The position of Borealis Executive Vice President Base Chemicals and Operations was filled in July by Wolfram Krenn; his predecessor, Martijn van Koten, joined the OMV Executive Board as of July 2021. As of September 2021, Alfred Stern was appointed as Chairman of the Borealis Supervisory Board, succeeding Rainer Seele. As of the same date, Martijn van Koten was also appointed to the Borealis Supervisory Board. As of 10 February 2022, Alvin Teh was appointed as Supervisory Board member, succeeding Musabbeh Al Kaabi. In addition, Saeed Al Mazrouei was appointed as Vice Chairman of the Supervisory Board.

Economic Development and Outlook

Because its Goal Zero remained out of reach in 2021, Borealis management will step up its efforts in 2022 to achieve the desired result of zero accidents and incidents. As always, safety remains the top priority for the Group in all areas of operation and in all geographic locations.

Borealis is transforming itself from a leading producer of virgin polyolefins solutions to a leading producer of more renewable and sustainable polyolefins solutions. By doing so, it is also transforming the industry. Its leading-edge technologies and portfolio of advanced and circular polyolefins applications can help make life safer and more sustainable. Borealis management is confident that it can capitalise on the opportunities for growth in a global economy in which COVID-19 is ultimately endemic rather than pandemic. It will maintain its commitment to re-inventing for more sustainable living and by offering chemical and plastic solutions that create value for society.

The Borealis Executive Board and its senior management are very proud of the outstanding financial result posted in 2021. Borealis is well positioned to deal with market-related and other challenges and is sure to maintain its status as a reliable and trusted partner for its customers and the entire value chain.

Other Information

In accordance with Section 267a (6) of the Austrian Commercial Code (UGB), Borealis prepares a separate consolidated non-financial report.

As a company subject to non-financial reporting obligations according to Article 19a of Directive 2013/34/EU of the European Parliament and of the Council, Borealis falls within the scope of the EU Taxonomy. Applying the EU Taxonomy enables Borealis to be transparent about its sustainable economic activities and to demonstrate the development of the sustainability performance of all business areas within the Group. For 2021, Borealis discloses within the separate consolidated non-financial report the share of taxonomy-eligible and non-taxonomy-eligible economic activities in its total turnover, CAPEX and OPEX, whereas in the 2022 Annual Report the alignment level will be reported.

		2021 excl. NITRO [1]	2021 incl. NITRO [1]	2020 incl. NITRO [1]	2019	2018	2017
Income and profitability							
Total sales and other income	EUR million	8,723	10,153	6,937 [2]	8,103	8,337	7,564
Operating profit	EUR million	1,410	1,517	351 [2]	605	496	791
Operating profit as percentage of total sales and other income	%	16	15	5	7	6	10
Net profit	EUR million	1,631	1,396	589	872	906	1,095
Return on capital employed, net after tax	%	–	19	8	11	13	15
Cash flow and investments							
Cash flow from operating activities	EUR million	788	967	1,083	872	517	725
Investments in property, plant and equipment	EUR million	557	660	614	376	326	453
Cash and cash equivalents	EUR million	1,541	1,551	83	83	50	207
Financial position							
Balance sheet total	EUR million	–	12,985	10,583 [2]	10,118	9,949	9,395
Net interest-bearing debt	EUR million	–	223	1,833	1,569	1,327	812
Equity attributable to owners of the parent	EUR million	–	8,176	6,417	6,445	6,421	6,365
Gearing	%	–	3	29	24	21	13
Health, Safety & Environment [3]							
Total Recordable Injuries (TRI)	number/million work hours						
a. Old definition		–	–	1.7	1.6	1.3	1.1
b. New definition [4]		–	2.3	3.9	3.4	–	–
EU ETS CO_2 emissions	kilotonnes	–	3,878	4,050	4,625	4,302	4,210
Energy consumption	GWh	–	21,730	22,340	25,831	24,476	22,400
Flaring performance	tonnes	–	38,538	42,543 [5]	27,619	26,273	51,620
Waste generation	tonnes	–	102,023	97,905 [6]	86,109 [7]	53,713	61,398
Water withdrawal	m^3 million	–	735	755	750	675	752
Number of employees	full-time equivalents [8]	5,255	6,934	6,920	6,869	6,834	6,619

1) NITRO: Borealis Fertilizers, Melamine and Technical Nitrogen Business excl. Rosier. For further details, please refer to note 8. Discontinued Operation and Other Changes in the Notes to the Consolidated Financial Statements. // 2) 2020 amounts have been restated. For further details, please refer to the Restatement section in the Notes to the Consolidated Financial Statements. // 3) Environmental data might be subject to minor adjustments due to ongoing audits and missing third-party data at the time of closing of this report. // 4) Definitions have been adjusted in 2021 to be aligned with OMV definitions. A comparison to previous years is only possible with 2020. // 5) Severe upsets led to significant emergency flaring during shutdowns; further there was a lack of recycling capacity. // 6) Value has been recalculated in retrospect due to ongoing audits and missing third-party data at the time the last report was finalised. // 7) The main reason for the increase is the integration of the plastics recycling company mtm plastics GmbH into the monthly group reporting. // 8) Full-time equivalents considers part-time employed staff only as 0.5.

Definitions

Capital employed: Total assets less non-interest-bearing debt
Return on capital employed: Operating profit, profit and loss from sale of operations, net result of associated companies and joint ventures plus interest income, after imputed tax, divided by average capital employed
Solvency ratio: Total equity, less goodwill, divided by total assets
Gearing ratio: Interest-bearing debt, less cash and cash equivalents, divided by total equity
HSE: Health, Safety and Environment

Vienna, 17 February 2022
Executive Board:

Thomas Gangl m.p.
Chief Executive Officer

Mark Tonkens m.p.
Chief Financial Officer

Wolfram Krenn m.p.

Philippe Roodhooft m.p.

Lucrèce De Ridder m.p.

Consolidated Financial Statements

Consolidated Income Statement

EUR thousand	2021	2020 restated [2]	Note
Net sales [1]	**8,591,970**	**5,785,982**	1, 2
Other operating income [1]	131,400	199,936	29
Total sales and other income [1]	**8,723,370**	**5,985,918**	
Production costs [1]	-6,488,739	-4,924,854	6, 7, 14, 15
Gross profit [1]	**2,234,631**	**1,061,064**	
Sales and distribution costs	-593,710	-536,392	6, 7, 14, 15
Administration costs	-212,934	-199,247	6, 7, 14, 15
R&D costs [1]	-17,993	-7,859	3, 6, 7, 14, 15
Operating profit [1]	**1,409,994**	**317,566**	
Net results of associated companies and joint ventures	594,872	373,957	9
Financial income	35,605	48,562	18
Financial expenses [1]	-42,408	-62,545	18
Profit before taxation	**1,998,063**	**677,540**	
Taxes on income	-366,660	-91,475	11
Net profit for the year from continuing operations	**1,631,403**	**586,065**	
Discontinued operation			
Loss (profit) from discontinued operation, net of tax	-235,332	2,452	8
Net profit for the year	**1,396,071**	**588,517**	
Attributable to:			
Non-controlling interests	-9,502	-5,509	
Equity holders of the parent	1,405,573	594,026	

1) 2020 amounts for line items marked with footnote [1] have been restated. For further details, please refer to the Restatement section. // 2) Comparative information has also been re-presented due to a discontinued operation (see note 8. Discontinued Operation and Other Changes).

Consolidated Statement of Comprehensive Income

EUR thousand	2021	2020	Note
Net profit for the year	**1,396,071**	**588,517**	
Items that may be subsequently reclassified to the income statement			
Net gain/loss on translation of financial statements of foreign operations	283,973	-324,944	
Reclassifications to the income statement during the period	357	-17,094	
Tax effect recognised in other comprehensive income	0	0	
Net gain/loss on long-term loans to foreign operations	-2,100	4,020	19
Reclassifications to the income statement during the period	0	0	
Tax effect recognised in other comprehensive income	525	-1,005	
Net gain/loss on loans to hedge investments in foreign operations	-14,687	16,704	19, 22, 23
Reclassifications to the income statement during the period	0	0	
Tax effect recognised in other comprehensive income	3,672	-4,176	
Fair value adjustments of cash flow hedges	462,138	-50,385	19, 22, 23, 24, 25
Reclassifications to the income statement during the period	-220,184	25,636	19, 22, 23, 24, 25
Tax effect recognised in other comprehensive income	-60,489	6,187	
Share of other comprehensive income of associated companies accounted for using the equity method	1,036	1,893	9
Items that will not be reclassified to the income statement			
Actuarial gains and losses	-4,453	13,270	15
Tax effect recognised in other comprehensive income	1,569	-1,415	
Share of other comprehensive income of associated companies accounted for using the equity method	250	-4,159	9
Net income/expense recognised in other comprehensive income	**451,607**	**-335,468**	
Total comprehensive income	**1,847,678**	**253,049**	
Attributable to:			
Non-controlling interests	-9,482	-7,471	
Equity holders of the parent	1,857,160	260,520	

Consolidated Balance Sheet

EUR thousand	31.12.2021	31.12.2020 restated	Note
Assets			
Non-current assets			
Intangible assets	658,643	554,424	3, 4, 7
Property, plant and equipment			5, 7
Production plants [1)]	1,977,253	2,517,800	
Machinery and equipment [1)]	30,392	34,417	
Construction in progress [1)]	936,278	689,084	
Total property, plant and equipment [1)]	2,943,923	3,241,301	
Right-of-use assets	160,553	195,675	6
Investments in associated companies and joint ventures	2,526,406	3,577,497	9
Other investments	18,355	31,443	10, 28
Loans granted	1,015,018	750,804	10, 27, 28, 30
Other receivables and other assets	139,931	76,223	2, 10, 27, 28
Deferred tax assets	59,544	26,692	11
Total non-current assets [1)]	**7,522,373**	**8,454,059**	
Current assets			
Inventories	1,267,480	961,328	12
Receivables			
Trade receivables	1,113,786	640,090	26, 27, 28, 30
Income taxes	69,944	7,519	
Other receivables and other assets	649,171	436,565	9, 10, 27, 28, 30
Total receivables and other assets	1,832,901	1,084,174	
Cash and cash equivalents	1,540,973	83,404	28
Assets of the disposal group held for sale	821,003	0	8
Total current assets	**5,462,357**	**2,128,906**	
Total assets [1)]	**12,984,730**	**10,582,965**	

1) 2020 amounts for line items marked with footnote [1)] have been restated. For further details, please refer to the Restatement section.

Consolidated Balance Sheet

EUR thousand	31.12.2021	31.12.2020 restated	Note
Equity and liabilities			
Equity			
Shareholders' equity			
Share capital and contributions by shareholders	1,599,397	1,599,397	13
Reserves	203,645	-299,231	
Retained earnings	6,372,494	5,117,066	
Total shareholders' equity	8,175,536	6,417,232	
Non-controlling interests	-4,251	8,993	
Total equity	**8,171,285**	**6,426,225**	
Liabilities			
Non-current liabilities			
Loans and borrowings	1,526,278	1,411,552	20, 21, 28
Lease liabilities	134,084	156,697	6, 20, 21
Deferred tax liabilities	178,166	224,108	11
Employee benefits	415,839	470,713	15
Provisions [1)]	64,647	75,207	16
Other liabilities [1)]	13,494	25,651	21, 28
Total non-current liabilities [1)]	**2,332,508**	**2,363,928**	
Current liabilities			
Loans and borrowings	73,633	310,397	20, 21, 28
Lease liabilities	30,682	38,101	6, 20, 21
Trade payables	1,016,936	788,170	21, 28, 30
Income taxes	44,760	63,049	
Provisions [1)]	69,546	37,281	16
Contract liabilities	54,997	41,660	2
Other liabilities [1)]	599,086	514,154	21, 28, 30
Liabilities directly related to the disposal group	591,297	0	8
Total current liabilities [1)]	**2,480,937**	**1,792,812**	
Total liabilities [1)]	**4,813,445**	**4,156,740**	
Total equity and liabilities [1)]	**12,984,730**	**10,582,965**	

1) 2020 amounts for line items marked with footnote [1)] have been restated. For further details, please refer to the Restatement section.

Consolidated Statement of Changes in Equity

EUR thousand	Share capital [1] and contri-butions by share-holders	Reserve for actuarial gains/losses recognised in equity	Hedging reserve	Reserve for unrealised exchange gains/losses	Retained earnings	Total attributable to the equity holders of the parent	Non-controlling interests	Total equity
Balance as of 1 January 2020	**1,599,397**	**-260,760**	**1,347**	**282,204**	**4,823,040**	**6,445,228**	**12,524**	**6,457,752**
Net profit for the year	0	0	0	0	594,026	**594,026**	-5,509	**588,517**
Other comprehensive income	0	7,695	-18,562	-322,639	0	**-333,506**	-1,962	**-335,468**
Total comprehensive income	**0**	**7,695**	**-18,562**	**-322,639**	**594,026**	**260,520**	**-7,471**	**253,049**
Dividend payments	0	0	0	0	-300,000	**-300,000**	-260	**-300,260**
Changes in the consolidation scope	0	0	0	0	0	**0**	4,200	**4,200**
Reclassifications of cash flow hedges to balance sheet	0	0	11,484	0	0	**11,484**	0	**11,484**
Balance as of 31 December 2020	**1,599,397**	**-253,065**	**-5,731**	**-40,435**	**5,117,066**	**6,417,232**	**8,993**	**6,426,225**
Net profit for the year	0	0	0	0	1,405,573	**1,405,573**	-9,502	**1,396,071**
Other comprehensive income	0	-2,634	181,465	272,756	0	**451,587**	20	**451,607**
Total comprehensive income	**0**	**-2,634**	**181,465**	**272,756**	**1,405,573**	**1,857,160**	**-9,482**	**1,847,678**
Dividend payments	0	0	0	0	-150,000	**-150,000**	-46	**-150,046**
Changes in the consolidation scope [2]	0	0	0	0	-145	**-145**	-3,716	**-3,861**
Reclassifications of cash flow hedges to balance sheet	0	0	51,289	0	0	**51,289**	0	**51,289**
Balance as of 31 December 2021	**1,599,397**	**-255,699**	**227,023**	**232,321**	**6,372,494**	**8,175,536**	**-4,251**	**8,171,285**

1) Share capital of Borealis AG (parent company) amounts to EUR 300,000.00 (EUR 300,000.00). // 2) The effect from changes in the scope of consolidation on retained earnings and non-controlling interests relates to the acquisition of 8.19% of the shares in DYM Solution Co., Ltd.

A dividend of EUR 150,000 thousand was paid in 2021 from the 2020 result.

The cumulative amount recognised in other comprehensive income from the disposal group as of 31 December 2021 is EUR -27,999 thousand, thereof EUR -891 thousand relates to items that may be reclassified subsequently to the income statement.

Consolidated Cash Flow

EUR thousand	2021	2020	Note
Cash flows from operating activities			
Payments from customers	9,217,419	6,880,072	
Payments to employees and suppliers	-8,065,967	-5,842,549	
Interest received	27,462	20,839	18
Interest paid	-38,137	-35,473	18
Other financial expenses paid	-14,828	-16,345	18
Income taxes paid/repaid	-158,750	76,503	11
	967,199	**1,083,047**	
thereof from discontinued operation	179,152	136,098	
Cash flows from investing activities			
Investments in property, plant and equipment	-659,962	-614,161	5
Investments in intangible assets	-59,600	-61,139	4
Acquisitions of subsidiaries net of cash	0	-602,644	
Dividends of associated companies and joint ventures and non-consolidated subsidiaries	1,943,012	510,135	9
Capital contributions to and financing and acquisition of associated companies and joint ventures	-365,573	-299,311	9
	857,877	**-1,067,119**	
thereof from discontinued operation	-103,061	-68,032	
Cash flows from financing activities			
Non-current loans and borrowings obtained	150,000	608,560	20
Current loans and borrowings obtained	122	372,614	20
Current loans and borrowings repaid	-311,510	-652,919	20
Principal elements of lease payments	-41,721	-41,534	6
Acquisition of non-controlling interests	-3,861	0	
Dividends paid to equity holders of the parent	-150,000	-300,000	
Dividends paid to non-controlling interests	-46	-260	
	-357,016	**-13,539**	
thereof from discontinued operation	-42,134	28,237	
Net cash flow of the period	**1,468,060**	**2,389**	
Cash and cash equivalents as of 1 January	83,404	83,498	
Effect of exchange rate fluctuations on cash held	23	-2,483	
Cash and cash equivalents as of 31 December	**1,551,487**	**83,404**	
thereof reported under Cash and cash equivalents	1,540,973	83,404	
thereof reported under Assets of the disposal group held for sale	10,514	0	

Notes to the Consolidated Financial Statements

Reporting Entity

Borealis AG (the Company or Group) is a company domiciled in Austria. The address of the Company's registered office is Trabrennstrasse 6–8, 1020 Vienna, Austria. Borealis is one of the world's leading providers of advanced and circular polyolefin solutions and a European market leader in base chemicals, fertilizers and the mechanical recycling of plastics.

Borealis Reports the Business Result in three Segments:
In the Polyolefins segment, Borealis focuses on the application areas Mobility, Energy, Consumer Products, Infrastructure, Advanced Products and Business Development.

Base Chemicals essentially includes the following product ranges: Phenol, Acetone, Ethylene and Propylene.

The third segment is "Borealis NITRO" consisting of Fertilizers, Melamine and Technical Nitrogen Products.

Statement of Compliance

The consolidated financial statements have been prepared in compliance with the International Financial Reporting Standards issued by the IASB as adopted by the EU and additional Austrian disclosure requirements. The consolidated financial statements were authorised for publication by the Executive Board on 17 February 2022.

Basis of Preparation

The consolidated financial statements are presented in thousand euro (EUR thousand), rounded to the nearest thousand, hence rounding differences may arise. The consolidated financial statements are prepared on the historical cost basis, except for the following assets and liabilities, which are stated at their fair value: derivative financial instruments and financial assets at fair value through profit or loss (FVPL) or at fair value through other comprehensive income (FVOCI). Recognised assets and liabilities that are hedged are stated at fair value in respect of the risk that is being hedged.

Consolidation Principles

The consolidated financial statements include the financial statements of Borealis AG, the parent company, and all the companies over which it has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Companies in which the Group has a significant influence (interest of 20% or more), but no control or joint control, are considered associated companies.
A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions on the relevant activities require the unanimous consent of the parties sharing control.

The consolidated financial statements are based on audited financial statements of the parent company and of each individual subsidiary. The consolidated financial statements have all been prepared in accordance with the Group's accounting policies. Items of a similar nature have been combined. Intra-group transactions (revenues and costs), intra-group profits, internal shareholdings and intra-group balances have been eliminated.

Acquired subsidiaries, associated companies and joint ventures are included in the consolidated financial statements from the date of control or significant influence, respectively, and until control or significant influence ceases. A remeasurement of the acquired net assets is made on the date of acquisition. Any remaining positive difference between the fair value of the assets and liabilities and the purchase consideration is capitalised as goodwill and subject to an annual impairment test. Any gain from a bargain purchase is recognised in the income statement. Investments in associated companies and investments in joint ventures are recorded under the equity method in the consolidated financial statements.

Significant Accounting Judgements, Estimates and Assumptions

The preparation of the Group's consolidated financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities and the disclosure of contingent liabilities, at the end of the reporting period. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of the asset or liability affected in future periods. The judgements, estimates and assumptions mainly relate to the useful life and impairment of intangible assets and property, plant and equipment (note 4 and note 5), determination of lease liabilities (note 6), value of tax assets and liabilities and unused tax losses (note 11),

inventory impairment (note 12), actuarial assumptions for employee benefits (note 15), future cash outflows for provisions (note 16), allowance for impairment in respect of trade receivables (note 27), estimate of fair value less cost of disposal (note 8) and are included in the description of the respective note for the position.

Foreign Currency

Transactions and Balances

Monetary assets and liabilities denominated in foreign currencies have been converted into euro (EUR) at the exchange rates quoted on the reporting date. Non-monetary items that are measured at historical cost in a foreign currency are translated using the exchange rate as at the date of transaction.

Until the end of the financial year 2020, all foreign exchange gains and losses, both realised and unrealised, were recorded as financial items in the income statement. From 2021 onwards, foreign exchange gains and losses related to working capital are presented in the income statement as part of operating profit (other operating income and production costs). There are no changes for those exchange adjustments that are recognised in other comprehensive income, such as conversion of the net assets of foreign subsidiaries and associated companies as of 1 January using the closing rate on 31 December, conversion of long-term intra-group receivables that are considered part of investments in subsidiaries or associated companies, conversion of long-term loans hedging net assets of foreign subsidiaries and associated companies or intra-group receivables considered part of investments in subsidiaries and associated companies and conversion of the net income of foreign subsidiaries calculated at monthly rates to figures converted using the exchange rates applicable as of the reporting date.

Group Companies

Consolidated financial statements are presented in euro (EUR), the functional currency of the parent.

Financial statements of foreign subsidiaries in functional currencies other than EUR have been converted at the exchange rates quoted on the reporting date for assets and liabilities. The income statements of foreign subsidiaries have been converted on the basis of monthly exchange rates. The exchange differences arising from the conversion are recognised in other comprehensive income.

Summary of Significant Accounting Policies

Income Statement

Revenue Recognition

Borealis' main business model is to produce, market and sell various goods (polyolefins, base chemicals, fertilizers and related nitrogen products) to its customers. Each sale typically includes an obligation to deliver one particular type of goods. No bundling of various goods in one contract currently exists and price is not interdependent on prices in other contracts, delivery of other goods or promises. In case of additional services provided as part of the contract that typically do not meet the requirements of a separate performance obligation in accordance with IFRS 15, no allocation of the transaction price to multiple performance obligations is necessary.

Revenue is recognised when control of the products has been transferred, i.e. when the products are delivered to the customer. All Borealis contracts for delivery of goods include Incoterms, such as DDP, CIF or FCA, which govern changes to the control of goods. This will be the point of revenue recognition by Borealis. Payment is generally due up to 90 days from delivery.

For some contracts, variable considerations have been agreed, typically volume discounts for goods purchased during the particular period, i.e. one year. Borealis regularly estimates the anticipated discount based on the best available data supported by a large number of similar contracts and historical information.

Generally, Borealis does not expect to have any contracts where the period between the transfer of the promised goods to the customer and payment by the customer exceeds one year. Consequently, Borealis does not adjust the promised amount of consideration for the effects of a significant financing component.

The Group typically provides warranties for general repairs of defects that existed at the time of sale, as required by law. These assurance-type warranties are accounted for under IAS 37 Provisions, Contingent Liabilities and Contingent Assets. No other warranties or rights to return are offered by Borealis.

Net sales comprise revenue from contracts with customers and revenue from other sources arising in the course of the ordinary activities of the Group, excluding value-added tax and after deduction of goods returned, discounts and allowances.

The Group recognises contract liabilities for consideration received in respect of unsatisfied performance obligations. If the Group satisfies a performance obligation before it receives the consideration, the Group recognises a contract asset or a receivable in its balance sheet, depending on whether something other than the passage of time is required before the consideration is due.

All transactions that are not representative of sales revenues are presented under Other operating income.

Research and Development
Research costs are charged to the income statement in the year they have been incurred.

Development costs relating to a definable product or process that is demonstrated to be technically and commercially feasible are recognised as an intangible asset to the extent that such costs are expected to be recovered from future economic benefits. The expenditure capitalised includes the costs of materials, direct labour and an appropriate proportion of direct overheads.

Other development costs not meeting these criteria are recognised in the income statement as an expense when incurred.

Results from Associated Companies and Joint Ventures
The proportionate share of the net profit or loss after or before tax, as appropriate, of these companies is included in the consolidated income statement.

Financial Income/Expenses
Interest income and expenses are included in the income statement using the effective interest rate at the amounts relating to the financial year.

Financial income/expenses also include borrowing costs, costs incurred on finance leases, realised and unrealised gains and losses from exchange and price adjustments of financial instruments, investments and items in foreign currencies not related to working capital.

Taxes on Income
The income tax charged to the income statement comprises expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted as of the reporting date, adjusted for the change in deferred tax assets and liabilities for the year and for any tax payable in respect of previous years. Income tax that relates to items recognised in other comprehensive income is recognised in other comprehensive income as well.

Balance Sheet

Intangible Assets
Intangible assets are stated at cost, less accumulated amortisation and impairment losses.

Goodwill arising from an acquisition represents the excess of the purchase consideration over the fair value of the net identifiable assets acquired. Goodwill is not amortised, but is subject to an annual impairment test.

Licences and patents acquired externally are stated at cost, less accumulated amortisation and impairment losses. Amortisation is calculated according to the straight-line method based on an estimated useful life of 3–10 years.

Capitalised development costs are stated at cost, less accumulated amortisation and impairment losses. Amortisation is charged to the income statement on a straight-line basis over the expected useful life of the asset of 3–10 years. Development costs not yet amortised are subject to an annual impairment test.

Costs to purchase and develop software for internal use are capitalised and amortised on a straight-line basis over 3–7 years.

Emission rights are reported as intangible assets. They are measured at cost, if purchased on the market, or at fair value, if received through government grants. A liability to return emission rights for actual emissions made is recognised as well.

Property, Plant and Equipment

Property, plant and equipment is valued at cost, less accumulated depreciation and impairment losses. Cost comprises purchase price, site preparation and installation. Day-to-day servicing expenses are not included in the cost of the assets. If certain conditions are met, the costs of major inspections and overhauls are recognised in the carrying amount of the property, plant and equipment.

