



## Company

ALTANA develops, manufactures, and distributes high-quality, innovative specialty chemical products. The company is a globally active corporation headquartered in Wesel, Germany, with an international revenue share of approximately 85 percent. Its four Divisions, BYK Additives & Instruments, ECKART Effect Pigments, ELANTAS Electrical Insulation, and ACTEGA Coatings & Sealants, occupy a leading position in their target markets with respect to quality, product solution expertise, innovation and service.

ALTANA offers innovative and environmentally compatible solutions with the matching specialty products for coatings manufacturers, paint and plastics processors, for the printing and cosmetics industry, as well as for the electrical and electronics industry. Our product portfolio includes additives, special coatings and adhesives, effect pigments, sealants and compounds, impregnating resins and varnishes, and testing and measuring instruments.

The ALTANA Group currently includes 41 production sites and 48 service and research laboratories worldwide. Our approximately 5,000 employees posted Group sales exceeding €1.5 billion in fiscal year 2010. Its impressive earning power and high growth rate make ALTANA one of the most successful and innovative chemical groups worldwide.

### Corporate performance indicators

	2010	2009
Number of employees	4,937	4,789
Sales	€ 1.535 billion	€ 1.182 billion
EBITDA	€ 314.1 million	€ 208.4 million
EBITDA margin	20.5 %	17.6%
Research and development expenditures	€ 82 million	€ 70.6 million
Investments	€ 74 million	€ 54 million
Total production	489,230 to	404,612 to
Gross value added	€ 568 million	€ 426 million
Final products	298,964 to	291,654 to
WAI 1*	7.85	8.14
WAI 3**	99	104
Total CO <sub>2</sub> (Scope 1 + Scope 2) ***	136,632 to	117,449 to
Drinking water	596,998 m <sup>3</sup>	737,237 m <sup>3</sup>
Non-hazardous waste disposal	2,452 to	2,771 to
Hazardous waste disposal	17,888 to	14,572 to

\* Work Accident Indicator 1 (Number of occupational accidents with lost work time of more than one day per million working hours)

\*\* Work Accident Indicator 3 (number of lost work days due to occupational accidents per million working hours)

\*\*\* Scope 1: direct emissions / Scope 2: indirect emissions

#### About this Report

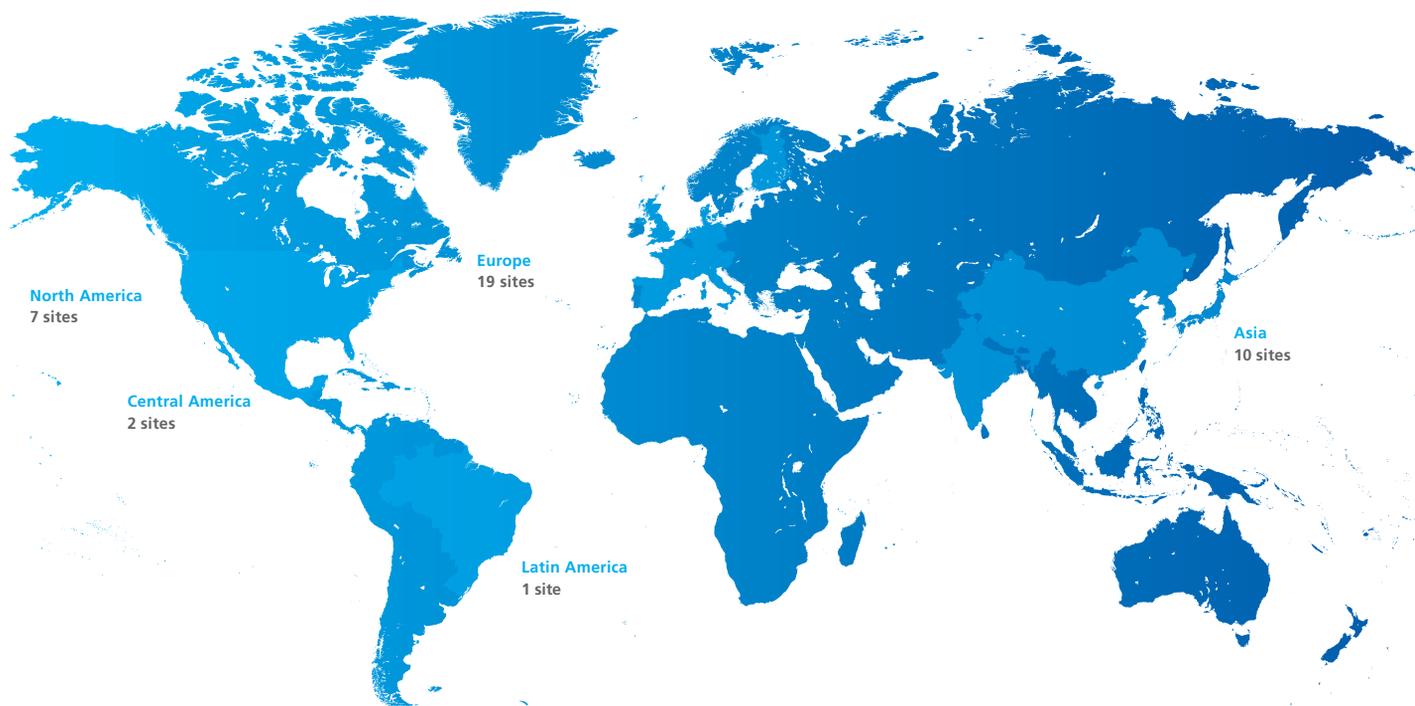
The Sustainability Report 2010 was written to provide the public, our employees, business partners and authorities, non-governmental organizations, and all other stakeholders with information about the sustainability strategy of ALTANA in terms of economy, ecology, and social responsibility.