Production plants include land, buildings, related immovable machinery and equipment. Machinery and equipment are recognised at purchase price and any directly attributable costs.

Depreciation is made on a straight-line basis over the expected useful life of the components of the assets. The useful lives of major assets are determined individually, while the lives of other assets are determined in groups of similar assets. Land is not depreciated. Buildings are depreciated over 20–40 years, production facilities over 15–20 years and machinery and equipment over 3–15 years.

The present value of the expected cost for the decommissioning of the asset after its use is included in the cost of the respective asset if the recognition criteria for a provision are met. The estimated future costs of decommissioning are reviewed annually and adjusted as appropriate. Changes in the estimated future costs or in the discount rate applied are added to or deducted from the cost of the asset. Borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset are capitalised as part of the cost of that asset.

Impairment Losses

The carrying amounts of both property, plant and equipment and intangible assets are reviewed on each reporting date to determine whether there is any indication of impairment. If any such indication exists, and for annual impairment tests of goodwill and intangible assets with an indefinite useful life, the asset's recoverable amount is estimated as the greater of the fair value less cost of disposal and value in use. An impairment loss is recognised whenever the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. Impairment losses are recognised in the income statement.

Leases

Leases are recognised as a right-of-use asset and a corresponding liability on the date at which the leased asset is available for use by the Group. Each lease payment is split between the liability and finance cost. The finance cost is charged to the income statement over the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the present value of the following lease payments:

– fixed payments (including in-substance fixed payments), less any lease incentives receivable,
– variable lease payments that are based on an index or a rate,
– amounts expected to be payable by the lessee under residual value guarantees, if any,
– the exercise price of a purchase option, if it is reasonably certain that the lessee will exercise that option, and
– payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

Lease payments to be made under reasonably certain extension options are also included in the measurement of the liability.

Moreover, non-lease components are separated from the lease components for measurement of right-of-use assets and lease liabilities.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, which is generally the case for leases in the Group, the lessee's incremental borrowing rate is used, i.e. the rate that the lessee would have to pay to borrow the funds necessary to obtain an asset of similar value in a similar economic environment with similar terms and conditions.

The Group determines its incremental borrowing rate by obtaining interest rates from external financing sources and makes certain adjustments (to reflect the terms of the lease and the creditworthiness of the Company, amongst others).

Right-of-use assets are initially measured at cost comprising the following:
– the amount of the initial measurement of the lease liability,
– any lease payments made on or before the commencement date, less any lease incentives received,
– any initial direct costs, and
– costs, if any, of restoring the asset at the end of the lease term to the condition required by the terms and conditions of the lease.

After the commencement date, the right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term using a linear method of depreciation. If it is reasonably certain that the Group will exercise a purchase option, the right-of-use asset is depreciated over the underlying asset's useful life.

Payments associated with short-term leases and leases of low-value assets are recognised on a straight-line basis as an expense in the income statement. Short-term leases are leases with a lease term of 12 months or less. Low-value assets comprise office and IT equipment (such as water dispensers, coffee machines or franking machines), textiles or smaller containers.

Non-current Assets Held for Sale and Discontinued Operations
Non-current assets (or disposal groups comprising assets and liabilities) that are expected to be recovered primarily through sale rather than through continuing use are classified as held for sale. Prior to classification as held for sale, the assets (or components of a disposal group) are re-measured in accordance with IFRS 5. Thereafter, the assets (or disposal group) are generally measured at the lower of their carrying amount and fair value, less cost of disposal. Any impairment loss on a disposal group is first allocated to goodwill and then to remaining non-current assets on a pro rata basis; no loss is allocated to financial assets, deferred tax assets and employee benefit assets, which continue to be measured in accordance with the Group's accounting policies. Impairment losses on initial classification as held for sale and subsequent gains or losses on re-measurement are recognised in the income statement. Gains are not recognised in excess of any cumulative impairment loss.

A discontinued operation is a component of the Group's business, the operations and cash flows of which can be clearly distinguished from the rest of the Group and which:
– represents a separate major line of business or geographic area of operations,
– is part of a single co-ordinated plan to dispose of a separate major line of business or geographic area of operations, or
– is a subsidiary acquired exclusively with a view to resale.

Classification as a discontinued operation occurs at the earlier of disposal or when the operation meets the criteria to be classified as held for sale.

When an operation is classified as a discontinued operation, the comparative income statement is re-presented as if the operation had been discontinued from the start of the comparative year.

Associated Companies and Joint Ventures
Associated companies and joint ventures are accounted for using the equity method. The consolidated financial statements include the Group's share of the comprehensive income of equity-accounted investees.

Cash and Cash Equivalents
Cash and cash equivalents comprise cash in bank and liquid short-term deposits.

Inventories
Raw materials, work in progress and finished goods are stated at the lower of cost and net realisable value. Costs incurred are based on the first in, first out principle (FIFO method) and comprise direct materials, direct labour and an appropriate proportion of variable and fixed overhead expenditure, the latter being allocated on the basis of normal operating capacity. Cost includes the reclassification from equity of any gains or losses on qualifying cash flow hedges relating to purchases of raw material, but excludes borrowing costs. Costs are assigned to individual items of inventory based on weighted average costs. Costs of purchased inventory are determined after deducting rebates and discounts. The net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale. Measurement of spare parts is based on the weighted average cost method.

Government Grants

Government grants include grants for research and development as well as investment grants. Until the end of the financial year 2020, investment grants were recognised in the balance sheet as non-current liabilities and recognised as income over the useful life of the asset. From 2021 onwards, government grants relating to assets are deducted from the carrying amount of the related asset and recognised in the income statement as a reduction of depreciation (production costs) over the useful life of the asset. Income from other government grants was shown as part of gross profit (net sales) until the end of the financial year 2020. From 2021 onwards, this will be shown as part of other operating income.

Provisions

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation against third parties that can be reliably estimated and if it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions reflect the present value of future cash outflows. The cash flows are discounted at a current pre-tax rate that reflects the risks specific to the liability. The unwinding of the discount is expensed as incurred and recognised in the income statement as finance cost.

Deferred and Income Taxes

Deferred tax assets and liabilities are computed individually for each company in accordance with the balance sheet liability method, providing for temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for tax purposes. Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends to either settle on a net basis, or to realise the asset and settle the liability simultaneously.

As of 1 January 2021, Austrian Borealis group entities are part of the Austrian OMV tax group and tax charges resulting from tax allocation agreements are settled with OMV Aktiengesellschaft. Hence, income tax receivables/liabilities from respective tax group members are no longer presented under the balance sheet item Income taxes, but under Other current receivables/liabilities.

Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse, based on the laws that have been enacted or substantively enacted as of the reporting date.

A deferred tax asset is recognised only to the extent that it is probable that future taxable profits will be available, against which the temporary differences and unused tax loss carryforwards can be utilised within a period of five years, based on a five-year business plan.

In case of a history of recent losses, a deferred tax asset arising from unused tax losses or tax credits is only recognised to the extent that the entity has sufficient taxable temporary differences or there is convincing other evidence that sufficient taxable profit will be available against which the unused tax losses or unused tax credits can be utilised.

Deferred tax assets are reviewed on each reporting date and are remeasured to the extent that it is probable they will be realised.

The uncertain tax positions, for example tax disputes, are accounted for by applying the most likely amount. The most likely amount is the single most likely amount in a range of realistically possible options. The Company evaluates the unit of account related to the uncertain tax positions on a case-by-case basis.

Reserves

A reserve has been established under the consolidated equity for unrealised exchange differences related to deferred foreign exchange gains and losses on intercompany loans, hedge loans and the equity of foreign operations. The hedging reserve contains fair value adjustments to financial instruments held for hedging purposes. The reserve for actuarial gains/losses recognised in equity contains the actuarial gains and losses on employee benefit plans.

Employee Benefits

Defined Contribution Plans

Obligations for contributions to defined contribution plans are recognised as an expense in the income statement as incurred.

For defined contribution plans, the Group pays contributions to publicly or privately administered pension insurance plans on a mandatory, contractual or voluntary basis. The Group

has no further payment obligations once the contributions have been paid. The contributions are recognised as employee benefit expenses when they are due. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in future payments is available.

Defined Benefit Plans

The Group's net obligation in respect of defined benefit pension plans and other post-employment benefit plans is calculated separately for each plan by estimating the amount of future benefits that employees have earned in return for their service in the current and prior periods. The benefit is discounted to determine its present value and the fair value of any plan assets is deducted. A qualified actuary performed the calculation using the projected unit credit method.

The discount rate used in the actuarial measurements is determined with a reference to long-term yields of AA-rated corporate bonds. In countries where no deep market for such bonds exists, the market yield of government bonds is used.

The Group has the following plans in place: defined benefit pension plans, post-employment medical plans, severance plans and other long-term employee benefit plans. Pension plans in place are both funded and unfunded. The plan asset funds are predominantly held in the form of insurance contracts.

The parameters of the pension promises vary from country to country. There are both plans open and closed to new entrants, contributory as well as non-contributory.

Post-employment medical plans mainly cover the medical expenses of retirees in Belgian companies. They are non-contributory and closed to new entrants. The expected costs of these benefits are accrued over the period of employment using the same accounting methodology as used for defined benefit pension plans.

Severance plans cover employees of Austrian companies who started their service before 1 January 2003. They are entitled to receive severance payments upon termination of their employment or on reaching their pension age.

Furthermore, the Group operates severance plans in Italy and the United Arab Emirates. The benefits depend on the years of service and remuneration level. These plans are non-contributory and unfunded.

Other long-term employee benefits include jubilee schemes and pre-pension benefits. Jubilee schemes entitle the members to benefits in the form of a payment and/or additional paid holiday when reaching a defined length of service. These plans are non-contributory and unfunded.

All actuarial gains and losses relating to post-employment benefit plans are recognised in other comprehensive income. Actuarial gains and losses related to other long-term services are recognised in the income statement.

Past-service costs are recognised immediately in the income statement. Net interest expenses resulting from employee benefits are included in the consolidated income statement as part of the operating profit.

Fair Value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants on the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either on the principal market for the asset or liability or, in the absence of a principal market, on the most advantageous market for the asset or liability.

The principal or the most advantageous market must be accessible to the Group. The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their best economic interest. A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

The Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximising the use of relevant observable inputs and minimising the use of unobservable inputs.

For assets and liabilities that are recognised in the financial statements on a recurring basis, the Group determines whether transfers have occurred between levels in the hierarchy by reassessing categorisation (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period. For the purpose of fair value disclosures, the Group has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy as explained in note 28.

Financial Instruments

Recognition and Derecognition

Financial assets and financial liabilities are recognised on the trade date, when the Group becomes a party to the contractual provisions of the financial instrument. Financial assets are derecognised when the contractual rights to the cash flows from the financial asset expire, or when the financial asset and substantially all the risks and rewards are transferred. A financial liability is derecognised when it is extinguished, discharged, cancelled or expires.

Classification and Initial Measurement of Financial Assets

Financial assets are initially recognised at their fair value, except for those trade receivables that do not contain a significant financing component and are measured at the transaction price in accordance with IFRS 15. For all financial assets which are not subsequently measured at fair value, the fair value on initial recognition is adjusted for transaction costs (where applicable). Financial assets, other than those designated and effective as hedging instruments, are classified into the following categories:
– amortised cost,
– fair value through profit or loss (FVPL),
– fair value through other comprehensive income (FVOCI).

The classification is determined by both:
– the entity's business model for managing the financial asset,
– the contractual cash flow characteristics of the financial asset.

Subsequent Measurement of Financial Assets

Financial Assets at Amortised Cost

Financial assets are measured at amortised cost if the assets meet the following conditions (and are not designated as FVPL):
– they are held within a business model whose objective is to hold the financial assets and collect their contractual cash flows,
– the contractual terms of the financial assets give rise to cash flows that are solely payments of principal and interest on the principal amount outstanding.

After initial recognition, these are measured at amortised cost using the effective interest rate method. Discounting is omitted where the effect of discounting is immaterial. The Group's cash and cash equivalents, trade receivables (except trade receivables under the factoring programme) and parts of other receivables fall into this category of financial instruments.

Financial Assets at Fair Value through Profit or Loss (FVPL)

Financial assets that are held within a different business model other than "hold to collect" or "hold to collect and sell" are categorised at FVPL. Furthermore, irrespective of the business model, financial assets whose contractual cash flows are not solely payments of principal and interest are accounted for at FVPL.

Derivative financial instruments for which hedge accounting is not applied fall into this category.

The Group has a pool of specifically designated trade receivables that are all subject to factoring. This pool of receivables represents a hold to sell business model and is measured using FVPL.

The category also contains equity investments. Equity investments are either measured at FVPL or at FVOCI. Until 31 December 2020, Borealis elected irrevocably to classify all of its non-listed equity investments as investments at FVPL.

Furthermore, the category contains marketable securities and bonds which are classified as a debt instrument. As such, marketable securities and bonds do not fulfil the solely payment of principal and interest (SPPI) criteria and have to be measured at FVPL.

Assets in this category are measured at fair value with gains or losses recognised in the income statement. The fair values of financial assets in this category are determined by reference to active market transactions or using a valuation technique where no active market exists.

Financial Assets at Fair Value through OCI (FVOCI)

The category contains equity investments. From 1 January 2021, all new non-listed equity investments, which are held for strategic purposes and not for trading, are classified as investments at FVOCI. Gains and losses on equity investments measured at FVOCI are never recycled to the income statement and they are not subject to impairment assessment. Dividends are recognised in the income statement unless they represent a recovery of part of the cost of an investment.

Impairment of Financial Assets

The Group has three types of financial assets that are subject to IFRS 9's expected credit loss (ECL) model:
- trade receivables (excluding trade receivables held to sell) and contract assets,
- cash and cash equivalents,
- debt investments carried at amortised cost.

For the measurement of the ECLs, a distinction is made between:
- financial instruments for which credit risk has not increased significantly since initial recognition ("Stage 1" – 12-month expected credit losses),
- financial instruments for which credit risk has increased significantly since initial recognition ("Stage 2" – lifetime expected credit losses).

"Stage 3" covers financial assets that have objective evidence of impairment as of the reporting date (credit-impaired financial assets).

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive).

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date.

On each reporting date, the Group assesses whether financial assets carried at amortised cost are credit-impaired. A financial asset is credit-impaired when one or more events have occurred that have a detrimental impact on the estimated future cash flows of the financial asset.

Evidence that a financial asset is credit-impaired includes the following observable data:
- significant financial difficulty of the borrower or issuer,
- a breach of contract such as a default or being more than 90 days past due,
- it is probable that the borrower will enter into bankruptcy or other financial reorganisation.

A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows, such as in the case of bankruptcy.

Trade Receivables and Contract Assets

Trade receivables and contract assets are impaired by using the simplified approach, which does not distinguish between 12-month ECLs and lifetime ECLs, but all assets are generally impaired using lifetime ECLs. For trade receivables and contract assets, the Group distinguishes between trade receivables up to 90 days past due and trade receivables more than 90 days past due. For trade receivables up to 90 days past due, the Group calculates ECLs based on external and internal rating and associated probabilities of default. Available forward-looking information is taken into account if it has a material impact on the amount of impairment recognised. Trade receivables more than 90 days past due are assessed individually and credit-impaired if necessary. See note 27 for further information on how credit risk is managed.

Loss allowances for trade receivables measured at amortised cost are deducted from the gross carrying amount of the assets and recognised in sales and distribution costs in the income statement.

Cash and Cash Equivalents

While cash and cash equivalents are also subject to the impairment requirements of IFRS 9, the identified impairment loss (based on the general approach) was immaterial.

Debt Investments Carried at Amortised Cost

The Group's debt investments at amortised cost are considered to have low credit risk and the loss allowance recognised during the period was therefore limited to 12 months of expected losses. Debt investments are considered to be low credit risk when they have a low risk of default and the counterparty has a strong capacity to meet its contractual cash flow obligations in the near term.

On that basis, the identified impairment loss (ECL based on the general approach) was immaterial. If there is any objective evidence for an impairment, debt investments are impaired individually (credit-impaired). See note 27 for further information.

Classification and Measurement of Financial Liabilities

Financial liabilities are initially measured at fair value and, where applicable, adjusted for transaction costs unless the Group designated a financial liability at fair value through profit or loss (FVPL). Subsequently, financial liabilities are measured at amortised cost using the effective interest method except for derivatives, which are carried at fair value with gains or losses recognised in the income statement (other than derivative financial instruments that are designated and effective as hedging instruments).

All interest-related charges and, if applicable, changes in an instrument's fair value that are recognised in the income statement are included within financial expenses or financial income.

The Group's financial liabilities include loans and borrowings, lease liabilities, trade payables and parts of other liabilities and derivative financial instruments.

Derivatives and Hedging Activities

Derivatives are initially recognised at fair value on the date a derivative is entered into and are subsequently remeasured at their fair value at the end of each reporting period. The accounting for subsequent changes in fair value depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. The Group designates certain derivatives as either:

- hedges of the fair value of recognised assets or liabilities or a firm commitment (fair value hedges),
- hedges of a particular risk associated with the cash flows of recognised assets and liabilities and highly probable forecast transactions (cash flow hedges), or
- hedges of a net investment in a foreign operation (net investment hedges).

In the periods presented, the Group does not have any fair value hedges outstanding and no derivatives are considered as net investment hedges.

At inception of the hedge relationship, the Group documents the hedge relationship between hedging instruments and hedged items including whether changes in the cash flows of the hedging instruments are expected to offset changes in the cash flows of hedged items. The Group documents its risk management objective and strategy for undertaking its hedge transactions. A hedging relationship qualifies for hedge accounting only if all of the following hedge effectiveness requirements are met:

- there is an economic relationship between the hedged item and the hedging instrument,
- the effect of credit risk does not dominate the value changes that result from that economic relationship,
- the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the entity actually hedges and the quantity of the hedging instrument that the entity actually uses to hedge that quantity of the hedged item.

Cash Flow Hedging

When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in the fair value of the derivative is recognised in OCI and accumulated in the hedging reserve. The effective portion of changes in the fair value of the derivative that is recognised in OCI is limited to the cumulative change in fair value of the hedged item, determined on a present value basis, from inception of the hedge. Any ineffective portion of changes in the fair value of the derivative is recognised immediately in the income statement. The Group designates the full change in fair value of foreign exchange forwards as the hedging instrument in cash flow hedging relationships. As of the reporting date, Borealis has several foreign exchange forwards, but no outstanding foreign exchange options.

When the hedged forecast transaction subsequently results in the recognition of a non-financial item such as inventory, the amount accumulated in the hedging reserve and the cost of the hedging reserve is directly included in the initial cost of the non-financial item when it is recognised.

For all other hedged forecast transactions, the amount accumulated in the hedging reserve and the cost of the hedging reserve is reclassified to the income statement in the same period or periods during which the hedged expected future cash flows affect the income statement.

If the hedge no longer meets the criteria for hedge accounting or the hedging instrument is sold, expires, is terminated or is exercised, then hedge accounting is discontinued prospectively. When hedge accounting for cash flow hedges is discontinued, the amount that has been accumulated in the hedging reserve remains in equity until, for a hedge of a transaction resulting in the recognition of a non-financial item, it is included in the non-financial item's cost on its initial recognition or, for other cash flow hedges, it is reclassified to the income statement in the same period or periods as the hedged expected future cash flows affect the income statement.

If the hedged future cash flows are no longer expected to occur, then the amounts that have been accumulated in the hedging reserve are immediately reclassified to the income statement.

Net Investment Hedges

Hedges of net investments in foreign operations are accounted for in a similar manner to cash flow hedges.

Any gain or loss on the hedging instrument relating to the effective portion of the hedge is recognised in OCI and accumulated in the reserve for unrealised exchange gains/losses. The gain or loss relating to the ineffective portion is recognised immediately in the income statement. Gains and losses accumulated in equity are reclassified to the income statement when the foreign operation is partially disposed of or sold.

Derivatives That Do Not Qualify for Hedge Accounting

Certain derivative instruments do not qualify for hedge accounting. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognised immediately in the income statement.

Offsetting of Financial Instruments

Financial assets and financial liabilities can be offset and the net amount is reported in the consolidated balance sheet if there is a currently enforceable legal right to offset the recognised amounts and there is an intention to settle on a net basis or to realise the assets and settle the liabilities simultaneously.

Cash Flow Statement

The consolidated cash flow statement shows the Group's cash flow provided by/used in operating, investing and financing activities. The cash flow from operating activities is calculated using the direct method. The cash flow from investing activities comprises payments made on the purchase and disposal of operations and the purchase and disposal of property, plant and equipment, intangible assets as well as financial assets. The cash flow from financing activities comprises changes in the Group's share capital, as well as loans, repayments of principals of interest-bearing debt and the payment of dividends. Cash and cash equivalents consist of cash and bank deposits.

Segment Reporting

A segment is a distinguishable component of the Group that is engaged in business activities from which it may earn revenues and incur expenses, whose operating results are regularly reviewed by the Executive Board (chief operating decision maker) and are used to make decisions on resources to be allocated to the segment and assess its performance and for which separate financial information is available (reportable segment).

Moreover, a geographic segment is based on risks and rewards of a particular economic environment (geographic region). The Executive Board decided to show the net sales by geographic segment next to the reportable segment.

The Executive Board has identified three reportable segments:

Polyolefins – this part of the business manufactures and markets polyolefin products. Although the Mobility, Energy, Consumer Products, Infrastructure, Advanced Products and Business Development operating segments provide separate reports on their performance, they have been aggregated into one reporting segment as they have similar long-term growth rates and raw material economics, as well as demonstrate similarities in other aspects required by the Standard.

Base Chemicals – Borealis produces and markets a wide range of base chemicals, such as phenol, acetone, ethylene, propylene and similar. These activities are covered in organisational terms by the business unit Hydrocarbons & Energy.

Borealis NITRO – Borealis is also engaged in the production and marketing of fertilizers, technical nitrogen and melamine. These activities are carried out by two business units – Fertilizers and Melamine. Fertilizers and Melamine provide separate reports on their performance, but based on their similar economic characteristics, as well as the size of Melamine being below the required thresholds, they have been aggregated into one reporting segment.

All other segments – Corporate, Middle East and Asia and Research & Development are not reportable segments, as they are either not included separately in the reports provided to the Executive Board or only contain results of the associated companies. The results of these operations are included in the Non-Allocated column (see note 1).

New Accounting Standards

New and Amended Standards Adopted by Borealis

In 2021, the following amended standards became effective and have been adopted by Borealis, where effective means effective for annual periods beginning on or after that date (as endorsed by the EU):

Standards		IASB effective date	EU effective date
Amended Standards			
IFRS 16	COVID-19-Related Rent Concessions beyond 30 June 2021	1 April 2021	1 April 2021
IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16	Interest Rate Benchmark Reform – Phase 2	1 January 2021	1 January 2021
IFRS 4	Insurance Contracts - deferral of IFRS 9	1 January 2021	1 January 2021

Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16: Interest Rate Benchmark Reform – Phase 2

Following the financial crisis, the replacement of benchmark interest rates such as LIBOR and other interbank offered rates (IBORs) has become a priority for global regulators. The IASB has embarked on a two-phase project to consider what, if any, reliefs to give from the effects of the IBOR reform.

In the prior year the Group adopted the Phase 1 amendments. The Phase 1 amendments, issued in September 2019, provided temporary relief from applying specific hedge accounting requirements to relationships affected by IBOR reform. The Group will continue to apply the Phase 1 amendments until the uncertainties arising from the interest rate benchmark reform are no longer present.

In the current year, the Group adopted the Phase 2 amendments. The Phase 2 amendments that were issued in August 2020 address issues that arise during the reform of an interest rate benchmark rate, including the replacement of one benchmark rate with an alternative one. The following key areas are affected by Phase 2: changes in the basis for determining the contractual cash flows as a result of benchmark interest rate reform, hedge accounting and disclosures.

The Phase 2 amendments are relevant for the following types of hedging relationships and financial instruments of the Group, all of which extend beyond 2021:

– Interest rate swaps that are designated as cash flow hedging instruments and indexed to USD LIBOR,
– Other financial instruments such as loans granted, loans and borrowings, derivative financial instruments for which hedge accounting is not applied, commitments, indexed to LIBOR (mainly USD LIBOR, JPY LIBOR).

The application of the amendments affects the Group as follows:

– Changes to contractual cash flows: The basis for determining the contractual cash flows of financial assets or financial liabilities to which the amortised cost measurement applies can change as a result of IBOR reform, for example, if the contract is amended to replace the benchmark rate with an alternative one. The Phase 2 amendments provide a practical expedient to account for these changes in the basis for determining contractual cash flows as a result of interest rate benchmark reform. Under the practical expedient, entities will account for these changes by updating the effective interest rate using the guidance in paragraph B5.4.5 of IFRS 9 without the recognition of an immediate gain or loss. For the year ended 31 December 2021, the Group applied the practical expedient to the JPY loan.
– Hedge accounting: When the phase 1 amendments cease to apply, the Group will amend its hedge designation to reflect changes which are required by IBOR reform and will update its hedge documentation by the end of the reporting period in which the changes are made. These amendments to the hedge documentation do not require the Group to discontinue its hedge relationships. The Group has not made any amendments to its hedge documentation in the reporting period relating to IBOR reform. When the Group amends its hedge designation, the accumulated amount outstanding in the cash flow hedge reserve is deemed to be based on the alternative benchmark rate.
– Additional disclosures related to interest rate benchmark reform are required to enable users of financial statements to understand the effect of interest rate benchmark reform on an entity's financial instruments and risk management strategy. For details, refer to note 24 Interest Rate Risk which provides related disclosures for Borealis.