The facts and figures presented in this report refer to the fiscal year 2010. Unless otherwise noted, our statements apply to all Divisions and subsidiaries worldwide.

The report follows the international G3 guidelines of the Global Reporting Initiative (GRI).

For further information on the topics presented in this report, please visit [www.altana.com/sustainability](http://www.altana.com/sustainability).

In the future, this report will be published annually to underscore the growing importance of sustainability. At the same time, it will serve as the annually required communication on progress for the Global Compact (see page 72). The report is available in both German and English.



# ALTANA

2010 sales: €1,535 million

Employees: approx. 5,000

EBITDA 2010: €314 million

EBITDA margin: 20.5%

**BYK**  
Additives & Instruments

2010 sales: €541 million

**Business Lines**

- Paint Additives
- Plastic Additives
- Industrial Applications
- Measuring and Testing Instruments

**ECKART**  
Effect Pigments

2010 sales: €357 million

**Business Lines**

- Coatings
- Graphic Arts
- Cosmetics & Personal Care
- Plastics
- Functional Applications

**ELANTAS**  
Electrical Insulation

2010 sales: €377 million

**Business Lines**

- Primary Insulation
- Secondary Insulation
- Electronic & Engineering Materials

**ACTEGA**  
Coatings & Sealants

2010 sales: €260 million

**Business Lines**

- Converting Specialties
- Graphic Arts

# Contents



6



28



16



54



48

- 1 At a glance
- 4 Prefaces

## Management

- 8 Company
- 9 Corporate strategy
- 10 Corporate culture
- 10 Vision
- 11 Culture of innovation
- 12 Global Compact
- 12 Responsible Care
- 12 Compliance
- 13 Management systems
- 14 Memberships, audits
- 15 Supplier relationships
- 15 Stakeholder dialog

## Products

- 18 Green chemistry
- 19 Life-cycle analysis
- 20 Blueeffects
- 22 REACH
- 23 Interview with Dr. Gerald Kirchner
- 24 Globally Harmonized System
- 25 Global product strategy
- 26 Biotechnology
- 27 Nanotechnology

## Safety

- 30 Occupational health
- 31 Interview with Dr. Reinhard Saling
- 32 Occupational safety
- 33 Process safety
- 35 Work of the fire department

## Environment

- 38 Resource conservation
- 40 Energy efficiency
- 42 Water
- 43 Emissions
- 44 Wastewater / solid waste / existing contamination
- 45 Biodiversity
- 47 Transport
- 47 Supply chain management



36

**Human Resources**

- 50 Training
- 50 Professional development
- 51 Recruiting
- 51 Women in management positions
- 52 Work-life balance
- 52 Retirement
- 53 Demographics
- 53 Employee representation
- 53 Diversity

**Social Responsibility**

- 56 Sponsoring
- 58 Interview with Prof. Werner Wittkowski
- 59 Sponsorship projects
- 59 Donations
- 60 Key performance indicators
- 68 Highlights and lowlights
- 70 Programs and objectives
- 72 Global Compact

6 Management

**Innovation and customer orientation**

ALTANA has achieved a leading position in its markets and is continuously working to expand it. These actions are guided by our values of responsibility for human lives and the environment and our self-imposed obligation to do business with fairness, tolerance, and transparency.

16 Products

**Green chemistry for quality and environmental protection**

Products have a wide range of impacts on our environment. ALTANA is aware of the resulting responsibility and is consistently looking for solutions to address existing and future challenges.

28 Safety

**Protecting employees is always our first priority**

Safety and health are top priorities at ALTANA. We pursue our vision of an accident-free company with comprehensive safety and risk analyses, consistent training of our employees, and state-of-the-art technology.

36 Environment

**Environmental protection remains a consistent goal**

ALTANA is committed to the Responsible Care self-obligation initiative of the chemical industry. To us, this means reducing our energy and water consumption as well as waste volumes, to conserve resources, and to avoid emissions.

48 Human Resources

**We are a reliable employer**

The success of our company is primarily the result of the dedication and qualification of our employees. In addition to training and advancement programs for all job descriptions and career levels, we also offer company health and retirement plans.

54 Social Responsibility

**Stand up and be counted - as a good corporate citizen**

ALTANA sees social commitment as an investment in the future. That is why we provide special support for natural science and technology programs in schools and universities and work with social projects that benefit children and adolescents in various countries.



Dear Readers,

Sustainability is a popular term of our times and there is hardly a company that doesn't claim to act sustainably. When a term is used with such frequency, there is a real risk that the underlying concept loses its meaning and becomes nothing more than a fashionable buzzword.

To me, sustainability means doing business with a long-term perspective. It means more than protecting the environment, even though that aspect continues to be a primary concern. Rather, sustainability means responsible actions on the part of managers and employees, modern products that conserve resources, safe working conditions, and last but not least, support for social and humanitarian initiatives.

As the sole shareholder, I am pleased to see ALTANA AG present its first comprehensive sustainability report after two environmental reports to account for its activities. Above all, I am impressed that this report also includes an honest assessment of challenges and future goals in spite of the achieved successes. After all, sustainability always means honesty and not window-dressing.

Sustainable business is not a voluntary option, but an indispensable prerequisite for corporate success. I am convinced that only those companies that practice responsible management on the basis of a shared culture of values will have a chance in the market. Ultimately, they are the companies that qualified and motivated employees want to work for.

Accordingly, management with a long-term perspective, protection of our natural resources, and clear rules for working together are much more than a moral obligation of every company. They are indispensable for earning profits and for reinvesting them to make a contribution to social development.

I hope you will enjoy reading this sustainability report of ALTANA AG.

Susanne Klatten  
Sole shareholder and deputy chairwoman of the Supervisory Board



Dear Readers,

As CEO of ALTANA AG, I welcome your interest in our Sustainability Report 2010.

In recent years, the ALTANA Group has undergone profound changes. The company sold its pharmaceutical business in 2007 and has been operating as a company with exclusive focus on specialty chemicals since then.

As a globally active chemical company, we have established a reputation for protecting the environment. After two environmental reports in 2007 and 2009 and the Global Compact Report 2010, we have decided to provide updates of our ecological and social development in a sustainability report from now on. At the same time, we have reduced the reporting interval to one calendar year. The sustainability report supplements and enhances our Annual Report. In the future, both documents will provide a joint perspective of our company with comprehensive and authentic reporting. This concept is supported by the similar, yet individual design of the reports.