Other Amended Standards

The adoption of the other amended standards stated above is included in the consolidated financial statements. This did not have a material impact on the financial position or performance of the Group.

New and Amended Standards Not Yet Effective

A number of new standards and amendments to standards have been issued, but are not yet effective (as adopted by the EU). Borealis will adopt the standards on the effective date. Effective means effective for annual periods beginning on or after that date (as endorsed by the EU). Borealis does not expect a material impact of these amendments on the consolidated financial statements.

Standards		IASB effective date	EU effective date
New Standards			
IFRS 17	Insurance Contracts	1 January 2023	1 January 2023
Amended Standards			
IAS 37	Onerous Contracts – Cost of Fulfilling a Contract	1 January 2022	1 January 2022
IFRS 1, IFRS 9, IFRS 16 and IAS 41	Annual Improvements to IFRS Standards 2018-2020	1 January 2022	1 January 2022
IAS 16	Proceeds before Intended Use	1 January 2022	1 January 2022
IFRS 3	References to the Conceptual Framework	1 January 2022	1 January 2022
IAS 1	Classification of Liabilities as Current or Non-current	1 January 2023	
IAS 1 and IFRS Practice Statement 2	Disclosure of Accounting Policies	1 January 2023	
IAS 8	Definition of Accounting Estimates	1 January 2023	
IAS 12	Deferred Tax related to Assets and Liabilities arising from a Single Transaction	1 January 2023	
IFRS 17	Initial Application of IFRS 17 and IFRS 9 – Comparative Information	1 January 2023	

Amounts

All amounts are in EUR thousand unless otherwise stated. The amounts in parentheses relate to the preceding year.

Restatement

The comparatives of the consolidated income statement and the consolidated balance sheet have been restated for the following items:

R&D Costs

In 2021, the Group discovered that certain expenditure of Borealis' Innovation & Technology organisation had been regularly presented as R&D cost whilst not being directly attributable to research and development activities, as defined by IAS 38.127. The total to be transferred to production costs for 2020 amounted to EUR -113,143 thousand (thereof EUR -57,707 thousand depreciation, amortisation and impairment). At the same time, production costs included a reduction related to the capitalisation of R&D costs for internally generated intangible assets. The total reduction to be transferred to R&D costs for 2020 amounted to EUR 29,397 thousand.

Foreign Currency (FX) Gains and Losses

Until the end of the financial year 2020, all foreign exchanges gains and losses, both realised and unrealised, were recorded as financial items in the income statement. From 2021 onwards, foreign exchange gains and losses related to working capital are presented in the income statement as part of operating profit (other operating income and production costs). There are no changes for those exchange adjustments that are recognised in other comprehensive income. The change in accounting policy aligns the presentation of FX gains and losses with the accounting policy of Borealis' parent company.

Government Grants

Income from government grants was shown as part of gross profit (net sales) until the end of the financial year 2020. From 2021 onwards, the presentation for grants not relating to assets is corrected and shown as part of other operating income.

The accounting policy of the parent company was also adopted for the presentation of government grants relating to assets during the financial year 2021. From 2021 onwards, government grants relating to assets are deducted from the carrying amount of the related asset and recognised in the income statement as a reduction of depreciation (production costs) over the useful life of the asset. Until the end of the financial year 2020, government grants related to assets were recognised separately in the balance sheet as non-current liabilities and recognised as income over the useful life of the asset (net sales).

Other Provisions/Other Liabilities

A reassessment of uncertainty levels and maturities of other provisions and other liabilities took place, which resulted in reclassifications between these two line items, these mainly relate to bonus entitlements.

Borealis Incentive Plan (BIP) entitlements for the year 2020 were reported under current other liabilities, whereas these were dependent on KPIs not exactly known as of the reporting date, 31 December 2020. At the same time, the non-current portion of LTI Plan entitlements from prior years was reported under non-current other provisions, although there was no uncertainty any more.

Other Operating Income

In the course of the accounting corrections in 2021, a new line item "Other operating income" was introduced in the consolidated income statement. All transactions that are not representative of sales revenues are presented here. In addition to the amended presentation of foreign currency gains and losses described above, income from government grants in the amount of EUR 96,835 thousand for the year 2020, mainly related to intangible assets received by way of government grants as allowances for emissions (EU Emissions Trading System), as well as items that were previously shown as other income, such as income from insurance settlements of EUR 92,800 for the year 2020 are also presented here. Furthermore, revenues from re-invoicing of seconded employees are included in this line item.

The comparatives of the consolidated income statement and the consolidated balance sheet have been restated accordingly:

Consolidated Income Statement		**Accounting policy change**		**Correction**		
EUR thousand	**2020 as reported**	**Government grants relating to assets**	**FX**	**R&D**	**Introduction of line item Other operating income**	**2020 restated**
Net sales	**6,818,000**	**-1,707**	**0**	**0**	**-145,450**	**6,670,843**
Other operating income	0	0	27,778	0	238,250	266,028
Total sales and other income	**6,818,000**	**-1,707**	**27,778**	**0**	**92,800**	**6,936,871**
Production costs	-5,501,000	1,707	-32,174	-142,540	0	-5,674,007
Gross profit	**1,317,000**	**0**	**-4,396**	**-142,540**	**92,800**	**1,262,864**
R&D costs	-150,399	0	0	142,540	0	-7,859
Other income	92,800	0	0	0	-92,800	0
Operating profit	**355,889**	**0**	**-4,396**	**0**	**0**	**351,493**
Financial expenses	-72,055	0	4,396	0	0	-67,659
Profit before taxation	**707,529**	**0**	**0**	**0**	**0**	**707,529**

Consolidated Balance Sheet EUR thousand	31.12.2020 as reported	Government grants	Other provisions/ Other liabilities	31.12.2020 restated
Assets				
Production plants	2,529,639	-11,839	0	2,517,800
Machinery and equipment	34,682	-265	0	34,417
Construction in progress	693,735	-4,651	0	689,084
Total property, plant and equipment	3,258,056	-16,755	0	3,241,301
Total non-current assets	**8,470,814**	**-16,755**	**0**	**8,454,059**
Total assets	**10,599,720**	**-16,755**	**0**	**10,582,965**
Liabilities				
Government grants (non-current) [1)]	18,863	-16,755	0	2,108
Provisions (non-current)	65,629	0	9,578	75,207
Other liabilities (non-current) [1)]	16,650	0	6,893	23,543
Total non-current liabilities	**2,364,212**	**-16,755**	**16,471**	**2,363,928**
Provisions (current)	2,163	0	35,118	37,281
Other liabilities (current)	565,743	0	-51,589	514,154
Total current liabilities	**1,809,283**	**0**	**-16,471**	**1,792,812**
Total liabilities	**4,173,495**	**-16,755**	**0**	**4,156,740**
Total equity and liabilities	**10,599,720**	**-16,755**	**0**	**10,582,965**

1) The line item Government grants is included in Other liabilities in the Consolidated Balance Sheet as of 31.12.2021 due to immateriality.

1. Segment Reporting

EUR thousand	Polyolefins		Base Chemicals [2]	
	2021	2020	2021	2020
Net sales by segment				
Total segment sales [1]	6,696,913	4,565,855	5,103,346	3,253,642
Inter-segment sales	0	0	-3,605,569	-2,378,229
	6,696,913	**4,565,855**	**1,497,777**	**875,413**
Prices for Group inter-segment sales are mainly based on monthly market prices for ethylene and propylene contracts.				
Segment result				
Operating profit [1]	1,185,759	207,253	308,543	179,966
Measurement of discontinued operation				
Net results of associated companies and joint ventures	36,308	9,005	418	381
Financial income/expenses [1]				
Taxes on income				
Non-controlling interests				
Net profit for the year attributable to equity holders of the parent				
Net sales by geographic segment (by delivery destination)				
EU countries [1]	4,491,951	3,114,293	1,043,782	695,352
thereof Austria [1]	192,406	110,201	0	0
Non-EU countries in Europe [1] [4]	913,128	495,225	397,167	153,877
US	234,660	168,424	36,869	1,309
Middle East and Asia [1]	394,522	351,112	18,387	20,205
Other regions	662,652	436,801	1,572	4,670
	6,696,913	**4,565,855**	**1,497,777**	**875,413**

EUR thousand	31.12.2021	31.12.2020	31.12.2021	31.12.2020
Other information				
Segment assets [1]	4,713,053	3,968,568	2,960,293	1,977,086
thereof Austria [1]	2,359,649	1,777,083	1,273,059	673,741
Segment liabilities [1]	0	0	0	0
Investments in property, plant and equipment	89,377	132,117	119,445	136,836
Depreciation, amortisation and impairment	173,817	171,150	114,182	112,442

Over 90% of the above relate to segment EU countries.

1) 2020 amounts for line items marked with footnote [1] have been restated. For further details, please refer to the Restatement section. // 2) 2020 amounts for net sales of Base Chemicals and Non-Allocated have been restated. Net sales of EUR 31,845 thousand have been reclassified from Base Chemicals to Non-Allocated. // 3) Fertilizers, Melamine and Technical Nitrogen Products business unit (Borealis NITRO) // 4) UK geographic segment has been moved from EU countries to non-EU countries due to Brexit in 2021.

	Borealis NITRO [3]		Non-Allocated [2]		Consolidated	
	2021	2020	2021	2020	2021	2020
	1,500,036	1,087,049	161,657	142,526	13,461,952	9,049,072
	0	0	0	0	-3,605,569	-2,378,229
	1,500,036	**1,087,049**	**161,657**	**142,526**	**9,856,383**	**6,670,843**
	77,514	6,775	-55,073	-42,501	1,516,743	351,493
	-443,739	0			-443,739	0
	220	1,059	558,146	364,571	595,092	375,016
			-9,377	-18,980	-9,377	-18,980
			-262,648	-119,012	-262,648	-119,012
			9,502	5,509	9,502	5,509
					1,405,573	**594,026**
	1,270,655	926,634	58,225	34,944	6,864,613	4,771,223
	201,144	121,885	55,500	32,423	449,050	264,509
	117,695	62,902	3	0	1,427,993	712,004
	8,784	6,980	5,389	13,933	285,702	190,646
	43,402	50,638	98,040	93,649	554,351	515,604
	59,500	39,895	0	0	723,724	481,366
	1,500,036	**1,087,049**	**161,657**	**142,526**	**9,856,383**	**6,670,843**

	31.12.2021	31.12.2020	31.12.2021	31.12.2020	31.12.2021	31.12.2020
	491,776	1,005,515	4,819,521	3,631,796	12,984,730	10,582,965
	208,696	476,939	4,348,205	3,763,774	8,189,609	6,691,537
	0	0	4,813,446	4,156,740	4,813,445	4,156,740
	108,663	74,009	342,476	271,199	659,962	614,161
	59,752	98,868	79,413	81,105	427,164	463,565

Reconciliation of reportable segments to the consolidated income statement EUR thousand	2021	2020
Total revenue for reportable segments	9,856,383	6,670,843
Elimination of discontinued operation	-1,264,413	-884,861
Net sales	**8,591,970**	**5,785,982**
Total profit for reportable segments	1,405,573	594,026
Non-controlling interests	-9,502	-5,509
Elimination of discontinued operation	235,332	-2,452
Net profit for the year from continuing operations	**1,631,403**	**586,065**

2. Revenue from Contracts with Customers

EUR thousand	2021	2020
Revenue from contracts with customers [1)]	9,849,684	6,666,566
Revenue from other sources [1)]	6,699	4,277
Net sales from continuing and discontinued operations	**9,856,383**	**6,670,843**

1) 2020 amounts for the line items marked with footnote [1)] have been restated. For further details, please refer to the Restatement section.

Revenue from other sources mainly includes gains/losses for realised cash flow hedges on net sales from foreign exchange forwards (see also note 19). Revenue from other sources relating to the discontinued operation amounts to EUR 2,788 thousand (EUR 6,122 thousand).

In the following table, revenue from contracts with customers is disaggregated by segment and geographic market. The table also includes a reconciliation of the disaggregated revenue with the Group's reportable segments (see note 1).

EUR thousand	2021				
	Polyolefins	Base Chemicals	Borealis NITRO [2]	Non-Allocated	Consolidated
EU countries	4,490,539	1,043,782	1,267,442	58,198	6,859,961
Non-EU countries in Europe	913,126	397,167	117,695	3	1,427,991
US	234,101	36,869	8,784	5,389	285,143
Middle East and Asia	393,605	18,387	43,402	98,040	553,434
Other regions	662,083	1,572	59,500	0	723,155
Revenue from contracts with customers	**6,693,454**	**1,497,777**	**1,496,823**	**161,630**	**9,849,684**
Revenue from other sources	3,459	0	3,213	27	6,699
Net sales (as reported in note 1)	**6,696,913**	**1,497,777**	**1,500,036**	**161,657**	**9,856,383**

EUR thousand	2020				
	Polyolefins	Base Chemicals	Borealis NITRO [2]	Non-Allocated	Consolidated
EU countries [1]	3,113,267	695,273	922,994	34,944	4,766,478
Non-EU countries in Europe	495,229	153,877	62,899	0	712,005
US	168,539	1,309	6,980	13,933	190,761
Middle East and Asia [1]	351,416	20,205	50,638	93,649	515,908
Other regions	436,850	4,670	39,895	0	481,415
Revenue from contracts with customers	**4,565,300**	**875,334**	**1,083,406**	**142,526**	**6,666,566**
Revenue from other sources [1]	555	79	3,643	0	4,277
Net sales (as reported in note 1)	**4,565,855**	**875,413**	**1,087,049**	**142,526**	**6,670,843**

1) 2020 amounts for the line items marked with footnote [1] have been restated. For further details, please refer to the Restatement section. // 2) Fertilizers, Melamine and Technical Nitrogen Products business unit (Borealis NITRO)

The following table provides information about receivables, contract assets and contract liabilities from contracts with customers.

EUR thousand	31.12.2021	31.12.2020
Receivables	1,113,786	640,090
Contract assets	15,534	6,930
Contract liabilities	54,997	41,660

Contract assets are included in other receivables and other assets, thereof EUR 7,829 thousand (EUR 0 thousand) current and EUR 7,705 thousand (EUR 6,930 thousand) non-current.

The Group applies the practical expedient in IFRS 15.121 and does not disclose information about remaining performance obligations that have original expected durations of one year or less.

For impairment recognised on receivables and contract assets, please see note 27 Credit risk.

The contract liabilities mainly include advance consideration received from customers and expected volume discounts payable to customers in relation to sales made. The contract liabilities of the previous year have been realised during 2021.

3. Research and Development

At the end of the year, 504 FTEs were engaged in research and development relating entirely to continuing operations (516 FTEs in 2020). The total cost of these activities including impairment costs, amounted to EUR 17,993 thousand compared to EUR 7,859 thousand in 2020 (see note 7). Internal development costs amounting to EUR 30,653 thousand (EUR 32,983 thousand) were capitalised as intangible assets.

4. Intangible Assets

EUR thousand	2021				
	Goodwill	Development costs	Capitalised software	Others	Total
Cost					
As of 1 January	179,761	461,427	115,422	347,170	**1,103,780**
Exchange adjustments	-139	1	1	-667	**-804**
Additions	0	36,988	3,574	218,473	**259,035**
Reclassification to assets of the disposal group held for sale	-45,974	0	-6,728	-12,950	**-65,652**
Disposals	0	0	0	-94,197	**-94,197**
Transfers	0	-10,083	8,370	10,311	**8,598**
As of 31 December	**133,648**	**488,333**	**120,639**	**468,140**	**1,210,760**
Accumulated amortisation					
As of 1 January	47,375	266,284	75,182	160,515	**549,356**
Exchange adjustments	-1	0	2	-292	**-290**
Reclassification to assets of the disposal group held for sale	-45,974	0	-6,435	-12,365	**-64,775**
Disposals	0	0	0	-684	**-684**
Amortisation	0	18,760	18,039	19,133	**55,932**
Impairment	0	12,457	0	121	**12,578**
As of 31 December	**1,400**	**297,501**	**86,788**	**166,428**	**552,117**
Carrying amount as of 1 January	132,386	195,143	40,240	186,655	**554,424**
Carrying amount as of 31 December	**132,248**	**190,832**	**33,851**	**301,712**	**658,643**

EUR thousand	2020				
	Goodwill	Development costs	Capitalised software	Others	Total
Cost					
As of 1 January	158,954	440,646	102,085	311,027	**1,012,712**
Exchange adjustments	-505	1	-108	784	**172**
Additions	0	38,533	7,245	113,453	**159,230**
Changes in consolidation scope	21,312	0	59	21,109	**42,480**
Disposals	0	-9,096	-9	-107,860	**-116,965**
Transfers	0	-8,657	6,150	8,657	**6,150**
As of 31 December	**179,761**	**461,427**	**115,422**	**347,170**	**1,103,780**
Accumulated amortisation					
As of 1 January	47,375	241,752	59,087	142,290	**490,504**
Exchange adjustments	0	0	-90	354	**264**
Disposals	0	0	-9	-8,322	**-8,331**
Amortisation	0	19,995	16,194	26,193	**62,382**
Impairment	0	4,537	0	0	**4,537**
As of 31 December	**47,375**	**266,284**	**75,182**	**160,515**	**549,356**
Carrying amount as of 1 January	111,579	198,894	42,998	168,737	**522,208**
Carrying amount as of 31 December	**132,386**	**195,143**	**40,240**	**186,655**	**554,424**

Other intangible assets mainly include patents and licences as well as emission rights.

Additions arising from internal development amounted to EUR 30,653 thousand (EUR 32,983 thousand). Intangible assets received by way of government grants as allowances for emissions (EU Emissions Trading System) amounted to EUR 197,079 thousand (EUR 96,015 thousand), representing an increase compared to 2020 which was mainly driven by increased market prices. Emission rights purchased from external parties amounted to EUR 74 thousand (EUR 46 thousand) and returned certificates which were borrowed by external parties amounted to EUR 13,624 thousand (EUR 7,037 thousand). An equivalent of EUR 91,343 thousand (EUR 85,914 thousand) was returned to the respective EU ETS regulatory authorities for the emissions in 2020. For details on line transfers see note 5.

5. Property, Plant and Equipment

EUR thousand	2021			
	Production plants	Machinery and equipment	Construction in progress	Total
Cost				
As of 1 January (as reported)	7,509,471	142,183	693,735	**8,345,389**
Restatement	-13,539	-262	-4,651	**-18,452**
As of 1 January (restated)	7,495,932	141,921	689,084	**8,326,937**
Exchange adjustments	-39,993	-151	-1,445	**-41,589**
Additions	131,373	2,606	507,981	**641,960**
Reclassification to assets of the disposal group held for sale	-1,687,781	-15,126	-90,118	**-1,793,025**
Disposals	-30,244	-5,884	-77	**-36,205**
Transfers	159,551	1,739	-169,147	**-7,857**
As of 31 December	**6,028,838**	**125,105**	**936,278**	**7,090,221**
Accumulated depreciation				
As of 1 January (as reported)	4,979,832	107,501	0	**5,087,333**
Restatement	-1,700	3	0	**-1,697**
As of 1 January (restated)	4,978,132	107,504	0	**5,085,636**
Exchange adjustments	-27,989	-139	0	**-28,128**
Reclassification to assets of the disposal group held for sale	-1,181,611	-13,972	0	**-1,195,583**
Disposals	-29,251	-5,819	0	**-35,070**
Depreciation	273,726	7,139	0	**280,865**
Impairment	38,578	0	0	**38,578**
As of 31 December	**4,051,585**	**94,713**	**0**	**4,146,298**
Carrying amount as of 1 January (as reported)	2,529,639	34,682	693,735	**3,258,056**
Restatement	-11,839	-265	-4,651	**-16,755**
Carrying amount as of 1 January (restated)	2,517,800	34,417	689,084	**3,241,301**
Carrying amount as of 31 December	**1,977,253**	**30,392**	**936,278**	**2,943,923**

Opening balances as of 1 January 2021 are restated, for further details, please refer to the Restatement section.

Production plants include the following carrying amounts: land amounting to EUR 35,125 thousand (EUR 50,215 thousand), buildings amounting to EUR 322,026 thousand (EUR 455,708 thousand), immovable machinery amounting to EUR 1,412,812 thousand (EUR 1,780,776 thousand) and immovable equipment amounting to EUR 207,290 thousand (EUR 231,101 thousand).

In 2021, borrowing costs amounting to EUR 9,308 thousand (EUR 5,061 thousand) have been capitalised, using an average interest rate of 1.7% (1.8%). Additions to property,

EUR thousand	2020			
	Production plants	Machinery and equipment	Construction in progress	Total
Cost				
As of 1 January	7,124,702	134,288	391,257	**7,650,247**
Exchange adjustments	74,958	330	4,770	**80,058**
Additions	176,859	2,877	460,890	**640,626**
Changes in consolidation scope	6,684	3,196	23	**9,903**
Disposals	-27,935	-1,478	0	**-29,413**
Transfers	154,203	2,970	-163,205	**-6,032**
As of 31 December (as reported)	**7,509,471**	**142,183**	**693,735**	**8,345,389**
Accumulated depreciation				
As of 1 January	4,609,271	99,546	0	**4,708,817**
Exchange adjustments	52,616	212	0	**52,828**
Disposals	-25,766	-1,462	0	**-27,228**
Depreciation	326,189	9,205	0	**335,394**
Impairment	17,522	0	0	**17,522**
As of 31 December (as reported)	**4,979,832**	**107,501**	**0**	**5,087,333**
Carrying amount as of 1 January	2,515,431	34,742	391,257	**2,941,430**
Carrying amount as of 31 December (as reported)	**2,529,639**	**34,682**	**693,735**	**3,258,056**

plant and equipment that were not paid at the end of the reporting period amounted to EUR 34,706 thousand (EUR 56,048 thousand).

Additions comprise major projects advanced in 2021, which are the new, world-scale propane dehydrogenation (PDH) plant at the existing production site in Kallo, Belgium, the upgrade and revamp of four cracker furnaces in Stenungsund, Sweden and the debottlenecking of a PP-plant in Kallo, Belgium.

The line transfers show EUR 8,598 thousand (EUR 6,150 thousand) of transfers between property, plant and equipment and intangible assets and EUR 741 thousand (EUR 118 thousand) of transfers to right-of-use assets according to IFRS 16.

As of 31 December 2021, Borealis' contractual commitments amounted to EUR 149,998 thousand (EUR 304,528 thousand) for the acquisition of property, plant and equipment (see note 21). The main decrease results from the planned investments in the new dehydrogenation plant in Kallo, Belgium, with capital commitments of EUR 32,187 thousand (EUR 171,690 thousand).

Assets Pledged

Assets pledged amounted to EUR 12,390 thousand (EUR 12,657 thousand) and relate to property, plant and equipment. The commitments covered by the above assets amounted to EUR 1,951 thousand (EUR 2,392 thousand) at the end of the year.

6. Leases

The recognised right-of-use assets relate to the following types of assets:

EUR thousand	31.12.2021	31.12.2020
Production plants	103,691	120,458
Machinery and equipment	56,862	75,217
Carrying amount	**160,553**	**195,675**

Additions to the right-of-use assets, including the effect of reassessed contracts, amounted to EUR 20,687 thousand (EUR 29,934 thousand) in 2021.

Leased production plants include land, building space, immovable equipment and logistics facilities, such as storage tanks, warehouses, ports and pipelines. Leased machinery and equipment include company cars, material handling equipment, such as forklifts, railcars and an ethane marine carrier. The majority of leases by number relates to company cars with a typical term of four years and to material handling equipment with a typical term of six years. In general, leases for company cars and material handling equipment do not contain extension options, but a new contract for a replacement asset is usually put in place after the lease has ended.

Lease liabilities are presented in the balance sheet as follows:

EUR thousand	31.12.2021	31.12.2020
Current lease liabilities	30,682	38,101
Non-current lease liabilities	134,084	156,697
Carrying amount	**164,766**	**194,798**

The lease liabilities are mainly driven by two material contracts, which together represent 45% (41%) of the carrying amount as of the reporting date: a lease of an ethane carrier and a lease of land in Belgium. The minimum lease term for the vessel lease ends in 2026, in 2049 for the land. Both contracts contain extension options.

The following amounts relating to leases were included in the income statement:

EUR thousand	2021	2020
Included in production costs, sales and distribution costs, administration costs and R&D costs		
Depreciation charge of right-of-use assets	38,335	43,730
Production plants	20,977	22,213
Machinery and equipment	17,358	21,517
Expense relating to short-term leases	3,367	3,261
Expense relating to leases of low value assets that are not shown above as short-term leases	797	724
Expense relating to variable lease payments not included in lease liabilities	234	35
Included in financial expenses		
Interest expense	3,741	4,039

The total cash outflow for leases was EUR 46,667 thousand (EUR 46,794 thousand) in 2021.

Variable Lease Payments

Uncertainty arises from variable lease payments that depend on an index or a rate. Such variable lease payments are usually included in contracts for rented land, building space, pipelines or storage and aim to compensate the lessor for price inflation during the contract period. The rates relate to baskets of industry-specific price indices or to single consumer price indices of countries mainly in the euro zone. Borealis does not expect any material increases of the Group's lease liability resulting from changes in those indices.

Extension and Termination Options

Extension and termination options are included in a number of leases across the Group. These options are used to maximise operational flexibility in terms of managing contracts. The majority of extension and termination options held are exercisable only by the Group and not by the respective lessor.