Our sustainability report will be published every fall. This publication date guarantees that the relevant previous-year figures and data of all global companies are available and reflected in the report. Projects or developments that extend over more than one reporting year will generally be noted in the text. We will adjust our sustainability report to corporate

developments in the future and will comply with changes in reporting requirements.

In an independent effort, we consistently review and optimize our sustainability profile in the company by analyzing processes, identifying weaknesses, and implementing improvements. The performance evaluation of our employees increasingly reflects our adherence to the values and standards for working together we have developed.

As a company with exclusive focus on specialty chemicals, ALTANA joined the Global Compact in early 2010. We had previously been listed as a pharmaceutical company because of our past structure. The objectives of the Global Compact are entirely consistent with the vision of ALTANA and the Management Board fully supports the goals of the Global Compact. As a consequence, this sustainability report also serves as our annual communication on progress for the Global Compact.

I hope you will enjoy your reading.

Dr. Matthias L. Wolfgruber  
Chief Executive Officer

“We want to be leading  
in everything we do”

## Innovation and customer orientation

ALTANA underwent dynamic developments in the recent past. Following the divestment of the ALTANA Pharma Division, the company was publicly traded as a corporation with focus on specialty chemicals until mid-2010. The shareholders' meeting resolved on June 30, 2010 to transfer all shares of the company to the majority shareholder SKion GmbH, a holding company of Susanne Klatten. This ended the public trading of ALTANA stock.



The new ownership structure provides ALTANA with excellent conditions for responding to entrepreneurial opportunities swiftly and flexibly, while continuing to follow its successful pathway of profitable growth.

# Company

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The business seat of our globally active Group is Wesel, Germany and the international revenue share is approximately 85 percent. Our products and services are offered in the immediate proximity of our customers around the world. All sites of ALTANA are under local management. This ensures cultural understanding and closeness to markets as well as quick decision-making processes.

Our four Divisions, BYK Additives & Instruments, ECKART Effect Pigments, ELANTAS Electrical Insulation, and ACTEGA Coatings &

Sealants, occupy a leading position in their target markets with respect to quality, product solution expertise, innovation and service.

The ALTANA Group currently comprises some 43 operative companies with 41 production sites and 48 service and research laboratories worldwide. Our approximately 5,000 employees posted Group sales exceeding €1.5 billion in 2010. Its impressive earning power and high growth rate make ALTANA one of the most successful and innovative chemical groups worldwide.



2010 sales: €1,535 million

Employees: approx. 5,000



#### BYK-Chemie GmbH

BYK Asia Pacific  
BYK-Cera  
BYK Chemie de Mexico  
BYK-Gardner  
BYK Gardner USA  
BYK Japan  
BYK Kometra  
BYK Solutions  
BYK Tongling  
BYK USA

#### ECKART GmbH

ECKART America  
ECKART Asia  
ECKART Benelux  
ECKART Cosmetics  
ECKART France  
ECKART Italia  
ECKART Mexico  
ECKART Pigments  
ECKART Suisse  
ECKART UK  
ECKART Zhuhai

#### ELANTAS GmbH

ELANTAS Beck  
ELANTAS Beck India  
ELANTAS Camattini  
ELANTAS Deatech  
ELANTAS Isolantes  
Elétricos do Brasil  
ELANTAS PDG  
ELANTAS Tongling  
ELANTAS UK  
ELANTAS Zhuhai

#### ACTEGA GmbH

ACTEGA Artística  
ACTEGA DS  
ACTEGA Foshan  
ACTEGA Kelstar  
ACTEGA Radcure  
ACTEGA Rhenacoat  
ACTEGA Rhenania  
ACTEGA Terra  
ACTEGA WIT

43 operative companies with 41 production sites and 48 laboratories worldwide

## Corporate strategy

The business of ALTANA stands out for its consistent, above-average growth. In addition to operative growth, some 40 acquisitions since 1988 have made a significant contribution to our success. Targeted acquisitions, large investments in research and development, and our concentration on growth-intensive specialty markets have sustainably increased the value of our company.

Research and development (R&D) are a particularly high priority at ALTANA. Our high R&D investments secure our innovative power and technological edge. In 2010, our expenditures in this area were about €82 million or five percent of our revenue, while the industry average is about three percent. In late 2010, some 800 employees—approximately 16 percent of ALTANA's workforce—worked in research and development worldwide. ALTANA has filed over 200 patent families.

We generally perform our research and development projects in-house with our own employees. The focus of our R&D activities is currently on the consistent advancement of products and technologies for existing markets, with sustainable optimization of products and manufacturing processes as the top objective. Beyond that, it is our goal to open up new application markets and to expand our business with existing and new customers. We cooperate closely with universities, research institutes, and suppliers in this area.

The decentralized business model of ALTANA with relatively independent local subsidiaries means maximum flexibility, speed, and efficiency. In addition, we practice active portfolio management with selective acquisitions and divestments to operate all Divisions profitably and with added value and to establish new areas of business.

During the reporting period, we acquired three companies or parts thereof and divested one business unit. Specifically, we acquired parts of the U.S.-based Quadrant Chemicals Corporation and the polyurethane casting resins business of the Swiss company ABB Micafil for the ELANTAS Electrical Insulation Division. We also acquired the coatings business of Aquaprint GmbH in Oyten, Germany, as part of an asset deal and integrated this business into the ACTEGA Coatings & Sealants Division. The polyurethane foam stabilizer business of the BYK Additives & Instruments Division has been sold. We also gave up an ECKART production facility in Italy in 2009 and instead expanded the capacity at the German headquarters in Günterstal.

The environmentally sound products of the acquired companies contribute to the sustainability strategy of ALTANA. In addition, acquisitions always include specific measures to protect the environment since the purchase of new companies is always preceded by the so-called environmental due diligence process, which includes a review of compliance with the law, such as

the European chemicals law REACH (see also page 22) and physical checks for soil and groundwater contamination. Overall, ALTANA is aware of soil contamination at ten sites. In all cases, the restoration is either complete or in progress (see also page 44).



## Corporate culture

As a company with focus on research, ALTANA is aware of its responsibility when it comes to the commercial use of new scientific insights. We try to weigh the opportunities and risks of applying new technologies in a dialog with scientists, our customers, and the public. The protection of natural resources takes an eminent role in these considerations. ALTANA works diligently to produce sustainably, to conserve resources, and to reduce environmental pollution.

Our company is characterized by openness and a work atmosphere of mutual appreciation. Occupational safety and health take precedence over economic considerations. We not only consider environmental awareness an entrepreneurial duty

toward society, but also an important prerequisite for our economic success and competitiveness. As a consequence, ALTANA promotes the environmental awareness of its employees and expects responsible use of resources.

We want all of our actions to be based on long-term, fair partnership. We are a fair competitor. ALTANA respects the laws, customs and cultural preferences of the countries in which we are active. We promote equal opportunity and oppose any form of discrimination, be it for sexual orientation, ethnic origin, ideology, disability, or age. Our corporate culture is characterized by openness, honesty, mutual respect, the ability to accept criticism, tolerance, and a positive attitude.



Project team "Identity" (left), headquarters of ALTANA AG (right)



## ALTANA Identity

In 2009, ALTANA decided to develop new guiding principles on the basis of the existing principles. The goal was to clearly formulate our joint identity, cooperation, and values, but also our strategies and understanding of the market. In a parallel effort, we also developed leadership guidelines. Both documents will guide our actions in the future.

The new guiding principles which are to be introduced in the fall of 2011, are particularly essential for a company with

a decentralized structure to secure sustained success. The employees of all subsidiaries are involved in the development and implementation of the guiding principles to ensure that all cultures within the company are reflected and that the resulting document will be well received among employees.

Our Sustainability Report 2011 will contain further details on the ALTANA Identity.

## Culture of innovation

Innovations are an essential element of our corporate strategy. They ensure the sustained growth of ALTANA and support the company's position as a technology and market leader. We are a research-intensive company, which invests an average of five to six percent of its revenue in research and development (R&D)—approximately double the industry average. Furthermore, ALTANA is a member of seven innovation networks.