In determining the lease term, management considers all facts and circumstances that create an economic incentive to exercise an extension option, or not to exercise a termination option. Extension options (or periods covered by termination options) are only included in the lease term if it is reasonably certain that the lease will be extended (or not terminated). Potential undiscounted future cash outflows of EUR 201,379 thousand (EUR 217,094 thousand) have not been included in the lease liability because it is not reasonably certain that the leases will be extended (or not terminated). This mainly relates to the vessel and the Belgium land lease.

The assessment of reasonable certainty is only reviewed if a significant event or a significant change in circumstances occurs which affects this assessment and is within the control of the lessee. During 2021 and 2020, the financial effect of revising lease terms to reflect the effect of exercising extension and termination options did not lead to an adjustment.

7. Depreciation, Amortisation and Impairment

Depreciation, amortisation and impairment are allocated in the income statement as follows:

EUR thousand	2021	2020
Production costs		
Depreciation and amortisation	257,645	255,020
Impairment	38,610	17,522
Sales and distribution costs		
Depreciation and amortisation	26,390	26,672
Administration costs		
Depreciation and amortisation	24,601	24,102
Research & development costs		
Depreciation and amortisation	47,603	57,639
Impairment	12,546	4,537
Total	**407,395**	**385,492**

In the current year, research and development costs include an impairment of EUR 12,546 thousand (EUR 4,537 thousand) of intangible assets for which the carrying amount exceeds the present value of future cash flows. Like last year, the impairment of the assets within the research and development costs relates to the non-allocated segment.

On an annual basis, the Group tests whether any impairment of goodwill is required. The recoverable amount of a cash-generating unit (CGU) is determined based on value in use calculations which require the use of assumptions. The calculations use cash flow projections based on financial budgets covering a five-year period. Key assumptions of the forecasted cash flows are volumes sold and underlying industry margins. These are estimated based on industry reports issued by highly regarded business intelligence providers and management's experience. Cash flows beyond the five-year period are extrapolated using the estimated growth rates stated below. These growth rates are consistent with forecasts included in industry reports specific to the industry in which each CGU operates.

The lack of profitability in recent years and the significant deviation in 2021 of the financial performance of the Rosier Group (hereafter Rosier) from the budget qualified as a triggering event for an impairment test. The main reasons were the market conditions being increasingly competitive with the pressure of the vertically integrated competitors and disruption in the raw material supply during the year. The performance of the impairment test for Rosier resulted in a recoverable amount based on the value in use, which was EUR 38,610 thousand lower than the carrying amount of this cash-generating unit. Therefore, property, plant and equipment was impaired by EUR 38,578 thousand and intangible assets by EUR 32 thousand in 2021.

Post tax discount rates (weighted average cost of capital) reflect specific risks relating to the relevant segments and the countries in which they operate.

The long-term growth rate is the weighted average growth rate used to extrapolate cash flows beyond the budget period. The rates are consistent with forecasts included in industry reports.

The allocated goodwill for each CGU as well as parameters influencing the calculation of the value in use can be seen in the following table:

Impairment test parameters 2021						
Segment	**Polyolefins**					**Borealis NITRO**
Cash-generating unit	Polyethylene	Polypropylene	Recyclates	Brazil [1]	South Korea [2]	Rosier
Allocated goodwill in EUR thousand	50,687	22,000	33,695	3,705	22,160	0
Post tax discount rate	6.4%	6.4%	6.3%	7.4%	6.6%	6.0%
Growth rate	1.2%	1.7%	2.0%	2.8%	3.6%	1.3%

1) The change in the allocated goodwill of CGU Brazil compared to 31 December 2020 results entirely from foreign currency revaluation, since this unit is based on BRL as a functional currency. // 2) The change in the allocated goodwill of CGU South Korea compared to 31 December 2020 results entirely from foreign currency revaluation, since this unit is based on KRW as a functional currency.

Impairment test parameters 2020						
Segment	**Polyolefins**					**Borealis NITRO**
Cash-generating unit	Polyethylene	Polypropylene	Recyclates	Brazil	South Korea	Rosier
Allocated goodwill in EUR thousand	50,687	22,000	33,695	3,675	22,330	0
Post tax discount rate	7.0%	7.0%	6.6%	7.6%	7.5%	6.6%
Growth rate	1.0%	1.5%	2.0%	2.6%	4.2%	1.3%

In addition to the parameters above, sensitivities regarding discount rates and oil prices (for the CGUs Polyethylene and Polypropylene) are taken into consideration. For the CGU Rosier, an increase of the discount rate by 0.5 percentage points would increase the accumulated impairment by EUR 5,310 thousand.

For the other CGUs, none of the calculated cases showed any need for an impairment.

8. Discontinued Operation and Other Changes

Discontinued Operation

Borealis plans the sale of the nitrogen business unit including fertilizers, technical nitrogen and melamine products. This led to the reclassification of the disposal group to assets and liabilities held for sale as of 31 March 2021 without having an impact on the income statement at that time. The Group analysed the component held for sale and determined that this represents a separate major line of business and is therefore reported as a discontinued operation. The Company's share in fertilizer production sites in the Netherlands and Belgium ("Rosier") is presently not being considered as part of the potential sales process, and its assets and related liabilities do not belong to the disposal group held for sale. Impairment losses of EUR 443,739 thousand for write-downs of the disposal group to the lower of its carrying amount and its fair value less cost of disposal have been included under discontinued operation in the income statement. The impairment losses have been applied to reduce the carrying amount of property, plant and equipment within the disposal group.

The non-recurring fair value measurement for the disposal group of EUR 240,406 thousand (before costs to sell of EUR 10,700 thousand) has been categorised as a Level 3 fair value. The valuation was based on the binding offer from EuroChem for the acquisition of the disposal group received on 2 February 2022 (see note 32).

Furthermore, deferred tax income of EUR 139,465 thousand has been recognised in the loss from discontinued operation. This deferred tax income relates to an expected liquidation loss of a French entity owning the French companies which are part of the disposal group.

EUR thousand	2021	2020
Total sales	1,294,895	905,927
Elimination of inter-segment revenue	-30,482	-21,066
Net sales	**1,264,413**	**884,861**
Other operating income	165,593	66,092
Total sales and other income	**1,430,006**	**950,953**
Total expenses	-1,353,739	-938,092
Elimination of inter-segment expenses	30,482	21,066
Expenses	**-1,323,257**	**-917,026**
Operating profit	**106,749**	**33,927**
Net results of associated companies and joint ventures	220	1,059
Financial result	-2,574	-4,997
Measurement of discontinued operation	-443,739	0
Profit before taxation	**-339,344**	**29,989**
Taxes on income	-35,453	-27,537
Taxes on measurement of discontinued operation	139,465	0
Loss (profit) from discontinued operation, net of tax	**-235,332**	**2,452**
Attributable to:		
Non-controlling interests	0	0
Equity holders of the parent	-235,332	2,452

EUR thousand	31.12.2021
Assets	
Non-current assets	
Intangible assets	1,056
Property, plant and equipment	243,752
Right-of-use assets	9,181
Investments in associated companies and joint ventures	6,023
Other investments	15,844
Other receivables and other assets	10,055
Deferred tax assets	736
Current assets	
Inventories	221,385
Trade receivables	221,199
Other receivables and other assets	81,258
Cash and cash equivalents	10,514
Assets of the disposal group held for sale	**821,003**

EUR thousand	31.12.2021
Liabilities	
Non-current liabilities	
Lease liabilities	4,500
Deferred tax liabilities	3,027
Employee benefits	62,165
Provisions	20,822
Other liabilities	30,235
Current liabilities	
Lease liabilities	5,029
Trade payables	292,206
Income taxes	17,438
Provisions	7,765
Other liabilities	148,110
Liabilities directly related to the disposal group	**591,297**

Other Changes

Residual changes of subsidiaries in 2021 are summarised below.

CERHA HEMPEL Leilani Holding GmbH with its registered office in Vienna, Austria was acquired on 22 June 2021 and renamed Borealis Circular Solutions Holding GmbH effective 21 July 2021. This 100% subsidiary of Borealis is the holding company of Renasci N.V.

Borealis US Holdings LLC was dissolved on 7 December 2021.

Following the acquisition of 8.19% of the shares in DYM Solution Co., Ltd. on 27 July 2021, Borealis has a 98.71% shareholding.

For a full list of all subsidiaries, please refer to note 33.

9. Investments in Associated Companies and Joint Ventures

	Shares in associated companies and joint ventures	
EUR thousand	**2021**	**2020**
Cost		
As of 1 January	1,022,429	601,525
Changes in consolidation scope	0	278,281
Investments and acquisitions	26,264	142,623
Reclassification to assets of the disposal group held for sale	-19,548	0
Disposals	-7,053	0
As of 31 December	1,022,092	1,022,429
Adjustments		
As of 1 January	2,555,067	3,029,536
Exchange adjustments	298,043	-330,032
Dividends received	-1,965,643	-510,135
Impairments	0	-7,053
Reclassification to assets of the disposal group held for sale	13,636	0
Change in equity reserves	1,286	-2,265
Net results of associated companies and joint ventures	594,872	375,016
Disposals	7,053	0
As of 31 December	1,504,314	2,555,067
Carrying amount as of 31 December	**2,526,406**	**3,577,497**

On 24 June 2021, Borealis subscribed to a new share issue, thus acquiring 10% in Renasci N.V. (Renasci), a company based in Ghent, Belgium. Renasci develops proprietary processes and technological know-how in waste treatment and recycling. This investment is one milestone in line with Borealis' strategy to grow its circular economy business. Through the shareholder agreement, Borealis is guaranteed two seats on the board of Renasci, and participates in key financial and operating decisions. The Group has therefore determined that it has significant influence over the entity with only 10% of the voting rights.

On 6 August 2021, Borealis AG together with Lafarge Perlmooser GmbH, VERBUND Energy4Business GmbH and OMV Downstream GmbH founded the joint venture C2PAT GmbH. The same parties founded the joint venture C2PAT GmbH & Co KG on 11 November 2021. The purpose of this joint venture is the joint planning and construction of a full-scale plant by 2030 to capture CO_2 and process it into synthetic fuels, plastics or other chemicals.

Borealis has a dividend receivable against Borouge Pte. Ltd. of EUR 26,401 thousand (EUR 0 thousand) which has not been paid as of 31 December 2021. This is presented under the line item current other receivables and other assets in the balance sheet.

The impairment of EUR 7,053 thousand in 2020 relates to Silleno Limited Liability Partnership, Kazakhstan and was triggered by Borealis' decision not to further pursue the

development of an integrated cracker and polyethylene project in the Republic of Kazakhstan. Subsequently, the shares in Silleno Limited Liability Partnership were sold on 4 May 2021.

The Group presents the investments in associated companies and joint ventures as follows:

EUR thousand	2021	2020
Material associated company (Abu Dhabi Polymers Company Limited (Borouge))	1,731,830	2,853,635
Non-material associated companies	96,250	95,588
Material joint venture (Bayport Polymers LLC (Baystar))	688,089	619,542
Non-material joint ventures	10,238	8,732
Carrying amount as of 31 December	**2,526,406**	**3,577,497**

The investment in Kilpilahden Voimalaitos Oy is part of the Base Chemicals segment. The share in Bayport Polymers LLC (Baystar) is included in the Polyolefins segment. All other investments in associated companies and joint ventures are part of the non-allocated segment.

Associated Companies

The Group has the following investments in associated companies:

		Ownership in %	
Associated companies	**Country**	**2021**	**2020**
Abu Dhabi Polymers Company Limited (Borouge)	United Arab Emirates	40.00	40.00
AZOLOR S.A.S. [1) 2)]	France	34.00	34.00
Borouge Pte. Ltd.	Singapore	50.00	50.00
Chemiepark Linz Betriebsfeuerwehr GmbH [1) 2)]	Austria	47.50	47.50
Franciade Agrifluides S.A.S. (FASA) [1) 2)]	France	49.98	49.98
Industrins Räddningstjänst i Stenungsund AB [1)]	Sweden	25.00	–
Kilpilahden Voimalaitos Oy (KPP) [1)]	Finland	20.00	20.00
Neochim AD [2)]	Bulgaria	20.30	20.30
Renasci N.V.	Belgium	10.00	–
Société d'Intérêt Collectif Agricole Laignes Agrifluides (SICA Laignes Agrifluides) [1) 2)]	France	49.90	49.90
Société d'Intérêt Collectif Agricole par Actions Simplifiée de Gouaix (SICA de Gouaix) [1) 2)]	France	25.00	25.00

1) Excluded from consolidation at equity due to immateriality // 2) Reclassified as assets of the disposal group held for sale as of 31 March 2021

Abu Dhabi Polymers Company Limited (Borouge) is a leading provider of innovative, value-creating plastic solutions for infrastructure, automotive and advanced packaging applications.

The following table illustrates the full summarised financial information for Borouge:

EUR thousand	2021	2020
Current assets	1,825,626	1,515,325
Non-current assets	6,696,113	6,422,465
Current liabilities	-558,086	-460,986
Non-current liabilities	-3,602,817	-335,184
Equity	**4,360,836**	**7,141,620**
Borealis share	40%	40%
Share of net assets	1,744,334	2,856,648
Adjustments	-12,504	-3,013
Carrying amount as of 31 December	**1,731,830**	**2,853,635**
Net sales	4,630,302	3,603,287
Net profit for the year	1,289,955	845,004
Other comprehensive income	905	-12,245
Total comprehensive income	**1,290,860**	**832,759**
Dividends received by Borealis from Borouge	1,875,581	473,683

Summary of financial information for non-material associated companies, adjusted for ownership by the Group:

EUR thousand	2021	2020
Net profit for the year	42,164	25,500
Other comprehensive income	924	2,348
Total comprehensive income	**43,088**	**27,848**

Joint Ventures

The Group has the following investments in joint ventures:

		Ownership in %	
Joint ventures	**Country**	**2021**	**2020**
Bayport Polymers LLC (Baystar)	US	50.00	50.00
BTF Industriepark Schwechat GmbH [1]	Austria	50.00	50.00
C2PAT GmbH	Austria	25.00	–
C2PAT GmbH & Co KG	Austria	25.00	–
PetroPort Holding AB	Sweden	50.00	50.00
Silleno Limited Liability Partnership [2]	Kazakhstan	–	50.10

1) Excluded from consolidation at equity due to immateriality // 2) Shares in Silleno Limited Liability Partnership were sold on 4 May 2021

Baystar is building a 625,000-tonne-per-year Borstar® polyethylene unit at our production site in Pasadena, Texas, US. Baystar is also currently building a one-million-tonne per year steam cracker in Port Arthur, Texas, US. This cracker will process ethane, which is abundantly available and competitively priced in the US and will supply our Baystar polyethylene units.

The following table illustrates the full summarised financial information for Baystar:

EUR thousand	**2021**	**2020**
Current assets	162,602	331,528
Non-current assets	3,378,978	2,543,393
Current liabilities	-205,878	-75,792
Non-current liabilities	-1,913,186	-1,515,404
Equity	**1,422,517**	**1,283,725**
Borealis share	50%	50%
Share of net assets	711,259	641,863
Adjustments	-23,170	-22,321
Carrying amount as of 31 December	**688,089**	**619,542**
Net sales	588,252	333,508
Net profit for the year	72,616	39,407
Other comprehensive income	0	0
Total comprehensive income	**72,616**	**39,407**
Dividends received by Borealis from Baystar	21,138	20,868
Capital contributions by Borealis to Baystar	0	142,623

Summary of financial information for non-material joint ventures, adjusted for ownership by the Group:

EUR thousand	2021	2020
Net profit for the year	418	381
Other comprehensive income	0	0
Total comprehensive income	**418**	**381**

Please refer to note 30 for information relating to transactions with the associated companies and joint ventures.

10. Other Investments, Other Receivables and Other Assets and Loans Granted

Other investments mainly include interests in infrastructure companies in Germany, interests in a technology platform for sustainable packaging in the UK and subsidiaries that are not consolidated on a materiality basis. The non-consolidated companies are mainly distribution and blending entities (see note 28).

The non-current other receivables and other assets mainly consist of non-current derivative financial instruments (see note 22), marketable securities and bonds (long-term deposits for statutory, regulatory and tax requirements), a prepayment to an associated company, contract assets and government grant receivables in Belgium. The loans granted include shareholder loans with Baystar amounting to EUR 985,240 thousand (EUR 734,156 thousand) and with Kilpilahden Voimalaitos Oy amounting to EUR 17,778 thousand (EUR 16,648 thousand).

Other current receivables also include an amount of EUR 55,411 thousand (EUR 76,800 thousand) related to the insurance compensation for a process safety incident which occurred in May 2020 in Stenungsund, Sweden. For further details, please refer to note 29.

11. Taxation

EUR thousand	2021	2020
Taxes		
Income tax payable	-362,551	-85,855
Change in deferred tax	-6,346	-6,154
Adjustment to prior year's tax charge	2,237	535
Taxes on income	**-366,660**	**-91,475**

Calculation of tax expenses at statutory rates for tax expense accounting at the effective group tax rate.

EUR thousand	2021		2020	
Tax expenses at statutory rates (weighted average tax rate of the Group)	**25%**	**499,198**	**25%**	**169,036**
Tax effect of result in associated companies	-7%	-139,298	-14%	-91,720
Tax effect of permanent differences	0%	-6,563	0%	1,620
Adjustment of valuation allowance/reassessment of unrecognised tax assets	1%	18,900	2%	11,908
Prior year's adjustments and other effects	0%	-5,577	0%	631
Taxes on income	**18%**	**366,660**	**14%**	**91,475**

The effective tax rate for 2021 as well as for 2020 was impacted by impairments of deferred tax assets on tax losses carried forward and tax losses in the year for which no deferred tax asset was recognised.

	Balance sheet		Income statement	
EUR thousand	**2021**	**2020**	**2021**	**2020**
Deferred tax assets				
Property, plant and equipment	4,485	12,744	1,002	1,994
Intangible assets	1,010	2,470	-344	-55
Adjusted depreciation for tax purposes	**5,495**	**15,214**		
Revaluation of cash flow hedges	8,672	4,913	3,759	2,589
Net gain on hedge of a net investment	9,243	25,419	0	0
Valuation of inventories for tax purposes	11,215	23,348	999	314
Fair values compared to tax values	**29,130**	**53,680**		
Interest-bearing liabilities	41,196	22,608	22,152	-22,646
Employee benefits	82,078	93,382	-7,253	-872
Other provisions	8,653	10,869	-428	1,872
Tax impairments according to Section 12 (3)(2) of the Austrian Corporate Income Tax Act (KStG)	1,211	1,511	-300	1,511
Other assets and liabilities	6,465	29,213	-36,339	33,563
Other timing differences	**139,603**	**157,583**		
Losses available for offsetting against future taxable income [1)]	**144,673**	**12,430**	-5,818	-6,901
Netting with deferred tax liabilities	**-259,357**	**-212,215**		
Deferred tax assets	**59,544**	**26,692**	**-22,570**	**11,369**

1) Deferred tax assets on expected liquidation loss of a French entity owning the French companies which are part of the disposal group of EUR 139,465 thousand have been recognised in the Consolidated Income Statement in the line item Loss (profit) from discontinued operation, net of tax.

	Balance sheet		Income statement	
EUR thousand	**2021**	**2020**	**2021**	**2020**
Deferred tax liabilities				
Property, plant and equipment	-251,456	-279,263	6,369	-6,273
Intangible assets	-56,271	-59,866	3,459	-2,026
Accelerated/adjusted depreciation for tax purposes	**-307,727**	**-339,129**		
Revaluation of cash flow hedges	-77,859	-984	710	776
Valuation of inventories for tax purposes	-10,580	-16,655	-468	988
Fair values compared to tax values	**-88,439**	**-17,639**		
Interest-bearing liabilities	-9,243	-5,047	-4,196	-206
Employee benefits	-5,798	-6,004	206	310
Other provisions	-535	-16,295	4,005	-1,829
Other assets and liabilities	-25,781	-52,209	6,139	-9,263
Other timing differences	**-41,357**	**-79,555**		
Netting with deferred tax assets	**259,357**	**212,215**		
Deferred tax liabilities	**-178,166**	**-224,108**	**16,224**	**-17,523**
Net tax asset/liability	**-118,622**	**-197,416**	**-6,346**	**-6,154**

The deferred tax assets of EUR 59,544 thousand (EUR 26,692 thousand) include an amount of EUR 3,558 thousand (EUR 7,451 thousand), which will most likely be utilised within one year. The deferred tax liabilities of EUR 178,166 thousand (EUR 224,108 thousand) include an amount of EUR 83,309 thousand (EUR 25,251 thousand), which will most likely be utilised within one year.

In addition to capitalised tax assets, the Group has unrecognised tax losses amounting to EUR 739,242 thousand (EUR 636,583 thousand) and unrecognised temporary differences amounting to EUR 0 thousand (EUR 25,511 thousand), where current forecasts indicate insufficient future profits in the foreseeable future, thus resulting in unrecognised tax assets of EUR 188,570 thousand (EUR 170,121 thousand).

EUR thousand	**2021**	**2020**
Deductible temporary differences	0	6,378
Tax losses carried forward	188,570	163,743
Total unrecognised net tax assets	**188,570**	**170,121**

The recognised deferred tax assets are expected to be utilised against future profits based on internal projections in the relevant jurisdictions. Deferred tax expenses as a result of changes in estimates of deferred tax assets due to forecasts indicating insufficient future profits amount to EUR 6,905 thousand (EUR 24,487 thousand). Dividend payments to Borealis AG by its subsidiaries have no tax effect for Borealis AG. The temporary differences relating to subsidiaries amount to EUR 0 thousand (EUR 121,028 thousand), for which no deferred tax liability has been recognised in accordance with IAS 12.39 Income Taxes.

Tax Contingencies

Some Borealis Group companies have appealed against certain tax audit reassessments and it is uncertain whether those appeals will be successful. Management's opinion is that the Company is in compliance with all applicable regulations.

12. Inventories

EUR thousand	2021	2020
Finished products	916,936	685,296
Raw materials and consumables	350,544	276,032
Total	**1,267,480**	**961,328**

The costs for the consumption of inventories recognised during the period in the income statement amounted to EUR 6,354,811 thousand (EUR 4,352,464 thousand), including impairment costs of EUR 21,445 thousand (EUR 15,079 thousand).

13. Share Capital and Contributions by Shareholders

	Share capital		Contributions by shareholders	
EUR thousand	**2021**	**2020**	**2021**	**2020**
Balance as of 1 January	300	300	1,599,097	1,599,097
Capital increase or decrease	0	0	0	0
Balance as of 31 December	**300**	**300**	**1,599,097**	**1,599,097**

The share capital of Borealis AG (parent company) amounts to EUR 300,000.00 (EUR 300,000.00) and is divided into 300,000 (300,000) fully paid shares with a par value of EUR 1.00, none of which have special voting rights.

The contributions by shareholders amounted to EUR 1,599,097 thousand (EUR 1,599,097 thousand).

Borealis AG is owned:
- 39.00% by OMV Borealis Holding GmbH, Trabrennstrasse 6–8, 1020 Vienna, Austria,
- 32.67% by OMV Downstream GmbH, Trabrennstrasse 6–8, 1020 Vienna, Austria,
- 3.33% by OMV Aktiengesellschaft, Trabrennstrasse 6–8, 1020 Vienna, Austria,
- 21.67% by MPP Holdings GmbH, Trabrennstrasse 6–8, 1020 Vienna, Austria, and
- 3.33% by Mubadala Petroleum and Petrochemicals Holding Company LLC, P.O. Box 45005, Al Mamoura A, Muroor Road, 15th Street, Abu Dhabi, United Arab Emirates.

Susana Beteiliungsverwaltungs GmbH has changed its name to OMV Borealis Holding GmbH as of 20 August 2021.

The shares of IPIC Beta Holdings GmbH in Borealis AG (21.67%) were indirectly transferred due to a demerger (Abspaltung zur Aufnahme) of the shares in IPIC Beta Holdings GmbH from IPIC Holdings GmbH to MPP Holdings GmbH carried out on 22 January 2022. As a result of the subsequent merger of IPIC Beta Holdings GmbH into MPP Holdings GmbH on 11 February 2022, there was a direct transfer of shares in Borealis AG (21.67%) from IPIC Beta Holdings GmbH to MPP Holdings GmbH.

The ultimate controlling party is OMV Aktiengesellschaft, Vienna, Austria. Distribution of dividends to its shareholders does not have any tax effect for Borealis AG.

The Group's objectives are to safeguard the entity's ability to continue as a going concern and to provide an adequate return to its shareholders. The Group monitors capital on the basis of the gearing ratio. This gearing ratio is calculated as net interest-bearing debt divided by total equity. The Group's target is to keep the gearing ratio within a range of 35%-65% to meet the business needs of the Group. As of year end, the gearing ratio stands at 3% (29%), significantly below the target range due to the strong performance of the Group and dividends received from associated companies (see note 9).

14. Personnel and Share Based Payments

EUR thousand	2021	2020
Costs		
Salaries and wages	453,448	411,737
Costs of defined contribution plans	27,572	28,839
Costs of defined benefit plans and other long-term employee benefits	32,166	29,903
Social security costs	101,475	97,304
Other personnel expenses	24,792	23,172
Total	**639,453**	**590,955**

Costs of defined benefit plans and other long-term employee benefits are recognised in the production costs at EUR 28,474 thousand (EUR 25,982 thousand), sales and distribution costs at EUR 2,605 thousand (EUR 2,830 thousand), administration costs at EUR 1,010 thousand (EUR 1,051 thousand) and research and development costs at EUR 77 thousand (EUR 40 thousand).