The innovation process at ALTANA is designed to bring together knowledge while removing obstacles to efficient, multi-divisional knowledge transfer. We want to make sure that knowledge is available wherever it is needed.

Our culture of innovation is supported by flat hierarchies, independent action and entrepreneurial spirit, as well as the recognition of success. Furthermore, we want to create an incentive system that promotes a balanced mix of creativity (thinking outside the box) and discipline (process) as well as the willingness to take risks. At the same time, the culture of innovation at ALTANA is characterized by eagerness to learn, a long-term perspective, and the ability to respond to market developments.

ALTANA will continue to promote its culture of innovation in the Group. The establishment of the ALTANA Innovation Council in 2008 was an important milestone in this effort. This council of Division technology officers with responsibility for research and development, which is chaired by the Chief Technology Officer (CTO) of ALTANA, is designed to ensure the seamless function of the entire innovation process. To give an example of its activities, we have established an R&D fund to promote multi-divisional research projects.

Every year, the ALTANA Innovation Council organizes the ALTANA Innovation Conference, which brought together over 100 ALTANA researchers from many countries last year to intensively discuss new applications, technologies, and ideas for new projects. Within the scope of the ALTANA Innovation Conference, outstanding projects are honored with the ALTANA Innovation Award (see figure).

ALTANA does not plan to pursue entirely different business models in the foreseeable future, but will stay with its core competencies in the years to come. However, we have to invest in the expansion of these competencies to minimize risk, which means we have to acquire additional knowledge and further expertise. This will allow us to access additional attractive markets or market segments and to reach our growth objectives.

We intensively address new key technologies such as nanotechnology, industrial biotechnology or printed electronics to remain viable and to meet the needs of our customers with the most efficient methods and technologies.

ALTANA is in an excellent position to remain a global leader with its products and services in every important growth area of the future, including information and communication technologies, consumer goods, security technologies, mobility and transport, energy efficiency, and resource conservation.



## Global Compact

ALTANA joined the Global Compact as a specialty chemicals company in 2010 after a previous listing as a pharmaceutical corporation. The Global Compact is a voluntary initiative to promote corporate social commitment, which was established by former U.N. Secretary General Kofi Annan. In addition to numerous corporations from over 80 countries, the initiative includes international employee organizations and civic organizations from all over the world. The objectives of the Global Compact are entirely consistent with the values of ALTANA. Consequently, the initiative is an important issue to us and also motivates us to systematically work on improvements. The Global Compact is based on ten principles of human rights, occupational standards, environmental protection, and anti-corruption.

ALTANA protects and respects human rights. Responsibility toward humans and the environment as well as the obligation to act with fairness and tolerance are part of our core values. These values are also reflected in the guiding principles of ALTANA.

### Responsible Care

Responsible Care is an initiative of the global chemical industry. Under the guidelines of the program, corporations enter into a voluntary self-obligation to meet their product stewardship responsibilities, to systematically improve plant and occupational safety along with occupational health and environmental protection, and to optimize transport safety and internal and external dialog. The program also implements the environmental protection aspects of the United Nations' Global Compact in the chemical industry. As a chemical company, ALTANA has been committed to the principles of Responsible Care since 2002. All managing directors of our production companies have affirmed their support of Responsible Care in writing.

ALTANA respects and protects the rights of its employees to form unions and to engage in collective bargaining. We are opposed to all forms of forced and child labor and reject discrimination in any form. This self-obligation is reflected in our guiding principles and in our Code of Conduct.

Bribery not only does direct financial damage to a company, but can also destroy the reputation and credibility of a company as a trustworthy and reliable business partner in the long term. Fighting corruption therefore is an important concern of the ALTANA Compliance Management System.

## Compliance

ALTANA fully complies with statutory regulations and confirmed guidelines. More than ever, the added value, sustainability and credibility of a globally operating company depend on the consistency of everyone's compliance with laws and regulations along with voluntary codices.

ALTANA introduced a Group-wide Compliance Management System (CMS) in 2008. The Compliance Management System is designed to

- Identify the substantial risks that may result from violating laws and regulations.
- Ensure that employees receive training in the content and significance of laws and regulations relevant for their work
- Take additional direct measures for preventing violations of laws and internal regulations

The CMS covers areas such as antitrust law, bribery and fraud, foreign trade, taxation, environment and safety, discrimination, data protection and information technology. A responsible Compliance Manager has been appointed to each of these areas. The Compliance Managers and the Head of Internal Audit together form the Compliance Committee.

The CMS of ALTANA has a decentralized structure to match the structure of the ALTANA Group. ALTANA takes responsibility for ensuring compliance in its subsidiaries by establishing generally applicable policies and standards, providing competencies, creating platforms and forums for local managers, and of course by demanding compliance measures on the part of the subsidiary management. The purpose of the CMS is to implement the required control mechanisms to uncover and address violations of laws and regulations.



Ms. McCutcheon, has the EMS effort been worthwhile?

“Yes, we learned a lot. We now have more transparency and specific topics have been brought to the attention of management, such as release of chemicals, environmental benchmarks, or goals and measures.”

The ALTANA Code of Conduct was written to provide employees with a practical guide to lawful conduct that is in line with our objectives. It is a mandatory standard for management and all employees. An e-Learning program was introduced in 2010 to familiarize employees with the content of the Code of Conduct. Every employee can independently access this audiovisual learning tool from any computer. The program communicates a basic understanding of compliance and its significance for ALTANA and presents the content of our company's Code of Conduct in practical terms. The program ends with a final quiz as an acknowledgement of the content. A special compliance hotline offers our employees the option to report unlawful conduct regardless of hierarchical levels, and reports may be made anonymously if necessary.

## Management systems

ALTANA uses externally certified environmental management systems (EMS) and its Corporate Environment, Health and Safety department (EH&S) to monitor measures for occupational safety as well as occupational health and environmental protection. It is our goal to establish a certified EMS in all production sites of ALTANA. The original intent was to reach this goal by the end of 2010. However, staffing capacities did not allow for this in smaller companies and the certification had to be delayed. The requirement for a certified environmental management system for companies makes sense when we consider that environmental impacts can reach “beyond the fence” of a plant.

Environmental management systems that are certified by independent third parties ensure the determination of essential environmental concerns and advance continuous improvements.

Corporate EH&S defines mandatory benchmarks for all production sites and requires the corresponding reports at specific times. It also promotes sharing of knowledge and expertise between the sites and monitors legislative activities to allow ALTANA to comment on political decision-making processes as necessary.

The share of ALTANA companies that are certified in accordance with the globally applicable standard ISO 14001 increased to 69 percent in 2010 from 59 percent in 2008 and consequently covers 75 percent of our production volume. Three more certifications were added in 2010 and another certification was planned for early 2011. Five companies are currently completing their audits and expect to achieve certification by the end of 2012.

One of the most recent certifications took place in the plant of BYK USA in Wallingford, where EHS manager Megan McCutcheon had taken over responsibility as management representative to implement ISO 14001. Since the company already had a certified quality management system, it was decided to pursue an integrated management system. This decision was based on the large overlap of standards, for instance in the areas of document control, management review, or audit planning. The Wallingford plant established a team in 2009 to analyze the most significant environmental impacts and identified energy consumption, release of chemicals, odor problems, and waste as the core concerns. These environmental impacts are mostly consistent with the benchmarks and objectives of ALTANA. In a next step, sub-teams were established to improve the status quo of each of these concerns. The team assigned to the problem of chemical releases received special root cause analysis training, and an external consultant is being hired in 2011 to train the energy team and additional employees in energy efficiency.

### Memberships, awards and audits

The German companies of the ALTANA Group are members of the German Chemical Industry Association (VCI), of CEPE, the umbrella organization of the 17 European professional associations for coatings, printing inks, and artists' colors as well as the Association of the German Coatings Industry (VdL). Some of our affiliates also are members in the German Verband der Mineral-farbenindustrie (association of producers of pigments, fillers, functional additives, food colorants and others, VdMi), the German Association of Plastic Films (IVK) and TEGEWA (association representing manufacturers of textile, paper, leather and fur auxiliaries and colorants, surfactants, complexing agents, antimicrobial agents, polymeric flocculants, cosmetic base materials, pharmaceutical excipients and allied products).