Number of employees (FTEs) by country as of 31 December	2021 continuing operations	2021 Total	2020 continuing operations	2020 Total
Austria	1,220	1,948	1,215	1,924
Belgium	1,224	1,224	1,225	1,225
Finland	876	876	873	873
France	0	855	2	848
Sweden	886	886	897	897
Other Europe	642	738	661	759
Non-Europe	407	407	394	394
Total	**5,255**	**6,934**	**5,267**	**6,920**

The remuneration of former and current management is shown in the table below:

EUR thousand	2021	2020
Salaries management (Executive Board)	8,168	7,331
Pension and severance costs management (Executive Board)	594	582
Salaries other key management	1,481	1,532
Pension and severance costs other key management	106	112
Total	**10,349**	**9,557**

From the salaries of the Executive Board of EUR 8,168 thousand (EUR 7,331 thousand), EUR 3,799 thousand (EUR 0 thousand) were paid to former members of the Executive Board.

From the pension and severance costs of the Executive Board of EUR 594 thousand (EUR 582 thousand), EUR 154 thousand (EUR 0 thousand) were paid to former members of the Executive Board.

No loans were granted to current or former members of the Executive Board. The remuneration paid to members of the Supervisory Board amounted to EUR 856 thousand (EUR 831 thousand).

Long Term Incentive (LTI) Plans

LTI plans with similar conditions have been granted to the Executive Board and selected employees. At vesting date, shares of the parent will be transferred to the management and share equivalents to selected employees. The number of shares or share equivalents is determined depending on the achievement of defined performance criteria. The defined performance criteria may not be amended during the performance period of the LTI plans. However, in order to maintain the incentivising character of the programme, the Remuneration Committee will have discretion to adjust the threshold/target/maximum levels in case of material changes in external factors such as oil and gas prices. The adjustment is possible in both directions and will be determined by the Remuneration Committee. Disbursement is made in cash or shares. Executive Board members as active participants of the plans are required to build up an appropriate volume of shares of the parent and to hold those shares until retirement or departure from the Company. The shareholding requirement is defined as a percentage of the respective Target Long Term Incentive. Until fulfilment of the shareholding requirement, disbursement is in the form of shares, whilst thereafter the plan participants can decide between cash or share settlement. As long as the

shareholding requirements are not fulfilled, the shares granted net of taxes are transferred to a trustee deposit, managed by OMV. For cash-settled share-based payment transactions, the fair value of the liability is measured at each reporting date and at the settlement date. The fair value is recognised over the vesting period.

Borealis introduced a new LTI plan in 2021, which is harmonised with the OMV LTI plan and also implemented a transitional LTI plan for 2021 and 2022 in order to bridge the cash gaps that arise from migrating to the new three-year plan. Transitional LTI plan allowances for 2021 and 2022 are based on similar KPIs to the three-year plan for that specific year only. Total expenses relating to Borealis' transitional LTI plan amounted to EUR 3,545 thousand in 2021. Total expenses relating to share-based payment transactions amounted to EUR 8,599 thousand.

15. Employee Benefits

Most Group companies operate post-employment and other long-term benefit plans. The forms and benefits vary in terms of conditions and practices in the countries concerned. The plans include both defined contribution plans and plans that provide defined benefits based on employees' years of service and the estimated salary on retirement. A summary is shown below.

EUR thousand	2021	2020
Pensions and other post-employment benefit plans		
Present value of funded defined benefit pension plans	321,545	332,970
Fair value of plan assets	-180,312	-179,904
Deficit of funded defined benefit pension plans	141,233	153,066
Present value of unfunded defined benefit pension plans	200,316	200,316
Effect of asset ceiling (according to IAS 19.64)	0	2,890
Total deficit of defined benefit pension plans	341,549	356,272
Medical plans	15,401	16,156
Severance plans	31,674	65,330
Pensions and other post-employment benefit plans	**388,624**	**437,758**
Other long-term employee benefits	27,215	32,955
Net liability recognised in the balance sheet	**415,839**	**470,713**

The Group operates defined post-employment benefit plans in the EU, Norway, South Korea and the United Arab Emirates under broadly similar regulatory frameworks. These comprise pension plans, severance plans as well as post-retirement medical plans.

Defined Benefit Pension Plans

The pension plans are typically final salary pension plans which provide benefits to members in the form of a guaranteed level of pension payable for life. The level of benefits provided depends on members' length of service and their salary in the final years leading up to retirement. The pension payments are generally updated in line with the retail price or a similar index. The benefit payments related to funded plans are from insurance funds, however, there are also a number of unfunded plans where the Company meets the benefit payment obligation as it falls due. The movement in the benefit pension obligation over the year is as follows:

EUR thousand	2021	2020
Defined benefit obligation as of 1 January	**536,176**	**522,331**
Net current service cost	22,160	21,854
Interest cost on defined benefit obligation	4,818	5,901
Total amount recognised in the income statement	26,978	27,755
Gains (-)/losses due to changes in demographic assumptions	-1,111	0
Gains (-)/losses due to changes in financial assumptions	8,789	-6,780
Change in unrecognised assets due to asset ceiling	0	79
Experience gains (-)/losses	-949	-1,878
Exchange rate gains (-)/losses	-1,665	3,607
Total amount recognised in other comprehensive income	5,064	-4,972
Actual benefits paid directly from the plan assets	-10,613	-10,834
Actual benefits paid directly by employer	-5,097	-5,633
Actual plan participants' contributions	1,256	1,256
Actual expenses/taxes and premiums paid	-1,982	-1,814
Net increase in liabilities from acquisitions	0	4,794
Reclassification to liabilities directly related to the disposal group	-28,430	0
Exchange rate gains (-)/losses	-1,491	3,293
Defined benefit obligation as of 31 December	**521,861**	**536,176**
Fair value of plan assets as of 1 January	**179,904**	**166,488**
Interest income on plan assets	1,542	1,728
Actual admin expenses paid	-406	-365
Total amount recognised in the income statement	1,136	1,363
Return on plan assets excluding amounts included in interest income	3,666	5,723
Total amount recognised in other comprehensive income	3,666	5,723
Actual benefits paid directly from the plan assets	-10,613	-10,834
Actual plan participants' contributions	1,256	1,256
Actual employer contributions	16,512	17,308
Actual taxes paid	-1,982	-1,814
Net increase in assets from acquisitions	0	487
Reclassification to liabilities directly related to the disposal group	-9,626	0
Exchange rate gains/losses (-)	59	-73
Fair value of plan assets as of 31 December	**180,312**	**179,904**

The plan assets in 2021 and 2020 mainly consist of insurance contracts.

Medical Plans

Medical plans reimburse certain medical costs for retired employees, mainly in Belgium. The movement in the medical obligation over the year is as follows:

EUR thousand	2021	2020
Defined benefit obligation as of 1 January	**16,156**	**17,373**
Net current service cost	688	769
Interest cost on defined benefit obligation	194	173
Total amount recognised in the income statement	882	942
Gains (-)/losses due to changes in financial assumptions	-102	-970
Experience gains (-)/losses	-521	-992
Total amount recognised in other comprehensive income	-623	-1,962
Actual benefits paid directly by employer	-202	-197
Reclassification to liabilities directly related to the disposal group	-812	0
Defined benefit obligation as of 31 December	**15,401**	**16,156**

Severance Plans

Severance plans are operated in the Austrian Group companies and cover employees who started their service before 1 January 2003. Furthermore, the Group operates severance plans in Austria, Italy and the United Arab Emirates. The movement in the severance obligation over the year is as follows:

EUR thousand	2021	2020
Defined benefit obligation as of 1 January	**65,330**	**67,140**
Net current service cost	799	1,921
Interest cost on defined benefit obligation	279	675
Past service cost	0	23
Total amount recognised in the income statement	1,078	2,619
Gains (-)/losses due to changes in demographic assumptions	0	46
Gains (-)/losses due to changes in financial assumptions	1,641	-1,469
Experience gains (-)/losses	-488	811
Total amount recognised in other comprehensive income	1,153	-612
Actual benefits paid directly by employer	-1,912	-3,752
Reclassification to liabilities directly related to the disposal group	-34,026	0
Exchange rate gains (-)/losses	51	-65
Defined benefit obligation as of 31 December	**31,674**	**65,330**

Other Long-term Employee Benefits

Other long-term employee benefits provided by the Group companies include items such as jubilee payments and pre-pension benefits. The movement in the other long-term benefit obligation over the year is as follows:

EUR thousand	2021	2020
Defined benefit obligation as of 1 January	**32,955**	**34,420**
Net current service cost	1,636	2,069
Interest cost on defined benefit obligation	170	313
Gains (-)/losses due to changes in demographic assumptions	228	0
Gains (-)/losses due to changes in financial assumptions	1,566	-1,041
Experience gains (-)/losses	1,381	705
Total amount recognised in the income statement	4,981	2,046
Actual benefits paid directly by employer	-2,508	-3,511
Reclassification to liabilities directly related to the disposal group	-8,213	0
Defined benefit obligation as of 31 December	**27,215**	**32,955**

Discount rates, projected future salary, pension increases and expected rates of return on plan assets vary for the different defined benefit plans, as they are determined in light of local conditions. Assumptions regarding future mortality are based on published statistics and mortality tables. The principal assumptions used were as follows (expressed as weighted averages):

Percent	2021	2020
Discount rate	1.2%	0.9%
Projected future salary growth	3.4%	2.7%
Expected pension increase	2.0%	1.3%

The sensitivity of the defined benefit obligation for pensions and other post-employment benefit plans to changes in the principal assumptions is:

		Impact on defined benefit obligation	
	Change in assumption	Increase in assumption	Decrease in assumption
Discount rate	0.5%	Decrease by 6.7%	Increase by 7.4%
Projected future salary growth	0.5%	Increase by 4.9%	Decrease by 4.6%
Expected pension increase	0.5%	Increase by 4.5%	Decrease by 4.2%

The above sensitivity analyses are based on a change in an assumption while maintaining all other assumptions constant. In practice, this is unlikely to occur and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the same method (present value of the defined benefit obligation calculated using the projected unit credit method at the end of the reporting period) has been applied when calculating the pension liability recognised in the balance sheet.

Expected contributions to post-employment benefit plans for the year 2022 are EUR 31,065 thousand (EUR 27,206 thousand). The weighted average duration of the defined benefit obligation is 13.8 years (13.8 years). The defined benefit plans expose the Group to actuarial risks, mainly the longevity risk, interest rate and market (investment) risk.

16. Provisions

EUR thousand	2021					
	Restructuring	Decommissioning	Legal	Environmental	Other	Total
As of 1 January (restated)	319	47,335	4,886	6,388	53,560	**112,488**
Additions	0	20,205	990	300	60,526	**82,021**
Reclassification to liabilities directly related to the disposal group	0	-11,633	-210	-5,267	-7,183	**-24,293**
Utilised	-43	0	-1,454	-131	-32,923	**-34,551**
Reversed	-87	-151	-532	-256	-497	**-1,523**
Interest expense (+)/income (-)	0	8	0	0	0	**8**
Exchange adjustments	9	0	11	0	23	**43**
Balance as of 31 December	**198**	**55,764**	**3,691**	**1,034**	**73,506**	**134,193**
Other provisions current	171	20,000	1,463	0	47,912	**69,546**
Other provisions non-current	27	35,764	2,228	1,034	25,594	**64,647**
Balance as of 31 December	**198**	**55,764**	**3,691**	**1,034**	**73,506**	**134,193**

Provisions are generally based on past events and commitments arising thereon. The timing of cash outflows cannot be determined with certainty for all provisions.

Restructuring

Provisions for restructuring cover estimated costs for the ongoing restructuring programmes.

Decommissioning

Provisions for decommissioning cover the expected clean-up and dismantling costs for plants situated on rented land in Germany and Belgium. In 2021, an additional provision of EUR 20,000 thousand was built up for the decontamination of land in the Netherlands. It is expected that EUR 20,000 thousand will be used by 2022, EUR 5,137 thousand by 2027 and EUR 30,627 thousand by 2049.

Legal

Legal provisions represent litigation provisions in various business areas.

Environmental

Environmental provisions cover several environmental exposures in the Group.

Other

Other provisions cover numerous types of obligations, including short-term and long-term incentive plans. EUR 8,619 thousand (EUR 0 thousand) of these provisions relate to transitional and new LTI plans implemented in 2021, which are share-based. Note 14 provides additional information regarding share-based payments. In 2021, a reassessment of uncertainty levels and maturities of other provisions and other liabilities took place, which resulted in reclassifications between these two line items. For further details, please refer to the Restatement section.

17. Financial Risk Management

The Group is exposed through its operations to the following financial risks:
– Foreign currency risk (note 23)
– Interest rate risk (note 24)
– Liquidity risk (note 21)
– Commodity price risk (note 25)
– Credit risk (note 27)

The objective of financial risk management is to support the core businesses of Borealis. Financial risk management is centralised in the Treasury and Funding department and operates within policies approved by the Executive Board.

The Group provides written principles for overall risk management, as well as policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, commodity price risk or the use of derivative financial instruments. Borealis aims to minimise effects related to foreign exchange, interest rate, liquidity, credit, commodity price and refinancing risks.

The use of any financial instrument is based on actual or forecasted underlying commercial or financial cash flows or identified risks as defined in the policy. When certain conditions are met, hedge accounting is applied to remove the accounting mismatch between the hedging instrument and the hedged item.

Note 22 provides an overview of the financial instruments used by Borealis to manage risk. For further details on hedging instruments, see note 22. Derivative financial instruments, note 23. Foreign currency risk, note 24. Interest rate risk and note 25. Commodity price risk. The risk management process in general is described in the Group Management Report.

18. Financial Income/Expenses

EUR thousand	2021	2020 restated
Interest income from		
Cash and loans granted	27,282	21,870
Derivatives	2,848	5,258
Interest expenses to		
Finance institutions	-31,073	-35,506
Derivatives	-4,433	-6,437
Capitalised interest	9,308	4,917
Net foreign exchange gains/losses	-576	-3,387
Interest expenses for lease liabilities	-3,741	-4,039
Other financial income	5,475	21,434
Other financial expenses	-11,893	-18,093
Financial income/expenses	**-6,803**	**-13,983**

19. Gains and Losses from Financial Instruments

EUR thousand	2021	2020 restated
Recognised in the income statement		
Change in fair value of commodity derivatives	-4,858	4,624
Change in fair value of cross currency interest rate swaps	-2,484	-147
Change in fair value of foreign exchange swaps	1,615	1,371
Change in fair value of other investments and marketable securities and bonds	1,668	-297
Realised result on commodity derivatives	-14,899	-11,063
Realised result on cross currency interest rate swaps	-277	-551
Realised result on foreign exchange swaps	-1,373	1,227
Realised result on other investments and marketable securities and bonds	1,163	1,005
Financial assets and liabilities at fair value through profit or loss	**-19,445**	**-3,831**
Amounts recognised in the income statement for realised cash flow hedges		
Commodity derivatives	215,362	-28,386
Interest rate swaps	-1,308	-627
Foreign exchange forwards	6,130	3,377
Hedging instruments	**220,184**	**-25,636**
Interest income on cash and loans granted	27,282	21,870
Expenses for factoring of trade receivables	-3,164	-2,548
Impairment losses on trade receivables	-4,046	-2,725
Impairment losses on deposits and other receivables	0	-2,099
Financial assets at amortised cost	**20,072**	**14,498**
Interest expenses and other expenses on financial liabilities	-37,944	-38,303
Interest expenses for lease liabilities	-3,741	-4,039
Financial liabilities at amortised cost	**-41,685**	**-42,342**

The amounts recognised in the income statement for commodity derivatives and foreign exchange forwards are booked as a correction to the net sales or to production costs that are being hedged. The amounts that are recognised in the income statement for interest rate derivatives and foreign exchange swaps are reported as part of financial income and expenses. Impairment losses on trade receivables are reported in sales and distribution costs, impairment losses on loans granted as well as impairment losses on deposits and other receivables are included in financial expenses.

EUR thousand	2021	2020
Recognised in other comprehensive income		
Commodity derivatives designated as cash flow hedge	474,843	-56,987
Interest rate swaps outstanding designated as cash flow hedge	1,827	-5,682
Foreign exchange forwards designated as cash flow hedge	-14,532	12,284
Foreign exchange effects on long-term loans part of net investments in foreign operations	-2,100	4,020
Foreign exchange effects on loans designated as hedge of investments in foreign operations	-14,687	16,704
Amounts reclassified to the income statement		
Commodity derivatives	-215,362	28,386
Interest rate swaps	1,308	627
Foreign exchange forwards	-6,130	-3,377
Total recognised in other comprehensive income	**225,167**	**-4,025**

Net foreign exchange gains/losses are allocated in the income statement as follows:

EUR thousand	2021	2020 restated
Foreign exchange gains from operating acitivities included in other operating income	34,161	26,899
Foreign exchange losses from operating acitivities included in production costs	-33,851	-30,306
Net foreign exchange gains/losses included in financial income/expenses	-576	-3,387
Total	**-266**	**-6,794**

20. Loans and Borrowings and Lease Liabilities

The composition of interest-bearing loans and borrowings and lease liabilities (current and non-current debt) as of 31 December 2021 was as follows:

EUR thousand		2021						
Due		Term loans	Bond	Utilised uncommitted facilities	Export credits	**Total loans and borrowings**	Unutilised committed facilities	**Lease liabilities**
After	5 years	471,272				**471,272**		**66,228**
Within	5 years	83,564				**83,564**	1,000,000	**12,962**
	4 years	327,612	297,955			**625,567**		**15,052**
	3 years	307,911				**307,911**		**17,067**
	2 years	37,964				**37,964**		**22,775**
Total non-current debt		**1,228,323**	**297,955**	**0**	**0**	**1,526,278**	**1,000,000**	**134,084**
Total current debt		73,511	0	122	0	**73,633**	166,011 [1)]	**30,682**
Total debt		**1,301,834**	**297,955**	**122**	**0**	**1,599,911**	**1,166,011**	**164,766**

1) Borealis maintains EUR 166,011 thousand in export credit facilities (these were undrawn on 31 December 2021). These facilities are economically evergreen in nature, but include a one year notice for cancellation.

The composition of interest-bearing loans and borrowings (current and non-current debt) as of 31 December 2020 was as follows:

EUR thousand		2020						
Due		Term loans	Bond	Utilised uncommitted facilities	Export credits	**Total loans and borrowings**	Unutilised committed facilities	**Lease liabilities**
After	5 years	390,677				**390,677**		**75,404**
Within	5 years	326,079	297,461			**623,540**	1,000,000	**13,745**
	4 years	292,876				**292,876**		**15,107**
	3 years	35,244				**35,244**		**21,091**
	2 years	69,215				**69,215**		**31,350**
Total non-current debt		**1,114,091**	**297,461**	**0**	**0**	**1,411,552**	**1,000,000**	**156,697**
Total current debt		154,910	0	47,614	107,873 [1)]	**310,397**	58,138 [1)]	**38,101**
Total debt		**1,269,001**	**297,461**	**47,614**	**107,873**	**1,721,949**	**1,058,138**	**194,798**

1) Borealis maintains EUR 166,011 thousand in export credit facilities (these facilities were drawn with EUR 107,873 thousand on 31 December 2020). These facilities are economically evergreen in nature, but include a one year notice for cancellation.

The carrying amounts of loans and borrowings and lease liabilities developed as follows:

EUR thousand	2021					
	Term loans	Bond	Utilised uncommitted facilities	Export credits	**Total loans and borrowings**	**Lease liabilities**
As of 1 January	1,269,001	297,461	47,614	107,873	**1,721,949**	**194,798**
Proceeds from loans and borrowings	150,000	0	122	0	**150,122**	**0**
Repayment of loans and borrowings	-156,023	0	-47,614	-107,873	**-311,510**	**0**
New lease liabilities	0	0	0	0	**0**	**20,472**
Principal elements of lease payments	0	0	0	0	**0**	**-36,532**
Reclassification to liabilities directly related to the disposal group	0	0	0	0	**0**	**-12,957**
Exchange adjustments non-cash	38,222	0	0	0	**38,222**	**3,328**
Other	634	494	0	0	**1,128**	**-4,343**
Balance as of 31 December	**1,301,834**	**297,955**	**122**	**0**	**1,599,911**	**164,766**

EUR thousand	2020					
	Term loans	Bond	Utilised uncommitted facilities	Export credits	**Total loans and borrowings**	**Lease liabilities**
As of 1 January	1,016,544	296,975	69,832	58,138	**1,441,489**	**210,884**
Proceeds from loans and borrowings	500,688	0	372,614	107,873	**981,174**	**0**
Repayment of loans and borrowings	-199,949	0	-394,832	-58,138	**-652,919**	**0**
New lease liabilities	0	0	0	0	**0**	**29,998**
Principal elements of lease payments	0	0	0	0	**0**	**-41,534**
Exchange adjustments non-cash	-47,393	0	0	0	**-47,393**	**-4,156**
Other	-889	486	0	0	**-403**	**-394**
Balance as of 31 December	**1,269,001**	**297,461**	**47,614**	**107,873**	**1,721,949**	**194,798**

The Group's financing mainly comprises committed credit lines (largely syndicated), term loans, bonds, private placements and export credits. The loans and borrowings are all measured at amortised cost.

Borealis continues to maintain a strong diversified liquidity position through its EUR 1 billion fully committed Syndicated Revolving Credit Facility (RCF), of which EUR 1 billion remained undrawn as of year end, and by terming out its debt through diverse funding channels. The RCF was refinanced in December 2019 with a five-year tenor with two one-year extension options at lenders' discretion. The second and final RCF extension option was utilised in December 2021 and the new maturity date is now 19 December 2026.

As of 31 December 2021, the Group had total committed credit facilities of EUR 1,166,011 thousand (EUR 1,166,011 thousand). Besides the above-mentioned undrawn EUR 1 billion RCF, Borealis had OeKB Export Credit Facilities in the amount of EUR 166,011 thousand. These were undrawn at year-end.

In 2021, Borealis decreased its debt position by EUR 152,070 thousand. The net debt position which decreased by EUR 1,610,624 thousand resulted in a gearing ratio of 3%. The net debt and resulting gearing ratio includes interest-bearing debt reclassified as liabilities associated with assets held for sale and includes cash and cash equivalents that were reclassified as assets held for sale.

In March 2021, Borealis successfully increased the long-term factoring programme from EUR 300,000 thousand to EUR 350,000 thousand. In close cooperation with Nordea, Borealis was able to achieve a significant increase of the programme as a working capital initiative during the first quarter of 2021.

In November 2018, S&P Global Ratings issued a BBB+ rating with a stable outlook for Borealis. This constitutes the first public rating for the Company, which has been successfully active in a wide range of financing markets and instruments over the last ten years, and has built up a robust and well-diversified funding portfolio. While Borealis' long-term banking partners and investors have always appreciated the strong credit quality of the Company, the public rating provides a very good additional evaluation basis for all external stakeholders. On 18 November 2021, S&P Global Ratings affirmed Borealis' BBB+ rating with a stable outlook.

Under Borealis' funding strategy, a strongly diversified financing portfolio has been implemented in past years with the aim of maintaining a balanced maturity profile. In addition, Borealis is pursuing a long-term relationship approach with a larger group of international financing institutions that support the Company in funding and risk management transactions.

Based on this, combined with a resilient balance sheet and the strong public rating, Borealis has access to a wide variety of attractive funding instruments (such as bonds, the German Schuldschein, US Private Placement, foreign investment financing, bank loans and other). In order to meet the financing needs in 2022 and beyond, Borealis will continue to explore several suitable financial instruments fitting its strategy.

Some loan agreements have financial covenants based on maintaining certain gearing and solvency ratios. As of 31 December 2021, Borealis was in compliance with all financial covenants stipulated by the loan agreements.

Currency Mix EUR thousand	**2021**	**%**	**2020**	**%**
EUR	1,188,835	67%	1,336,607	70%
USD	532,335	30%	498,407	26%
JPY	38,223	2%	39,358	2%
GBP	126	0%	33,750	2%
Other	5,158	0%	8,625	0%
Interest bearing total	**1,764,677**	**100%**	**1,916,747**	**100%**

21. Liquidity Risk

Liquidity risk is the risk of the Group encountering difficulty in meeting the obligations associated with its financial liabilities. Liquidity is managed on a daily basis to ensure the Group's liquidity requirement and is covered at all times with the lowest possible level of working capital. For further details on loans and borrowings and lease liabilities, see note 6, note 20 and for derivatives, note 22.

The following are the contractual maturities of non-derivative financial liabilities, including forecasted interest payments, derivative financial liabilities and off balance sheet liabilities.

All carrying amounts exclude outstanding interest accruals at year end. Cash outflows are reported with a minus sign.

EUR thousand	2021						
Non-derivative financial liabilities	Carrying amount	**Contractual cash flows**	6 months or less	6–12 months	1–2 years	2–5 years	More than 5 years
EUR floating rate loans	-68,962	**-70,540**	-13,536	-5,878	-326	-50,800	0
EUR fixed rate loans	-1,002,420	**-1,062,051**	-6,596	-10,157	-14,670	-713,876	-316,752
USD floating rate loans	-178,320	**-190,360**	-1,124	-1,492	-3,952	-183,792	0
USD fixed rate loans	-311,376	**-392,031**	-7,295	-55,483	-46,445	-88,073	-194,735
JPY floating rate loans	-38,223	**-38,863**	-82	-98	-171	-38,512	0
Other floating rate loans	-488	**-490**	-490	0	0	0	0
Lease liabilities	-164,766	**-200,943**	-20,552	-14,015	-25,385	-51,676	-89,315
Trade payables	-1,016,936	**-1,016,936**	-1,016,936	0	0	0	0
Utilised uncommitted facilities	-122	**-122**	-122	0	0	0	0
Total	**-2,781,613**	**-2,972,336**	**-1,066,733**	**-87,123**	**-90,949**	**-1,126,729**	**-600,802**

EUR thousand	2020						
Non-derivative financial liabilities	Carrying amount	**Contractual cash flows**	6 months or less	6–12 months	1–2 years	2–5 years	More than 5 years
EUR floating rate loans	-203,349	**-204,561**	-13,601	-121,151	-19,239	-23,485	-27,085
EUR fixed rate loans	-944,322	**-1,014,491**	-35,888	-69,869	-16,272	-686,170	-206,292
USD floating rate loans	-164,387	**-174,070**	-1,053	-1,146	-1,992	-156,691	-13,188
USD fixed rate loans	-287,265	**-374,147**	-6,733	-5,574	-57,943	-113,911	-189,986
JPY floating rate loans	-39,358	**-40,162**	-82	-100	-152	-39,828	0
GBP fixed rate loans	-33,369	**-36,506**	-1,568	-34,938	0	0	0
Other floating rate loans	-2,236	**-2,264**	-1,385	-879	0	0	0
Other fixed rate loans	-49	**-50**	-25	-25	0	0	0
Lease liabilities	-194,798	**-233,002**	-22,301	-19,066	-34,602	-57,376	-99,657
Trade payables	-788,170	**-788,170**	-788,170	0	0	0	0
Utilised uncommitted facilities	-47,614	**-47,615**	-47,615	0	0	0	0
Total	**-2,704,917**	**-2,915,038**	**-918,421**	**-252,748**	**-130,200**	**-1,077,461**	**-536,208**

EUR thousand	2021					
Derivative financial liabilities/outflow	Carrying amount	**Contractual cash flows**	6 months or less	6–12 months	1–2 years	2–5 years
Interest rate swaps	-791	**-1,096**	-653	-402	-200	159
Cross currency interest rate swaps	-3,817	**-44,067**	-316	-403	-1,033	-42,315
Foreign exchange contracts	-8,258	**-437,058**	-238,664	-198,394	0	0
Feedstock derivatives	-13,211	**-20,053**	-19,540	-513	0	0
Electricity derivatives	-563	**-26,304**	-16,577	-7,338	-2,389	0
Natural gas derivatives	-59,211	**-63,079**	-49,375	-13,704	0	0
Total	**-85,851**	**-591,657**	**-325,125**	**-220,754**	**-3,622**	**-42,156**

EUR thousand	2020					
Derivative financial liabilities/outflow	Carrying amount	**Contractual cash flows**	6 months or less	6–12 months	1–2 years	2–5 years
Interest rate swaps	-3,926	**-4,228**	-632	-559	-1,190	-1,847
Cross currency interest rate swaps	-2,930	**-39,245**	-1,485	-37,760	0	0
Foreign exchange contracts	-798	**-71,541**	-71,541	0	0	0
Feedstock derivatives	-37,789	**-37,845**	-34,346	-3,499	0	0
Electricity derivatives	-14,041	**-13,977**	-5,633	-4,397	-2,895	-1,052
Natural gas derivatives	-7,472	**-7,442**	-2,955	-2,514	-1,973	0
Total	**-66,956**	**-174,278**	**-116,592**	**-48,729**	**-6,058**	**-2,899**

EUR thousand	2021					
Off balance sheet liabilities	**Contractual cash flows**	6 months or less	6–12 months	1–2 years	2–5 years	More than 5 years
Short-term and low-value lease payments	**-1,515**	-725	-630	-101	-59	0
Capital commitments – property, plant and equipment	**-149,998**	-111,532	-24,725	-8,484	-5,257	0
Commitments in associated companies	**-27,733**	0	-22,400	-5,333	0	0
Commitments in joint ventures	**-250,854**	0	0	0	-250,854	0

EUR thousand	2020					
Off balance sheet liabilities	**Contractual cash flows**	6 months or less	6–12 months	1–2 years	2–5 years	More than 5 years
Short-term and low-value lease payments	**-2,316**	-1,240	-777	-138	-161	0
Capital commitments – property, plant and equipment	**-304,528**	-253,870	-21,767	-24,379	-4,512	0
Commitments in associated companies	**-15,733**	0	-2,900	-12,833	0	0
Commitments in joint ventures	**-406,745**	0	0	0	-406,745	0

For details in respect of off balance sheet liabilities, please see note 5, note 9, note 30 and note 31.

22. Derivative Financial Instruments

The Group is exposed to certain risks relating to its ongoing business operations. The primary risks managed using derivative instruments are foreign currency risk, interest rate risk and commodity price risk.

The Group's risk management strategy and how it is applied to manage risk is explained in note 17 and in the Group Management Report in general and in this note, notes 23, 24 and 25 in detail for the risks mentioned in the preceding paragraph.

Hedge Accounting Policies of the Group

Hedges are generally placed in the legal entities where the underlying exposure exists. When certain conditions are met, Borealis applies IFRS 9 hedge accounting principles in order to recognise the offsetting effects on profit or loss of changes in the fair value of the hedging instrument and the hedged items. Borealis has the following hedge accounting relationships:

- Cash flow hedging – foreign exchange (see this note and note 23)
- Cash flow hedging – interest rate (see this note and note 24)
- Cash flow hedging – commodity (feedstock, electricity, natural gas – see this note and note 25)
- Net investment hedging in a foreign operation (see note 23)

Derivatives are only used for economic hedging purposes and not as speculative investments. However, where derivatives are not designated as hedging instruments, they are measured at fair value through profit or loss (FVPL) for accounting purposes.

The Group holds the following derivative financial instruments:

EUR thousand	2021	2020
Current assets		
Foreign exchange swaps – FVPL	1,908	1,468
Foreign exchange forwards – cash flow hedges	16	12,714
Feedstock derivatives – FVPL	1,567	1,646
Feedstock derivatives – cash flow hedges	11,853	8,188
Electricity derivatives – cash flow hedges	292,247	18,445
Natural gas derivatives – cash flow hedges	22	2,962
Total current derivative financial instrument assets (Other receivables and other assets)	**307,613**	**45,423**

EUR thousand	2021	2020
Non-current assets		
Cross currency interest rate swaps – FVPL	0	327
Feedstock derivatives – cash flow hedges	0	1,854
Electricity derivatives – cash flow hedges	71,364	5,904
Total non-current derivative financial instrument assets (Other receivables and other assets)	**71,364**	**8,085**

EUR thousand	2021	2020
Current liabilities		
Cross currency interest rate swaps – FVPL	0	2,930
Interest rate swaps – cash flow hedges	68	0
Foreign exchange swaps – FVPL	293	96
Foreign exchange forwards – cash flow hedges	7,965	702
Feedstock derivatives – FVPL	7,194	2,356
Feedstock derivatives – cash flow hedges	6,017	35,433
Electricity derivatives – cash flow hedges	59	10,057
Natural gas derivatives – cash flow hedges	59,211	5,484
Total current derivative financial instrument liabilities (Other liabilities)	**80,807**	**57,058**

EUR thousand	2021	2020
Non-current liabilities		
Cross currency interest rate swaps – FVPL	3,817	0
Interest rate swaps – cash flow hedges	723	3,926
Electricity derivatives – cash flow hedges	504	3,984
Natural gas derivatives – cash flow hedges	0	1,988
Total non-current derivative financial instrument liabilities (Other liabilities)	**5,044**	**9,898**

Impact of Hedge Accounting on Equity

The Group's hedging reserve disclosed in the Consolidated Statement of Changes in Equity relates to the following hedging instruments:

Hedging Reserve EUR thousand	2021					
	Cash flow hedge – foreign currency	Cash flow hedge – interest rate	Cash flow hedge – feedstock	Cash flow hedge – electricity	Cash flow hedge – natural gas	Hedging reserve total
As of 1 January	9,009	-2,945	-16,145	7,731	-3,381	**-5,731**
Change in fair value of hedging instrument recognised in OCI	-14,532	1,827	-38,580	478,171	35,252	**462,138**
Reclassifications from OCI to the income statement	-6,130	1,308	0	-125,431	-89,931	**-220,184**
Reclassifications to the cost of non-financial items	702	0	67,683	0	0	**68,385**
Deferred tax	4,990	-783	-7,276	-88,185	13,669	**-77,585**
As of 31 December	**-5,961**	**-593**	**5,682**	**272,286**	**-44,391**	**227,023**

EUR thousand	2020					
	Cash flow hedge – foreign currency	Cash flow hedge – interest rate	Cash flow hedge – feedstock	Cash flow hedge – electricity	Cash flow hedge – natural gas	Hedging reserve total
As of 1 January	2,243	846	206	-1,328	-620	**1,347**
Change in fair value of hedging instrument recognised in OCI	12,284	-5,682	-36,998	-20,102	113	**-50,385**
Reclassifications from OCI to the income statement	-3,377	627	0	32,181	-3,795	**25,636**
Reclassifications to the cost of non-financial items	115	0	15,197	0	0	**15,312**
Deferred tax	-2,256	1,264	5,450	-3,020	921	**2,359**
As of 31 December	**9,009**	**-2,945**	**-16,145**	**7,731**	**-3,381**	**-5,731**

Reserve for unrealised exchange gains/losses EUR thousand	2021	2020
As of 1 January	-40,435	282,204
Foreign currency revaluation of USD loans, designated as net investment hedge	-14,687	16,704
Foreign currency revaluation of financial statements of foreign operations	283,973	-324,944
Reclassifications to the income statement during the period	357	-17,094
Foreign currency revaluation of long-term loans to foreign operations	-2,100	4,020
Share of other comprehensive income of associated companies accounted for using the equity method	1,036	1,893
Foreign currency revaluation of financial statements of foreign operations – Non-controlling interests	-20	1,963
Deferred tax	4,197	-5,181
As of 31 December	**232,321**	**-40,435**

As of 31 December 2021 and 31 December 2020, the Group had the following cash flow and net investment hedging relationships. The table shows the profile of the timing (maturity) of the nominal amount of the hedging instruments.

	2021									
	Unit	**Total**	3 months or less	3–6 months	6–12 months	1–2 years	2–3 years	3–4 years	4–5 years	More than 5 years
Foreign exchange forwards	EUR thousand	**343,918**	53,192	92,424	198,302	0	0	0	0	0
USD loans, designated as net investment hedge	USD thousand	**216,000**	0	0	56,000	40,000	49,000	30,000	21,000	20,000
Interest rate swaps	EUR thousand	**108,660**	0	0	11,538	0	97,122	0	0	0
Feedstock derivatives	tonnes	**273,757**	194,032	29,085	50,640	0	0	0	0	0
Electricity derivatives	GWh	**5,544**	926	797	1,506	1,516	799	0	0	0
Natural gas derivatives	GWh	**1,280**	735	271	274	0	0	0	0	0

	2020									
	Unit	**Total**	3 months or less	3–6 months	6–12 months	1–2 years	2–3 years	3–4 years	4–5 years	More than 5 years
Foreign exchange forwards	EUR thousand	**309,038**	57,866	77,103	174,069	0	0	0	0	0
USD loans, designated as net investment hedge	USD thousand	**216,000**	0	0	0	56,000	40,000	49,000	30,000	41,000
Interest rate swaps	EUR thousand	**112,719**	0	0	0	23,077	0	89,642	0	0
Feedstock derivatives	tonnes	**462,583**	257,957	66,993	97,133	40,500	0	0	0	0
Electricity derivatives	GWh	**5,352**	717	649	1,341	1,813	832	0	0	0
Natural gas derivatives	GWh	**2,555**	924	271	548	812	0	0	0	0

As of 31 December 2021 and 31 December 2020, no fair value hedges existed.

Offsetting

Financial assets and financial liabilities are offset only when the Group has a current and legally enforceable right to offset the recognised amounts and when there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously. In the normal course of business, the Group enters into derivative transactions under International Swaps and Derivatives Association (ISDA) master netting agreements.

The following table presents the recognised financial instruments (derivatives) that are offset, or subject to enforceable master netting arrangements, but are not offset. The "Net amount" column shows the impact on the Group's balance sheet if all offsetting rights were exercised.

EUR thousand	2021				
	Gross amounts	Related amounts offset in the balance sheet	Amounts presented in the balance sheet	Related amounts not offset in the balance sheet	Net amount
Financial assets					
Derivative financial instruments	415,542	-36,565	378,977	-800	378,177
Financial liabilities					
Derivative financial instruments	122,416	-36,565	85,851	-800	85,051

EUR thousand	2020				
	Gross amounts	Related amounts offset in the balance sheet	Amounts presented in the balance sheet	Related amounts not offset in the balance sheet	Net amount
Financial assets					
Derivative financial instruments	53,508	0	53,508	-23,372	30,136
Financial liabilities					
Derivative financial instruments	66,956	0	66,956	-23,372	43,584

There is no further netting potential for non-derivative financial instruments.

23. Foreign Currency Risk

Foreign exchange risk is the risk that the fair value or future cash flows of an exposure will fluctuate because of changes in foreign exchange rates.

Borealis incurs foreign currency risk on sales, purchases and borrowings that are denominated in currencies other than EUR. The most significant currencies in terms of hedged amounts are USD and SEK.

The foreign exchange risk related to short-term commercial cash flows is hedged and limits for long-term foreign exchange exposures are established. Based on regular cash flow forecasts, Borealis hedges its foreign exchange exposure coming from forecasted sales and purchases and from committed investment projects.

Borealis hedges forecasted positions denominated in foreign currencies. At any time, Borealis may also hedge its long-term commercial exposures up to a predefined level and duration. Borealis normally hedges the currency positions using foreign exchange forwards. Borealis classifies its foreign exchange forwards, which hedge a forecasted currency position, as cash flow hedges and states them at fair value.

Changes in the fair value of foreign exchange forwards that hedge monetary assets and liabilities in foreign currencies and the forward legs of foreign exchange swaps used in liquidity management, for which no hedge accounting is applied, are recognised in the income statement. Both changes in the fair value of the forward contracts and the foreign exchange gains and losses relating to the monetary items are recognised as financial expenses.

There is an economic relationship between the hedged items and the hedging instruments as the critical terms of the foreign exchange forwards match the terms of the expected highly probable forecast transactions (i.e. nominal amount, exchange rate and expected payment date). Hence, the Group has established a hedge ratio of 1:1. To test the hedge effectiveness, the Group uses the Dollar Offset method and compares the changes in the fair value of the hedging instruments against the changes in fair value of the hedged items attributable to the hedged risks.

Hedge ineffectiveness may arise from:
- differences in the timing of the cash flows of the hedged items and the hedging instruments,
- different indexes (and accordingly different curves) linked to the hedged risk of the hedged items and hedging instruments,
- the counterparties' credit risk differently impacting the fair value movements of the hedging instruments and hedged items,
- changes to the forecasted amount of cash flows of hedged items,
- change in fair value of the cross currency basis spread element of the foreign exchange forwards ("ccbs").

Borealis does not recognise any ineffectiveness in the income statement due to immateriality.

Net Investment Hedges in Foreign Operations

A foreign currency exposure arises from the Group's long-term net investment in its subsidiaries, associated companies and joint ventures in foreign currencies. Foreign exchange translation differences relating to these net investments are recognised in other comprehensive income. Borealis has hedged part of its investment in an associated company, which has USD as its functional currency, by designating certain external loans in USD as hedges of the Group's investments in its foreign operations. The hedged risk in the net investment hedge is the risk of a weakening USD against the EUR that will result in a reduction in the carrying amount of the Group's net investment in the associated company in USD. The EUR/USD impact on the measurement of the loan is recognised in other comprehensive income.

To assess hedge effectiveness, the Group determines the economic relationship between the hedging instrument and the hedged item by comparing changes in the carrying amount of the debt that is attributable to a change in the spot rate with changes in the investment in the foreign operation due to movements in the spot rate (the dollar-offset method). The Group's policy is to hedge the net investment only to the extent of the debt principal.

There is an economic relationship between the hedged item and the hedging instrument as the net investment creates a translation risk that will match the foreign exchange risk on the USD borrowing. The Group has established a hedge ratio of 1:1 as the underlying risk of the hedging instrument is identical to the hedged risk component. Hedge ineffectiveness will arise when the amount of the investment in the foreign associated company becomes lower than the amount of the borrowing.

Effects of Hedge Accounting on the Financial Position and Performance

The effects of the foreign currency-related hedging instruments on the Group's financial position and performance are as follows:

Foreign exchange forwards EUR thousand	**2021**	**2020**
Carrying amount (asset – current)	16	12,714
Carrying amount (liability – current)	7,965	702
Line item in the balance sheet where the hedging instrument is included	Other receivables and other assets/ Other liabilities	Other receivables and other assets/ Other liabilities
Total nominal amount	kEUR 343,918	kEUR 309,038
Hedge ratio	1:1	1:1
Hedged rate for the year	EUR/USD 1.15–1.20 EUR/SEK 10.01–10.30	EUR/USD 1.08–1.15 EUR/SEK 10.16–11.07
Change in fair value of the hedging instrument used for measuring ineffectiveness for the period	-14,532	12,284
Change in value of the hedged item used for measuring ineffectiveness for the period	14,532	-12,284
Hedging reserve (net of deferred taxes)	-5,961	9,009
Total hedging gain (+) or loss (-) recognised in OCI	-14,532	12,284
Hedge ineffectiveness recognised in the income statement	0	0
Amount reclassified from hedging reserve to the income statement	-6,130	-3,377
Line item in the income statement affected by the reclassification	Net sales and production costs	Net sales and production costs
Amount reclassified from hedging reserve to the cost of non-financial items	702	115

Net investment hedges in foreign operations EUR thousand	2021	2020
Carrying amount (liability)	190,712	176,024
Line item in the balance sheet where the hedging instrument is included	Loans and borrowings	Loans and borrowings
Total nominal amount	kUSD 216,000	kUSD 216,000
Hedge ratio	1:1	1:1
Change in fair value of the hedging instrument used for measuring ineffectiveness for the period	-14,687	16,704
Change in value of the hedged item used for measuring ineffectiveness for the period	14,687	-16,704
Reserve for unrealised exchange gains/losses (net of deferred taxes)	-15,445	-4,430
Balances remaining in the reserve for unrealised exchange gains/losses from hedging relationships for which hedge accounting is no longer applied	-6,290	-6,290
Total hedging gain (+) or loss (-) recognised in OCI	-14,687	16,704
Hedge ineffectiveness recognised in the income statement	0	0

Sensitivity Analysis

The Group's exposure to the risk of changes in foreign exchange rates primarily relates to the Group's operating activities, mainly invoicing in EUR and mainly purchasing raw materials in USD and the Group's net investments in associated companies and joint ventures mainly denominated in USD. The sensitivity analysis has been prepared on the basis that the financial instruments in foreign currencies and all other parameters, apart from changes in foreign exchange rates themselves (foreign exchange rate against EUR), are constant, and on the basis of hedge designations in place as of 31 December 2021. The Group assumes that the prevailing polyolefin market pricing mechanisms reduce the foreign exchange risk in practice. As of 31 December 2021, the Group showed a net receivable (prior year: net payable) position in USD and a net payable (prior year: net payable) position in SEK.

Effect in EUR thousand	Profit before taxation		Other comprehensive income	
	Strengthening +1%	Weakening -1%	Strengthening +1%	Weakening -1%
31 December 2021				
USD	16,335	-13,365	-3,863	3,161
SEK	-69	56	1,612	-1,319
USD – including net investment	16,335	-13,365	25,828	-21,132
SEK – including net investment	-69	56	7,244	-5,927
31 December 2020				
USD	-3,988	3,263	-3,566	2,917
SEK	-536	439	1,647	-1,347
USD – including net investment	-3,988	3,263	37,563	-30,733
SEK – including net investment	-536	439	7,384	-6,042

The key foreign exchange rates used for the Group were as follows:

	2021		2020	
	Closing rate	Average rate	Closing rate	Average rate
USD	1.1326	1.1827	1.2271	1.1326
SEK	10.2503	10.1465	10.0343	10.5146

24. Interest Rate Risk

Interest rate risk is the risk of the fair value or future cash flows of a financial instrument fluctuating because of changes in market interest rates.

Borealis adopts a policy of managing its interest rate risk through the modified duration of its loan portfolio. The average modified duration is allowed to deviate within a predefined range. Overall, Borealis' risk management strategy according to its financial procedures is to protect itself against adverse interest rate movements and to obtain predictable interest costs. As of 31 December 2021, Borealis had three outstanding interest rate swaps. Borealis classifies these interest rate swaps as cash flow hedges and states them at fair value. The purpose of these hedges is to fix the cash outflows related to the floating rate loans.

The Group enters into interest rate swaps that have matching critical terms with the hedged item, such as reference rate, reset dates, payment dates, maturities and nominal amount.

The hedge ratios are based on interest rate swaps with a nominal amount in EUR and USD and a receive leg of a rate index. This results in 1:1 hedge ratios (100%). Since loans and hedging instruments are fully aligned and cannot be changed unless terminated, the hedge ratios will not change and hence, do not result in any imbalances that would create hedge ineffectiveness.

Hedge effectiveness will be assessed by comparing changes in the fair values of the hedging instruments to changes in the fair values of the respective hypothetical derivatives.

The terms of the hypothetical derivative are as such that its fair value changes offset exactly the changes in the fair value of the hedged item. The terms are identical to the hedging instrument but, assume no counterparty risk. Hence, the hedge is expected to be highly effective.

A significant change in the credit risk of either Borealis or the counterparty is identified as a potential source of ineffectiveness. The Group treasury monitors the Company and the bank's credit risk for significant adverse changes.

Hedge ineffectiveness may arise from:
– differences in the timing of the cash flows of the hedged items and the hedging instruments,
– the counterparties' credit risk impacting the fair value movements of the hedging instruments and hedged items differently.

Borealis has one cross currency interest rate swap that is measured at fair value through profit or loss (FVPL).

Of loans and borrowings, approximately 82% (76%) have a fixed interest rate and 18% (24%) are based on a floating interest rate before applying interest rate swaps. After applying interest rate swaps, approximately 89% (83%) have a fixed interest rate and 11% (17%) are based on a floating interest rate. The floating interest rates are set by adding a spread to the reference rates (mainly EURIBOR and LIBOR).

Effects of Hedge Accounting on the Financial Position and Performance

The effects of the interest rate related to hedging instruments on the Group's financial position and performance are as follows:

Interest rate swaps **EUR thousand**	**2021**	**2020**
Carrying amount (liability – current)	68	0
Carrying amount (liability – non-current)	723	3,926
Line item in the balance sheet where the hedging instrument is included	Other receivables and other assets/ Other liabilities	Other receivables and other assets/ Other liabilities
Total nominal amount	kEUR 108,660	kEUR 112,719
Hedge ratio	1:1	1:1
Weighted average hedged rate for the year	2.17%	1.99%
Change in fair value of the hedging instrument used for measuring ineffectiveness for the period	1,827	-5,682
Change in value of the hedged item used for measuring ineffectiveness for the period	-1,827	5,682
Hedging reserve (net of deferred taxes)	-593	-2,945
Total hedging gain (+) or loss (-) recognised in OCI	1,827	-5,682
Hedge ineffectiveness recognised in the income statement	0	0
Amount reclassified from hedging reserve to the income statement	1,308	627
Line item in the income statement affected by the reclassification	Financial expenses	Financial expenses

Interest Rate Benchmark Reform

The table below provides an overview of IBOR related exposure by currency and nature of financial instruments as of 31 December 2021:

	Benchmark	carrying amount (notional amount for derivatives)
Non-derivative financial assets		
Loans granted	USD LIBOR	kEUR 985,240
Non-derivative financial liabilities		
Term loans (loans and borrowings)	USD LIBOR	kEUR 178,320
Term loans (loans and borrowings)	JPY LIBOR	kEUR 38,223 [1)]
Derivatives		
Interest rate swap – cash flow hedge	USD LIBOR	kUSD 50,000
Interest rate swap – cash flow hedge	USD LIBOR	kUSD 60,000
Cross currency interest rate swap – FVPL	JPY LIBOR to USD LIBOR	kJPY 5,000,000 [1)]
Off balance sheet items		
Commitments in associated companies	USD LIBOR	kEUR 250,854
Unutilised committed facilities	Multicurrency	kEUR 1,000,000

1) transitioned to TONAR

The Group continuously evaluates contractual terms in respect of the LIBOR transition exposures. Where necessary, agreements will be amended to provide for alternative benchmark rates, which will be in accordance with the LMA standard at the time, to apply in relation to the affected currencies.

As of the end of December 2021, for the EUR 1,000,000 thousand multicurrency Revolving Credit Facility (RCF), a drawdown waiver is in place for currencies where IBOR rates were discontinued as a screen rate from 31 December 2021 (CHF, GBP, JPY). The RCF drawdown waiver will cease to have effect if the facility is amended to provide for alternative benchmark rates, which will be in accordance with the LMA standard at any given time.

In addition, the JPY 5,000,000 thousand Samurai loan tranche has been successfully transitioned to TONAR.

Borealis considers that it is, in principle, exposed to uncertainties resulting from the interest rate benchmark reform in respect of its hedges of (three month) USD LIBOR interest risks related to the existence of two outstanding USD interest rate swaps, with a nominal amount of USD 110 million in total. Their hedging period spans beyond 2021 when uncertainties about the existence of the USD LIBOR rates arise. Borealis expects that the hedging instrument and the hedged risk of the hedged item will not change as a result of the reform. However, any hedge ineffectiveness would be accounted for in the income statement.

For further information in respect of IBOR reform, see the New Accounting Standards section.

Sensitivity Analysis

In managing interest rate risks, Borealis aims to reduce the impact of short-term fluctuations on its earnings. Over the long term, permanent changes in interest rates will have an impact on consolidated earnings. The sensitivity analysis has been prepared on the basis of the amount of net debt, floating interest rates of the debt and the derivatives as of 31 December 2021.

Effect in EUR thousand	Profit before taxation		Other comprehensive income	
	Strengthening +1%	Weakening -1%	Strengthening +1%	Weakening -1%
31 December 2021				
Interest rate	-1,904	1,916	484	-488
31 December 2020				
Interest rate	-1,967	1,982	548	-552

25. Commodity Price Risk

Commodity price risk is the risk of future cash flows or the fair value of inventories fluctuating because of changes in commodity prices. Borealis states its inventories at the lower of cost and net realisable value, taking into account future price developments. Commodity price risk is managed by the feedstock and energy traders and monitored by Trade Support and Risk Management. The commodity price risk exposure is calculated by a trading software program. Trade Support and Risk Management take a snapshot of all data in the trading system on a daily basis and retrieve the daily position from the system. The position is analysed and compared with the trading limits. Traders use financial derivatives (i.e. financial swaps) in order to stay within the limits.

Feedstock Derivatives

Borealis hedges some of its forecasted feedstock purchases and finished product sales through feedstock swaps. Cash flow hedge accounting is applied to those derivatives, except for the derivatives that are used to limit the price risk on the inventory held for immediate consumption. Some of the derivatives have been designated as cash flow hedges for future sales and purchases. Derivatives not designated as cash flow hedges are measured at fair value through profit or loss (FVPL).

Electricity Derivatives

Borealis hedges its forecasted electricity purchases using electricity swaps. Cash flow hedge accounting has been applied for these derivatives.

Natural Gas Derivatives

Borealis hedges part of its forecasted natural gas purchases and exposure in commercial contracts to changes in natural gas prices using natural gas swaps. Cash flow hedge accounting has been applied for these derivatives.

There is an economic relationship between the hedged items and the hedging instruments as the terms of the commodity forward contracts match the terms of the expected highly probable forecast transactions (i.e. nominal quantity and expected payment date). The Group has established a hedge ratio of 1:1 for the hedging relationships as the underlying risk of the commodity forward contracts are identical to the hedged risk components. To test the hedge effectiveness, the Group compares the changes in the fair value of the hedging instruments against the changes in fair value of the hedged items attributable to the hedged risks.

The hedge ineffectiveness can arise from:
– differences in the timing of the cash flows of the hedged items and the hedging instruments, and
– changes to the forecasted amount of cash flows of hedged items and hedging instruments.

Effects of Hedge Accounting on the Financial Position and Performance

The effects of the commodity-related hedging instruments on the Group's financial position and performance are as follows:

Feedstock derivatives **EUR thousand**	**2021**	**2020**
Carrying amount (asset – current)	11,853	8,188
Carrying amount (asset – non-current)	0	1,854
Carrying amount (liability – current)	6,017	35,433
Line item in the balance sheet where the hedging instrument is included	Other receivables and other assets/ Other liabilities	Other receivables and other assets/ Other liabilities
Total nominal amount	273,757 tonnes	462,583 tonnes
Hedge ratio	1:1	1:1
Change in fair value of the hedging instrument used for measuring ineffectiveness for the period	-38,580	-36,998
Change in value of the hedged item used for measuring ineffectiveness for the period	38,580	36,998
Hedging reserve (net of deferred taxes)	5,682	-16,145
Balances remaining in the hedging reserve for hedging instruments that have expired but forecast transaction still has to occur	1,742	3,863
Total hedging gain (+) or loss (-) recognised in OCI	-38,580	-36,998
Hedge ineffectiveness recognised in the income statement	0	0
Amount reclassified from hedging reserve to the cost of non-financial items	67,683	15,197

Electricity derivatives **EUR thousand**	**2021**	**2020**
Carrying amount (asset – current)	292,247	18,445
Carrying amount (asset – non-current)	71,364	5,904
Carrying amount (liability – current)	59	10,057
Carrying amount (liability – non-current)	504	3,984
Line item in the balance sheet where the hedging instrument is included	Other receivables and other assets/ Other liabilities	Other receivables and other assets/ Other liabilities
Total nominal amount	5,544 GWh	5,352 GWh
Hedge ratio	1:1	1:1
Change in fair value of the hedging instrument used for measuring ineffectiveness for the period	478,171	-20,102
Change in value of the hedged item used for measuring ineffectiveness for the period	-478,171	20,102
Hedging reserve (net of deferred taxes)	272,286	7,731
Total hedging gain (+) or loss (-) recognised in OCI	478,171	-20,102
Hedge ineffectiveness recognised in the income statement	0	0
Amount reclassified from hedging reserve to the income statement	-125,431	32,181
Line item in the income statement affected by the reclassification	Production costs	Production costs

Natural gas derivatives **EUR thousand**	**2021**	**2020**
Carrying amount (asset – current)	22	2,962
Carrying amount (liability – current)	59,211	5,484
Carrying amount (liability – non-current)	0	1,988
Line item in the balance sheet where the hedging instrument is included	Other receivables and other assets/ Other liabilities	Other receivables and other assets/ Other liabilities
Total nominal amount	1,280 GWh	2,555 GWh
Hedge ratio	1:1	1:1
Change in fair value of the hedging instrument used for measuring ineffectiveness for the period	35,252	113
Change in value of the hedged item used for measuring ineffectiveness for the period	-35,252	-113
Hedging reserve (net of deferred taxes)	-44,391	-3,381
Total hedging gain (+) or loss (-) recognised in OCI	35,252	113
Hedge ineffectiveness recognised in the income statement	0	0
Amount reclassified from hedging reserve to the income statement	-89,931	-3,795
Line item in the income statement affected by the reclassification	Production costs	Production costs

Sensitivity Analysis

The sensitivity analysis has been prepared for all derivative financial instruments on the basis that the amount of the feedstock held and all other parameters besides commodity prices (in particular sales prices) are constant and on the basis of the hedge designations in place on 31 December 2021. The Group assumes that the prevailing market pricing mechanisms reduce the commodity price risk in practice.

Effect in EUR thousand	Profit before taxation		Other comprehensive income	
	Strengthening +1%	Weakening -1%	Strengthening +1%	Weakening -1%
31 December 2021				
Feedstock – Naphtha	-120	120	-240	240
Feedstock – Other	0	0	122	-122
Electricity	0	0	5,710	-5,710
Natural gas	0	0	326	-326
31 December 2020				
Feedstock – Naphtha	-125	125	167	-167
Feedstock – Other	64	-64	-2,349	2,349
Electricity	0	0	2,408	-2,408
Natural gas	0	0	-211	211

26. Factoring

Borealis has a factoring programme under which the Company sells certain trade receivables to external parties. The Group does not retain any major interest in the trade receivables and thus accordingly derecognises the receivables sold. Borealis continues to administer the relationship with debtors and has to transfer all receivables collected and previously sold to the purchaser under this programme. Several reserves are deducted from the nominal value of the sold receivables and will be released upon transfer of the respective collected receivables to the purchaser.

The total nominal value sold to the purchaser under the factoring programme in the current year amounted to EUR 3,609,439 thousand (EUR 2,760,426 thousand). As of 31 December 2021, receivables worth EUR 378,734 thousand (EUR 284,359 thousand) were sold to the purchaser under the factoring programme. The reserves deducted from the nominal value of the sold receivables amounted to EUR 31,012 thousand (EUR 24,521 thousand) as of 31 December 2021 and are included in other current receivables. During the year, expenses amounting to EUR 3,164 thousand (EUR 2,548 thousand) were recognised in the income statement for the factoring programme.

27. Credit Risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations. The Group is exposed to credit risk from its operating activities (primarily trade receivables) and from its financing activities, including deposits with banks and financial institutions and other financial instruments.

The Group has three types of financial assets that are subject to the expected credit loss model:
– trade receivables (excluding trade receivables at FVPL) and contract assets,
– cash and cash equivalents,
– debt investments carried at amortised cost.

On each reporting date, the Group assesses whether financial assets carried at amortised cost are credit-impaired. For trade receivables, the Group applies the IFRS simplified approach to measure expected credit losses, which uses a lifetime expected loss allowance.

Trade Receivables Credit Risk

A credit control procedure is in place. Credit risk is monitored on an ongoing basis. Credit risk for a specific counterparty is the sum of all outstanding trade receivables and is compared to the individual credit limit allocated to that counterparty. Credit limit evaluations are performed on a daily basis and all customers are reviewed annually at least. Approval and escalation limits are used to authorise the available credit limits to customers. For some trade receivables, the Group may obtain security in the form of guarantees (bank and parental guarantees), letters of credit or credit insurance, which can be called upon if the counterparty is in default under the terms of the agreement. As of the reporting date, Borealis has no large concentrations of credit risks for trade receivables from external parties representing more than 10% of the total outstanding trade receivables. For details on trade receivables from related parties, see note 30. No credit risk is retained in trade receivables sold under the factoring programme (note 26).

The maximum exposure to credit risk for trade receivables as of the reporting date by geographic region was:

EUR thousand	2021	2020
EU countries	543,733	345,731
Non-EU in Europe	251,015	85,761
US	63,234	35,500
Middle East and Asia	141,259	94,007
Other regions	114,545	79,091
Total	**1,113,786**	**640,090**

The maximum exposure to credit risk for trade receivables as of the reporting date by type of segment and group of customers was:

EUR thousand	2021	2020
Polyolefins	695,428	421,918
Base Chemicals	305,066	89,279
Borealis NITRO	30,629	106,671
Non-Allocated	82,663	22,222
Total	**1,113,786**	**640,090**

All customers are classified in risk categories based on external and internal ratings with associated probabilities of default in order to measure the lifetime expected losses.

The table below shows the maximum exposure (gross carrying amount) for each risk class based on which loss allowance was determined for trade receivables (excluding trade receivables at FVPL).

EUR thousand	31 December 2021				
	Equivalent to external rating	Probability of default	Gross carrying amount	Loss allowance	Credit-impaired
Risk category 1	AAA, AA+, AA, AA-, A+, A, A-	0.07%	187,165	-1	No
Risk category 2	BBB+, BBB, BBB-	0.24%	32,987	-4	No
Risk category 3	BB+, BB, BB-	1.21%	211,533	-834	No
Risk category 4	B+, B, B-, CCC/CC	10.37%	452,628	-2,917	No
Risk category 5	SD/D	100.00%	9,938	-9,938	Yes
Total			**894,251**	**-13,694**	

EUR thousand	31 December 2020				
	Equivalent to external rating	Probability of default	Gross carrying amount	Loss allowance	Credit-impaired
Risk category 1	AAA, AA+, AA, AA-, A+, A, A-	0.07%	66,803	-2	No
Risk category 2	BBB+, BBB, BBB-	0.25%	58,885	-7	No
Risk category 3	BB+, BB, BB-	1.19%	308,943	-496	No
Risk category 4	B+, B, B-, CCC/CC	10.26%	178,428	-975	No
Risk category 5	SD/D	100.00%	14,126	-14,126	Yes
Total			**627,185**	**-15,606**	

The identified impairment loss for contract assets was immaterial.

The movement in the loss allowance in respect of trade receivables during the year was as follows:

EUR thousand	2021		2020	
	Lifetime ECL – not credit-impaired	Lifetime ECL – credit-impaired	Lifetime ECL – not credit-impaired	Lifetime ECL – credit-impaired
Balance as of 1 January	1,480	14,126	577	13,993
Impairment loss recognised	2,441	2,162	1,480	1,838
Written off	0	-2,045	0	-642
Reversal of impairment	0	-557	-577	-16
Reclassification to assets directly related to the disposal group	-165	-3,783	0	0
Other movements	0	0	0	-995
Exchange adjustments	0	35	0	-53
Balance as of 31 December	**3,756**	**9,938**	**1,480**	**14,126**

In 2021, the Group did not renegotiate the terms of trade receivables. Generally, trade receivables written off during 2021 are not subject to enforcement activity.

The total guarantees received (bank guarantees and parental guarantees) in respect of the trade receivables amounted to EUR 234,195 thousand (EUR 218,726 thousand). The Group does not require collateral in respect of trade receivables. The Group does not have trade receivables for which no loss allowance is recognised because of collateral or guarantees received.

Other Credit Risk

The Group is also exposed to credit risk relating to other financial assets. The maximum exposure to credit risk as of the reporting date is the carrying amount of each class of financial assets disclosed in note 28.

The table below shows the maximum exposure to credit risk (gross carrying amount) for financial assets that are measured at amortised cost and subject to a 12-month expected credit loss.

	Credit risk (Gross carrying amount)		Loss allowance recognised	
EUR thousand	**2021**	**2020**	**2021**	**2020**
Cash and cash equivalents	1,540,973	83,404	0	0
Debt investments carried at amortised cost				
Loans granted	1,015,018	753,955	0	-3,151
Deposits and other receivables	171,133	170,107	0	-2,099

Borealis' cash balances are deposited with relationship banks or are invested in liquid securities with counterparties that fulfil a certain predefined credit rating threshold. Counterparty credit risks for long-term financial treasury transactions are managed by mandatory credit limits and external credit rating requirements or have undergone a special approval process. A real time treasury system is used to monitor exposures and risk limits. Borealis' management does not expect any counterparty to fail to meet any of its current obligations.

While cash and cash equivalents are also subject to the impairment requirements of IFRS 9, the identified impairment loss was immaterial. All of the entities' other debt investments at amortised cost are considered in general to have low credit risk and the loss allowance recognised during the period is therefore limited to 12-month expected losses.

In 2020, a balance of restricted cash in the amount of EUR 2,099 thousand was classified as other financial assets and fully impaired. Additionally, one loan to an external party in the amount of EUR 651 thousand was ully impaired. In 2021, these two impaired financial assets were reclassified to assets directly related to the disposal group. Additionally, a fully impaired loan in the amount of EUR 2,500 thousand was written off. The loss allowance for all other debt investments was immaterial.

28. Fair Values

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy. It does not include fair value information for financial assets and financial liabilities not measured at fair value, if the carrying amount is a reasonable approximation of fair value.

EUR thousand	31.12.2021			31.12.2020		
Assets	**Carrying amount**	**Fair value**	**Fair value hierachy level**	**Carrying amount**	**Fair value**	**Fair value hierachy level**
Other investments						
Other investments	18,355	18,355	3	31,443	31,443	3
thereof at fair value through profit or loss	**15,287**			**31,443**		
thereof at fair value through other comprehensive income	**3,068**					
Trade receivables						
Trade receivables	1,113,786			640,090		
thereof at amortised cost	**880,557**			**611,579**		
thereof at fair value through profit or loss	**233,229**			**28,511**		
Cash and cash equivalents						
Cash	161,342			81,626		
Other current deposits	1,379,631			1,778		
at amortised cost	**1,540,973**			**83,404**		
Loans granted						
Loans granted	1,015,018	1,017,414	2	750,804	754,883	2
at amortised cost	**1,015,018**			**750,804**		
Other receivables and other assets (current and non-current)						
Marketable securities and bonds	29,521	29,521	1	35,164	35,164	1
at fair value through profit or loss	**29,521**			**35,164**		
Derivative financial instruments for which hedge accounting is applied	375,501	375,501	2	50,067	50,067	2
Hedging instruments	**375,501**			**50,067**		
Derivative financial instruments for which hedge accounting is not applied	3,476	3,476	2	3,441	3,441	2
at fair value through profit or loss	**3,476**			**3,441**		
Deposits and other receivables	171,133			168,008		
at amortised cost	**171,133**			**168,008**		
Other non financial assets	209,471	n/a	n/a	256,108	n/a	n/a
Total other receivables and other assets (current and non-current)	**789,102**			**512,788**		

EUR thousand	31.12.2021			31.12.2020 restated		
Liabilities	**Carrying amount**	**Fair value**	**Fair value hierachy level**	**Carrying amount**	**Fair value**	**Fair value hierachy level**
Loans and borrowings (current and non-current)						
Bond	297,955	316,932	1	297,461	324,432	1
Floating rate loans and borrowings	285,992	286,645	2	409,331	410,687	2
Fixed rate loans and borrowings	1,015,964	1,050,893	2	1,015,158	1,093,381	2
at amortised cost	**1,599,911**			**1,721,949**		
Trade payables						
Trade payables	1,016,936			788,170		
at amortised cost	**1,016,936**			**788,170**		
Other liabilities (current and non-current)						
Derivative financial instruments for which hedge accounting is applied	74,547	74,547	2	61,573	61,573	2
Hedging instruments	**74,547**			**61,573**		
Derivative financial instruments for which hedge accounting is not applied	11,304	11,304	2	5,382	5,382	2
at fair value through profit or loss	**11,304**			**5,382**		
Interest accruals on loans and borrowings	5,945			7,032		
Other financial liabilities [1)]	78,947			258,058		
at amortised cost [1)]	**84,892**			**265,090**		
Other non-financial liabilities	441,837	n/a	n/a	207,759	n/a	n/a
Total other liabilities (current and non-current) [1)]	**612,580**			**539,805**		

1) 2020 amounts for line items marked with footnote [1)] have been restated. For further details, please refer to the Restatement section.

The Group measures fair values using the following fair value hierarchy that reflects the significance of the inputs used in making the measurements:

Level 1: Quoted market price (unadjusted) in an active market for an identical instrument.

Level 2: Valuation techniques based on observable inputs, either directly or indirectly. This category includes instruments valued using quoted market prices in active markets for similar instruments, quoted prices for identical or similar instruments in less active markets or other valuation techniques where all significant inputs are directly or indirectly observable from market data.

Level 3: Valuation techniques using significant unobservable inputs. This category includes all instruments where the valuation technique includes inputs not based on observable data and the unobservable inputs have a significant effect on the instruments' valuation. This category includes instruments that are valued based on quoted prices for similar instruments where significant unobservable adjustments or assumptions are required to reflect differences between the instruments.

In 2021, no transfers between the different levels of the fair value hierarchy took place.

Other Investments

For details on other investments, see note 10. The equity value of the other investments is assumed to equal other investments' fair value. If the equity decreases (increases), the fair value decreases (increases) accordingly.

The following table presents the changes in other investments (level 3 items):

EUR thousand	2021	2020
Balance as of 1 January	31,443	31,692
Investments and acquisitions	3,068	0
Reclassification to assets of the disposal group held for sale	-18,052	0
Other changes [1]	0	51
Fair value changes recognised in income statement (financial income/expenses)	1,914	-342
Exchange adjustments	-18	42
Balance as of the reporting date	**18,355**	**31,443**

1) New subsidiary in 2020 excluded from consolidation due to immateriality.

Trade and Other Receivables and Other Assets

The fair value of trade and other receivables and assets is estimated to equal the nominal values less impairments (= carrying amount).

The carrying amount of deposits and other receivables is not materially different from their fair value.

Loans granted

The fair value of loans granted is calculated based on the present value of future principal and interest cash flows discounted at the market rate of interest adjusted for the respective counterparty credit risk as of the reporting date

Derivatives

The fair value of foreign exchange derivatives is estimated by discounting the difference between the contractual forward price and the current forward price for the residual maturity of the derivative using market rates as of the reporting date.

The fair value of interest rate swaps is estimated by discounting estimated future cash flows based on the terms and maturity of each derivative and using market rates for a hypothetical instrument as of the reporting date. The credit quality of counterparties did not lead to a significant change in the fair values.

The fair value of commodity derivatives is estimated by discounting the difference between current forward price and contractual forward price.

Other Non-financial Assets and Liabilities

Other non-financial assets and liabilities are shown solely for reconciliation purposes.

Non-derivative Financial Liabilities

Fair value for non-current and current loans and borrowings is calculated based on the present value of future principal and interest cash flows discounted at the market rate of interest adjusted for Borealis' credit risk as of the reporting date. All fair values are excluding the outstanding interest accruals as of the reporting date.

The fair value of trade and other payables is estimated to equal the carrying amount.

Contingent Consideration

For the acquisition of the remaining 50% of Novealis, a contingent consideration up to EUR 10,150 thousand was agreed based on an earnings target for 2022. According to Borealis' assessment, the earnings target will not be met. Thus, the contingent consideration has been valued at a fair value of EUR 0 thousand (EUR 0 thousand).

29. Other Operating Income

In 2021, other operating income consisted mainly of intangible assets received by way of government grants as allowances for emissions (EU Emissions Trading System) of EUR 38,009 thousand (EUR 33,547 thousand). Furthermore, compensation for property damage and business interruption with regards to the incident which occurred on 9 May 2020 in Stenungsund, Sweden of EUR 33,946 thousand (EUR 92,800 thousand) is recognised here. Gains from foreign currency translation effects related to working capital amount to EUR 34,161 thousand (EUR 26,899 thousand). The remainder of other operating income is mainly related to re-invoicing of seconded employees.

30. Transactions with Related Parties

	Transaction values		Balance outstanding	
EUR thousand	**2021**	**2020**	**31.12.2021**	**31.12.2020**
Sales of goods and services to				
Associated companies	450,647	435,939	142,997	76,281
Joint ventures	6,435	11,846	8,416	7,257
Companies with significant influence	21,565	23,818	4,124	1,771
Other related parties	78,440	39,093	14,724	4,680
Purchases of goods and services from				
Associated companies	588,584	334,889	108,052	63,865
Joint ventures	5,814	5,488	40	331
Companies with significant influence	74,153	61,263	5,757	4,049
Other related parties	1,776,173	1,078,725	245,707	116,189
Others				
Loans granted and related interest – Associated companies	1,131	1,037	29,778	16,648
Loans granted and related interest – Joint ventures	26,538	20,370	987,143	735,616
Lease liabilities and related interest – Other related parties	277	361	14,355	16,715
Income taxes liability and related expense – Parent company	347,094	0	282,363	0

Due to ownership changes in Borealis in October 2020, transactions and balances with OMV subsidiaries are shown under "Other related parties", whereas transactions and balances with Mubadala group entities are shown under "Companies with significant influence".

The sales to associated companies and joint ventures mainly include sales of finished goods and services.

Transactions with associated companies further include the granting of licences for the use of Group technologies. Contract assets with Abu Dhabi Polymers Company Limited (Borouge) amounting to EUR 8,250 thousand (EUR 478 thousand) and with Bayport Polymers LLC (Baystar) amounting EUR 7,284 thousand (EUR 6,452 thousand) are included in the balance outstanding. For details on contract assets, please see note 2. Also included in the balance outstanding from associated companies are prepayments to Kilpilahden Voimalaitos Oy (KPP) of EUR 12,345 thousand

(EUR 13,225 thousand) and to Renasci N.V. (Renasci) of EUR 9,877 thousand. Purchases from associated companies mainly include purchases of finished goods produced in Borouge and sold in Europe. Purchases from other related parties mainly relate to purchases of feedstock and utilities from OMV group companies. Receivables from and payables to related parties are included in trade receivables/ payables. Lease liabilities and related interest from other related parties relate to rented land and infrastructure from OMV in Germany. Loans granted, including interest receivables, to joint ventures amounting to EUR 987,143 thousand (EUR 735,616 thousand) were outstanding from Baystar. For further details on loans granted, see note 10.

All transactions with related parties were conducted on an arm's length basis.

Borealis has a commitment to grant a loan to Baystar with a total value of EUR 1,236,093 thousand (EUR 1,140,901 thousand). Until year end 2021, Baystar had already drawn EUR 985,240 thousand (EUR 734,156 thousand). The commitment is available until the cracker and Borstar® unit are in service or 10 June 2023, whatever occurs first. On the reporting date, the Group further has financing commitments to KPP amounting to EUR 15,733 thousand (EUR 15,733 thousand). KPP's entitlements are dependent on the fulfilment of specific events, as defined in the underlying contracts. At year end 2021, Borealis also had a commitment to grant an additional convertible loan to Renasci amounting to EUR 12,000 thousand. The entitlements are dependent on the fulfilment of certain conditions of utilisation, as stated in the underlying agreement.

As of 1 January 2021, Austrian Borealis group entities belong to Austrian OMV tax group and tax charges resulting from tax allocation agreements are settled with OMV Aktiengesellschaft. Hence, income tax liabilities to the parent company is shown under Other current liabilities.

For further information in respect of dividends received from associated companies and joint ventures, please refer to note 9. For further information regarding commitments to joint ventures and associated companies, see note 21. For information regarding dividends paid, please refer to the statement of changes in equity. For details regarding the remuneration of key management personnel, please see note 14.

31. Commitments and Contingent Liabilities

Legal Claim Contingencies

While the Group has certain lawsuits pending, it is the Executive Board's opinion that these proceedings will not materially affect the Group's financial position.

Financial Guarantees

The Group is subject to numerous national and local tax laws and regulations concerning its sales and environmental activities. These laws and regulations may require the Group to issue guarantees to respective authorities for the Group's payment obligations. These guarantees have been provided to the extent the authorities have requested them.

The Group has committed several rental guarantees mainly for its own rental agreements. The Group will be responsible if the tenant or Borealis itself fails to pay rent or causes any damages to property. No material losses are expected to arise from such contingent liabilities.

In addition to the contractual commitments for property, plant and equipment (see note 5) and contractual obligations for additional capital contributions (see note 9 and note 30), no further significant risks and uncertainties have been identified compared to year end 2020.

32. Subsequent Events

On 20 January 2022, the government bill for the Eco Social Tax Reform Act passed the third reading of the National Parliament of Austria. The bill stipulates the reduction in the Austrian corporate income tax rate from 25% to 24% in 2023 and further to 23% from 2024 onwards. Had the new tax rates been substantially enacted as of 31 December 2021, deferred tax assets of the Group would have decreased by EUR 2,256 thousand.

On 2 February 2022, the Group received a binding offer from EuroChem for the acquisition of the nitrogen business including fertilizer, melamine and technical nitrogen products. The offer values the business on an enterprise value basis at EUR 455,000 thousand. Borealis will initiate mandatory information and consultation procedures with employee representatives. The transaction is also subject to certain closing conditions and regulatory approvals, with closing expected for the second half of 2022.

The Group will continue to focus on its core activities of providing innovative and sustainable solutions in the fields of polyolefins and base chemicals and on the transformation towards a circular economy.

33. Subsidiaries Included in the Consolidated Accounts

	Company name	Country	City	Percentage of shares owned	
				2021	2020
	Borealis AG				
■	Borealis Agrolinz Melamine GmbH	Austria	Linz	100.00	100.00
■■	Borealis Agrolinz Melamine Deutschland GmbH	Germany	Wittenberg	100.00	100.00
■	Borealis Argentina SRL [1]	Argentina	Buenos Aires	100.00	100.00
■	BOREALIS ASIA LIMITED [1]	Hong Kong	Hong Kong	100.00	100.00
■	Borealis Brasil S.A.	Brazil	Itatiba	80.00	80.00
■	BOREALIS CHEMICALS ZA (PTY) LTD [1]	South Africa	Germiston	100.00	100.00
■	Borealis Chile SpA [1]	Chile	Santiago	100.00	100.00
■	Borealis Chimie S.A.R.L. [1]	Morocco	Casablanca	100.00	100.00
■	Borealis Circular Solutions Holding GmbH (formerly CERHA HEMPEL Leilani Holding GmbH)	Austria	Vienna	100.00	0.00
■	Borealis Colombia S.A.S. [1]	Colombia	Bogota	100.00	100.00
■	Borealis Denmark ApS [1]	Denmark	Copenhagen	100.00	100.00
■	Borealis Digital Studio B.V. [1]	Belgium	Zaventem	100.00	100.00
■	Borealis Financial Services N.V.	Belgium	Mechelen	100.00	100.00
■	Borealis France S.A.S.	France	Courbevoie	100.00	100.00
■■■	Borealis Chimie S.A.S.	France	Courbevoie	100.00	100.00
■■■	AGRIPRODUITS S.A.S. [1]	France	Courbevoie	100.00	100.00
■■■	STOCKAM G.I.E. [1]	France	Grand-Quevilly	100.00	100.00
■■	Borealis L.A.T France S.A.S.	France	Courbevoie	100.00	100.00
■■	Borealis Produits et Engrais Chimiques du Rhin S.A.S.	France	Ottmarsheim	100.00	100.00
■■	Borealis Services S.A.S. [1]	France	Courbevoie	100.00	100.00
■	Borealis Insurance A/S (captive insurance company)	Denmark	Copenhagen	100.00	100.00
■	BOREALIS ITALIA S.p.A.	Italy	Monza	100.00	100.00
■	Borealis L.A.T GmbH	Austria	Linz	100.00	100.00
■■	Borealis L.A.T Belgium B.V. [1]	Belgium	Beringen	100.00	100.00
■■	Borealis L.A.T Bulgaria EOOD [1]	Bulgaria	Sofia	100.00	100.00
■■	Borealis L.A.T Czech Republic s.r.o. [1]	Czech Republic	Budweis	100.00	100.00
■■	Borealis L.A.T doo, Beograd	Serbia	Belgrade	100.00	100.00
■■	Borealis L.A.T Greece Single Member P.C. [1]	Greece	Athens	100.00	100.00
■■	Borealis L.A.T Hrvatska d.o.o. [1]	Croatia	Klisa	100.00	100.00
■■	Borealis L.A.T Hungary Kft. [1]	Hungary	Budapest	100.00	100.00
■■	Borealis L.A.T Polska sp. z o.o. [1]	Poland	Warsaw	100.00	100.00
■■	Borealis L.A.T Romania s.r.l. [1]	Romania	Bucharest	100.00	100.00

1) Excluded from the consolidation due to immateriality (individual and in total) // ■ subsidiary of Borealis AG // ■■ second-tier subsidiary of Borealis AG // ■■■ third-tier subsidiary of Borealis AG

	Company name	Country	City	Percentage of shares owned	
				2021	2020
■■	Borealis L.A.T Slovakia s.r.o. [1]	Slovakia	Chotin	100.00	100.00
■	Borealis L.A.T Italia s.r.l. [1]	Italy	Milan	100.00	100.00
■	Borealis México, S.A. de C.V. [1]	Mexico	Mexico City	100.00	100.00
■	Borealis Plasticos, S.A. de C.V. [1]	Mexico	Mexico City	100.00	100.00
■	Borealis Plastik ve Kimyasal Maddeler Ticaret Limited Sirketi [1]	Turkey	Istanbul	100.00	100.00
■	Borealis Plastomers B.V.	The Netherlands	Geleen	100.00	100.00
■	Borealis Poliolefinas da América do Sul Ltda [1]	Brazil	Itatiba	100.00	100.00
■	Borealis Polska Sp. z o.o. [1]	Poland	Warsaw	100.00	100.00
■	Borealis Polymere GmbH	Germany	Burghausen	100.00	100.00
■	Borealis Polymers N.V.	Belgium	Beringen	100.00	100.00
■■	Borealis Antwerpen N.V.	Belgium	Zwijndrecht	100.00	100.00
■■	Borealis Kallo N.V.	Belgium	Kallo	100.00	100.00
■	Borealis Polymers Oy	Finland	Porvoo	100.00	100.00
■	Borealis Polyolefine GmbH	Austria	Schwechat	100.00	100.00
■	Borealis Química España S.A.	Spain	Barcelona	100.00	100.00
■	Borealis RUS LLC [1]	Russia	Moscow	100.00	100.00
■	Borealis s.r.o. [1]	Czech Republic	Prague	100.00	100.00
■	Borealis Sverige AB	Sweden	Stenungsund	100.00	100.00
■■	Borealis AB	Sweden	Stenungsund	100.00	100.00
■■■	Borealis Group Services AS	Norway	Bamble	100.00	100.00
■■■	Etenförsörjning i Stenungsund AB	Sweden	Stenungsund	80.00	80.00
■■■	KB Munkeröd 1:72 [1]	Sweden	Stenungsund	100.00	100.00
■	Borealis Technology Oy	Finland	Porvoo	100.00	100.00
■	BOREALIS UK LTD	UK	Manchester	100.00	100.00
■	Borealis USA Inc.	US	Port Murray	100.00	100.00
■■	Borealis BoNo Holdings LLC	US	Port Murray	100.00	100.00
■■	Borealis Compounds Inc.	US	Port Murray	100.00	100.00
■■■	Borealis US Holdings LLC [2]	US	Port Murray	0.00	100.00
■■	Star Bridge Holdings LLC	US	Port Murray	100.00	100.00
■■■	Novealis Holdings LLC	US	Port Murray	100.00	100.00
■	DYM Solution Co., Ltd	South Korea	Cheonan	98.71	90.52
■	Ecoplast Kunststoffrecycling GmbH	Austria	Wildon	100.00	100.00
■	Feboran EOOD	Bulgaria	Sofia	100.00	100.00

1) Excluded from the consolidation due to immateriality (individual and in total) // 2) Company was dissolved as of 7 December 2021 // ■ subsidiary of Borealis AG // ■■ second-tier subsidiary of Borealis AG // ■■■ third-tier subsidiary of Borealis AG

	Company name	Country	City	Percentage of shares owned	
				2021	2020
■	mtm compact GmbH	Germany	Niedergebra	100.00	100.00
■	mtm plastics GmbH	Germany	Niedergebra	100.00	100.00
■	Rosier S.A.	Belgium	Moustier	77.47	77.47
■■	Rosier France S.A.S.	France	Beaumetz-Les-Loges	77.47	77.47
■■	Rosier Nederland B.V.	The Netherlands	Sas Van Gent	77.47	77.47

■ subsidiary of Borealis AG // ■■ second-tier subsidiary of Borealis AG // ■■■ third-tier subsidiary of Borealis AG

For further details relating to discontinued operation and other changes in the legal structure during the financial year 2021, please see note 8.

34. Auditor's Fees

The following fee information relates to the auditors of the Group (including their related networking firms):

EUR thousand	2021	2020
Audit of Borealis AG's subsidiaries	1,123	1,121
Audit of consolidated and standalone financial statements of Borealis AG	351	332
Other assurance services	368	634
Tax consulting services	702	705
Other services	0	0
Total	**2,544**	**2,792**

The following fees for 2021 relate to the Group auditor, PwC Wirtschaftsprüfung GmbH, Vienna, Austria: audit of Borealis AG's subsidiaries amounting to EUR 227,200 (EUR 222,800), audit of consolidated and standalone financial statements of Borealis AG amounting to EUR 351,100 (EUR 332,000) and other assurance services amounting to EUR 249,174 (EUR 276,139).

35. Executive Board and Supervisory Board

Executive Board

Alfred Stern (Chairman until 1 April 2021), Thomas Gangl (Chairman since 1 April 2021), Mark Tonkens, Martijn Arjen van Koten (Member until 1 July 2021), Wolfram Krenn (Member since 1 July 2021), Philippe Roodhooft, Lucrèce De Ridder

Supervisory Board

Rainer Seele (Chairman until 1 September 2021), Alfred Stern (Chairman since 1 September 2021, Member since 1 April 2021), Musabbeh Al Kaabi (Vice Chairman until 9 February 2022), Saeed Al Mazrouei (Vice Chairman since 10 February 2022), Reinhard Florey, Thomas Gangl (Member until 1 April 2021), Martijn Arjen van Koten (Member since 1 September 2021), Alvin Teh (Member since 10 February 2022)

Vienna, 17 February 2022
Executive Board:

Thomas Gangl m.p.
Chief Executive Officer

Mark Tonkens m.p.
Chief Financial Officer

Wolfram Krenn m.p.

Philippe Roodhooft m.p.

Lucrèce De Ridder m.p.

Statement of the Executive Board according to Section 124(1)(3) of the Vienna Stock Exchange Act

We confirm to the best of our knowledge that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group as required by the applicable accounting standards and that the Group Management Report gives a true and fair view of the development and performance of the business and the position of the Group, together with a description of the principal risks and uncertainties the Company faces.

Vienna, 17 February 2022
Executive Board:

Thomas Gangl m.p.
Chairman of the Executive Board

Mark Tonkens m.p.
Member of the Executive Board

Wolfram Krenn m.p.
Member of the Executive Board

Philippe Roodhooft m.p.
Member of the Executive Board

Lucrèce De Ridder m.p.
Member of the Executive Board

Report of the Supervisory Board of Borealis AG

In the year under review, the Supervisory Board received a comprehensive overview of the activities of the Executive Board of Borealis AG and performed its duties and exercised its powers under the law and the Articles of Association in seven plenary sessions.

The Executive Board informed the Supervisory Board regularly, in a timely fashion and comprehensively, both in writing and verbally, on all the relevant issues of business development as well as on the state and strategy of the company and the important Group companies, including risk conditions and risk management.

The Executive Board of Borealis AG submitted the financial statements as of 31 December 2021, including the management report, and the consolidated financial statements as of 31 December 2021, including the Group management report, and the consolidated non-financial report to the Supervisory Board and explained it thoroughly.

The financial statements of Borealis AG have been prepared in accordance with the applicable provisions of the Austrian Commercial Code ("Unternehmensgesetzbuch"), and PwC Wirtschaftsprüfung GmbH issued an unqualified audit opinion ("uneingeschränkter Bestätigungsvermerk") on the financial statements.

Furthermore, the consolidated financial statements of Borealis AG have been prepared in accordance with the International Financial Reporting Standards (IFRS), and PwC Wirtschaftsprüfung GmbH issued an unqualified audit opinion ("uneingeschränkter Bestätigungsvermerk") on the consolidated financial statements.

The (consolidated) financial statements documents, the consolidated non-financial report and the audit reports were submitted to the Audit Committee and the Supervisory Board in due time. Following a thorough examination and discussion by the Audit Committee and by the Supervisory Board with the auditors, the Supervisory Board reached the final agreement that no material objections would be raised and the drawn up financial statements, the management report, the proposal for the appropriation of retained earnings, the proposal for the appointment of the auditor for the financial year 2022, the consolidated financial statements, the Group management report and the consolidated non-financial report were approved/acknowledged.

Vienna, 21 February 2022

Alfred Stern m.p.
Chairman of the Supervisory Board

Annex
2021

Table of Figures

GRI Content Index

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
GRI 102: General Disclosures 2016	**102-1**	Name of the organization	26	●	
	102-2	Activities, brands, products, and services	32–37	●	
	102-3	Location of headquarters	26	●	
	102-4	Location of operations	26–27	●	
	102-5	Ownership and legal form	4, 9, 26	●	
	102-6	Markets served	26, 32–37	●	
	102-7	Scale of the organization	5, 10-11, 32–37, 158–159, 161	●	
	102-8	Information on employees and other workers	106, 108, 110	●	
	102-9	Supply chain	32–37, 124–129	●	
	102-10	Significant changes to the organization and its supply chain	9–13, 20–21, 28	●	
	102-11	Precautionary Principle or approach	44–45, 63, 118	●	
	102-12	External initiatives	40, 50, 84, 118	●	
	102-13	Membership of associations	46–47	●	
	102-14	Statement from senior decision-maker	22–25	●	
	102-15	Key impacts, risks, and opportunities	44–45, 84–85, 116–117	●	
	102-16	Values, principles, standards, and norms of behavior	17–19, 113–117, 119–120	●	
	102-18	Governance structure	113–115	●	
	102-40	List of stakeholder groups	41–42	●	
	102-41	Collective bargaining agreements	107	●	
	102-42	Identifying and selecting stakeholders	41	●	
	102-43	Approach to stakeholder engagement	41–42	●	
	102-44	Key topics and concerns raised	39–40, 47–49, 65–66	●	
	102-45	Entities included in the consolidated financial statements	30–31, 241–242	●	
	102-46	Defining report content and topic Boundaries	38–40	●	
	102-47	List of material topics	39–40	●	
	102-48	Restatements of information	31	●	
	102-49	Changes in reporting	31	●	
	102-50	Reporting period	30	●	
	102-51	Date of most recent report	30	●	
	102-52	Reporting cycle	30	●	
	102-53	Contact point for questions regarding the report	31	●	
	102-54	Claims of reporting in accordance with the GRI Standards	30	●	
	102-55	GRI Content Index	250–256	●	
	102-56	External assurance	135–136	●	

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
Ethics & Compliance					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	119	●	
	103-2	The management approach and its components	119–123	●	
	103-3	Evaluation of the management approach	119–123	●	
GRI 205: Anti-corruption 2016	**205-2**	Communication and training about anti-corruption policies and procedures	120–123	●	The Ethics Policy, including a chapter on anti-corruption, was communicated to all employees via the ethics policy newsletter. The Ethics Policy is available in 11 languages. Borealis created a special Ethics Policy for external business partners. All versions of the Ethics Policy are publicly accessible on Borealis' external website: www.borealisgroup.com/company/compliance-ethics/our-ethics-policy. 100% of the members of the Borealis Executive Board and 100% of the members of the Supervisory Board have received training on anti-corruption policies and procedures, human rights requirements as well as on MAR requirements. 107 dedicated employees from our Sales, Procurement, Legal and eligible project teams completed specific e-learning anti-corruption training. In addition to this, 5,996 employees completed the e-learning course CodeOne, which also includes a chapter on anti-corruption and bribery. 527 Borealis employees received in-person compliance and ethics training which regularly includes training on anti-corruption and bribery.
	205-3	Confirmed incidents of corruption and actions taken	122	●	No confirmed or suspected incidents of corruption.
GRI 206: Anti-competitive Behavior 2016	**206-1**	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	122	●	
GRI 307: Environmental Compliance 2016	**307-1**	Non-compliance with environmental laws and regulations	91	●	
GRI 412: Human Rights Assessment 2016	**412-2**	Employee training on human rights policies or procedures	122	●	Approx. 6,200 employees received training on human rights, which corresponds to approximately 87% of Borealis' total staff. 527 employees received in-person training, which resulted in a total of 130 hours.
GRI 419: Socioeconomic Compliance 2016	**419-1**	Non-compliance with laws and regulations in the social and economic area	122	●	
Product Sustainability					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	62, 124, 127	●	
	103-2	The management approach and its components	62–66, 124–126	●	
	103-3	Evaluation of the management approach	62–66, 124–126	●	

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
Product Sustainability					
GRI 301: Materials 2016	**301-1**	Materials used by weight or volume	125, 129	◗	Due to international standards, fertilizer feedstock is reported in GWh. Packaging material is only reported based on 1,000 kg of product sold. During 2021, Borealis sourced 23 kilotonnes of renewable feedstock (2020: 6 kt).
Energy Management					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	74	●	
	103-2	The management approach and its components	74–83	●	
	103-3	Evaluation of the management approach	74–83	●	
GRI 302: Energy 2016	**302-1**	Energy consumption within the organization	79–80	●	Non-renewable sources. The amount of commercial liquid fuels used is insignificant. Fuels and steam consumed are mainly used for processes. Data for cooling consumption are currently not available. Renewable power sourcing ambition is expressed in % of the power used in HC and PO business that is from renewable sources such as wind, solar, biomass or hydro and connected directly to our internal grids or sourced on the European markets through power purchase agreements (PPAs), always covered by guarantees of origin. Borealis intends to reach 50% or more by 2030 and also explores co-ownership of renewable power assets. Final energy consumption of Borealis: 3,569 GWh electricity, 1,176 GWh steam, 7,500 GWh fuel gas and 4,006 GWh natural gas. Energy consumption is converted into primary energy as follows: fuels (including natural gas): 100% conversion to energy, factor 1; steam 90% boiler efficiency, factor 1.11; electricity: 40% efficiency, factor 2.5.
	302-3	Energy intensity	79–81	●	Energy efficiency is the number of MWh of primary energy divided by total production tonnes [1]. Basis for the energy intensity indicator: production volume of all production plants, energy consumption of the whole organisation, including infrastructure, R&D, offices; includes compensation for production and energy consumption that happens outside Borealis, but is necessary to include to have one consistent value chain through the Group and the KPI. This avoids distortion when Borealis has more output from fully integrated sites, for example, a site where Borealis does not own the cracker.

1) Energy efficiency can be calculated using the formula: $\text{Energy KPI} \left[\frac{\text{MWh}}{\text{t}}\right] = \frac{\text{Fuels (MWh)} + 1.11 \times \text{Steam (MWh)} + 2.5 \times \text{Electricity (MWh)}}{\text{Total plant production (t)}}$

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
Energy Management					
	302-4	Reduction of energy consumption	83	●	Energy efficiency improvement is expressed as the sum of the improvement measures of projects that are individually evaluated compared to business as usual. To evaluate the objective, this amount is divided by the absolute energy consumption of 2015 (24 TWh primary energy).
Water Management					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	90	●	
	103-2	The management approach and its components	90–91, 93–94	●	
	103-3	Evaluation of the management approach	90–91, 93–94	●	
GRI 303: Water and Effluents 2018	**303-1**	Interactions with water as a shared resource	93–94	●	
	303-2	Management of water discharge-related impacts	94	●	
	303-3	Water withdrawal	94	●	Based on the WWF water risk filter, we have four sites connected to water bodies affected by water stress.
Climate Change					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	74	●	
	103-2	The management approach and its components	74–85	●	
	103-3	Evaluation of the management approach	74–85	●	
GRI 305: Emissions 2016	**305-1**	Direct (Scope 1) GHG emissions	76–77	●	Borealis reports the EU ETS Scope 1 emissions. The consolidation is based on operational control. The GWP rates are CO_2 = 1 CO_2eq, N_2O = 298 CO_2eq. Additionally, Borealis reports Scope 1, 2 and 3 emissions according to the GHG Protocol. All relevant Kyoto gases have been included in the calculation. Biogenic emissions are excluded as they are negligible. Emission factors from IPCCC AR5, AIB, IEA, ecoInvent and different emission factors for Scope 3 calculations have been used.
	305-2	Energy indirect (Scope 2) GHG emissions	76–77	●	
	305-3	Other indirect (Scope 3) GHG emissions	76–78	●	

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
Air Quality					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	90	●	
	103-2	The management approach and its components	90–93	●	
	103-3	Evaluation of the management approach	90–93	●	
GRI 305: Emissions 2016	**305-7**	Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions	93	●	POP and HAP are not relevant for Borealis. Emissions to air are a mix of measurements or calculations based on fuel consumption and emission factors.
Plastic Waste & Management					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	90	●	
	103-2	The management approach and its components	65, 90–91, 94–97	●	
	103-3	Evaluation of the management approach	65, 90–91, 94–97	●	
GRI 306: Waste 2020	**306-1**	Waste generation and significant waste-related impacts	94–95	●	
	306-2	Management of significant waste-related impacts	94–95	●	
	306-3	Waste generated	95–96	●	The category "Other Treatment" covers, for example, land treatment, biological treatment, incineration without energy recovery and physico-chemical treatment. No spill occurred that resulted in fines or liabilities.
Emergency Governance					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	59	●	
	103-2	The management approach and its components	59–61	●	
	103-3	Evaluation of the management approach	59–61	●	
GRI G4: Oil & Gas Sector Supplement	**OG13**	Number of process safety events, by business activity	61	●	
Sustainable Sourcing					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	124, 127, 130	●	
	103-2	The management approach and its components	127–129	●	
	103-3	Evaluation of the management approach	127–129	●	
GRI 308: Supplier Environmental Assessment 2016	**308-1**	New suppliers that were screened using environmental criteria	128	●	
GRI 414: Supplier Social Assessment 2016	**414-1**	New suppliers that were screened using social criteria	128	●	

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
Human Capital Development					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	106, 110	●	
	103-2	The management approach and its components	106–112	●	
	103-3	Evaluation of the management approach	106–112	●	
GRI 401: Employment 2016	**401-1**	New employee hires and employee turnover	111	●	New hires: employees hired for more than three months, excluding: externals, long-term absences, trainees, apprentices, summer workers, temporary employees (less than three months). Employee turnover: employees who left the company voluntarily.
GRI 404: Training and Education 2016	**404-2**	Programs for upgrading employee skills and transition assistance programs	110, 112	●	
	404-3	Percentage of employees receiving regular performance and career development reviews	112	●	
Occupational Health & Safety					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	54	●	
	103-2	The management approach and its components	54–57	●	
	103-3	Evaluation of the management approach	54–57	●	
GRI 403: Occupational Health and Safety 2018	**403-1**	Occupational health and safety management system	54–55	●	
	403-2	Hazard identification, risk assessment, and incident investigation	54–55	●	
	403-3	Occupational health services	55	●	
	403-4	Worker participation, consultation, and communication on occupational health and safety	55	●	
	403-5	Worker training on occupational health and safety	55	●	
	403-6	Promotion of worker health	55	●	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	63–64	●	
	403-9	Work-related injuries	56, 58	●	

GRI Standard	Disclosures		Page	Reported fully/partially	Notes and Omissions
Diversity and Equal Opportunity					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	109	●	
	103-2	The management approach and its components	109	●	
	103-3	Evaluation of the management approach	109	●	
GRI 405: Diversity and Equal Opportunity 2016	**405-1**	Diversity of governance bodies and employees	109	●	At the end of 2021, the Executive Board (EXB) had five members, one woman and four men, with an average age of 54. At the end of 2021, the Supervisory Board had five members, all men. We have no information about the age of the Supervisory Board members.
Stakeholder Engagement					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	41	●	
	103-2	The management approach and its components	41–42, 46–49	●	
	103-3	Evaluation of the management approach	41–42, 46–49	●	
GRI 415: Public Policy 2016	**415-1**	Political contributions	46	●	
Product Safety					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	62	●	
	103-2	The management approach and its components	62–66	●	
	103-3	Evaluation of the management approach	62–66	●	
GRI 416: Customer Health and Safety 2016	**416-1**	Assessment of the health and safety impacts of product and service categories	63	●	
GRI 417: Marketing and Labeling 2016	**417-1**	Requirements for product and service information and labeling	63–64	●	
Digital Transformation					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	103	●	
	103-2	The management approach and its components	103–105	●	
	103-3	Evaluation of the management approach	103–105	●	
Circular Economy					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	67	●	
	103-2	The management approach and its components	67–73	●	
	103-3	Evaluation of the management approach	67–73	●	
Innovation Management					
GRI 103: Management Approach 2016	**103-1**	Explanation of the material topic and its Boundary	99	●	
	103-2	The management approach and its components	99–102	●	
	103-3	Evaluation of the management approach	99–102	●	

Notes

Notes

IMPRINT
This report is available in English and German. The original version was written in English. Both documents are available online and can be downloaded from www.borealisgroup.com.

Content owner:
Borealis AG
Trabrennstrasse 6–8, 1020 Vienna, Austria
Tel.: +43 1 22 400 300
www.borealisgroup.com | info@borealisgroup.com

Project Management: Virginia Wieser, Dorothea Wiplinger, Borealis; support: Ute Greutter, UKcom Finance
Editorial team: Virginia Wieser, Dorothea Wiplinger and representatives of featured business segments of Borealis; support: Martin Zenker, denkstatt GmbH
Sustainability Report advisor: denkstatt GmbH
Graphic Design: Martina Veratschnig
Photography: Cover: Getty Images; Daniela Beranek, Borealis archive
Published in March 2022

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Keep Discovering

Borealis AG
Trabrennstrasse 6–8 · A-1020 Vienna · Austria
Tel. +43 1 22 400 300 · Fax +43 1 22 400 333
www.borealisgroup.com · info@borealisgroup.com