The Indian coatings and paint manufacturer Kansai Nerolac honored BYK-Chemie as "Best Vendor" during its fourth Vendor Conference in 2010. This award is given to suppliers with outstanding performance in logistics, technology, and distribution. BYK received the award together with its local representative, Aroma Chemical Agencies, for innovative product development, innovative customer training, and highly responsive technical support.

The award also cited joint quality optimization, consistently high product quality, and excellent logistical and sales support.

A HACCP audit was performed at ACTEGA Terra in 2010. It confirmed that our coatings meet the requirements of international hygiene and food standards. HACCP (Hazard Analysis and Critical Control Points) is designed to guarantee food and consumer safety and applies to all companies that are engaged in the production, processing, or sale of food and food packaging. The certification has now been extended to ACTEGA Terra as a producer of coatings for food packaging. The HACCP system analyzes risks along the entire process chain, establishes limit values, and monitors them consistently.

ACTEGA Terra also qualified for the "Sony Green Partner" certificate. The Japanese electronics corporation uses this seal to mark products that were manufactured without the involvement of environmentally harmful materials, hazardous processes, or damaging waste or byproducts. ACTEGA Terra has been a Green Partner of Sony since 2003. While the effort began with the certification of two coatings, 20 products had earned the seal by 2010.

EHS manager McCutcheon was able to rely on Best Practice support from the ALTANA Group and studied the environmental management systems of other sites. A colleague from BYK-Chemie in Wesel traveled to Wallingford for the audit, and a representative of ELANTAS PDG reviewed the legal compliance.

The production facilities of ECKART were audited by specialists of the Günterstal site, for example in the Chinese Zhuhai plant from August to December 2010. It took the management team on site three months to prepare for the ISO audit with the support of Dr. Lutz Berghold. ECKART Zhuhai received its certificate on January 10, 2011. The company plans to stay with this support principle and may transfer it to other Divisions, depending on the evaluation of experiences.

Some sites maintain separate management systems for occupational safety and health, which are audited on the basis of the British standard OHSAS 18001 (Occupational Health and Safety Assessment Series). The structure of OHSAS is guided by ISO 14001 and is based on the British standard BS 8800:1996.

We have established benchmarks and goals for occupational safety, share information about Best Practice measures, and are convinced that we can achieve continuous improvements in this manner. To date, five companies have established a management system certified according to OHSAS 18001 (ECKART GmbH, ELANTAS Beck, ELANTAS Zhuhai, ELANTAS Tongling, ACTEGA Terra), while other sites are planning similar measures or have begun the certification process.

Additionally, ECKART GmbH has established an energy management system in parts of its company. This system is currently being expanded to the entire site and plans are underway for a certification according to DIN 16001 in 2012.

## Supplier relationships

The goal of permanently implementing the Global Compact principles into the ALTANA supply chain was explicitly added to the organizational manual of the ALTANA procurement organization as a guiding principle. Thus, the principles of the Global Compact have been communicated to the employees of the Group-wide procurement network. A separate supplier Code of Conduct version designed for external use is presented as part of the ALTANA company presentation during supplier visits and audits to ensure direct communication of these goals to suppliers.



**The following measures were implemented in 2010:**

1. Integration of the Global Compact principles into the ALTANA Corporate Procurement Supplier Code of Conduct
2. Communication of obligations by presenting the Supplier Code of Conduct during supplier visits and audits
3. Review of compliance with principles during supplier visits and audits
4. Integration of Global Compact principles into the ALTANA Corporate Procurement Organizational Manual
5. Communication of the ALTANA Code of Conduct within the scope of the ALTANA Intranet section Corporate Procurement

## Stakeholder dialog

ALTANA stays in close communication with the neighbors of its sites. Especially in places where our production sites directly adjoin residential areas, we distribute information by direct mail or indirectly through the local media and engage in dialog. In Wesel, we organize neighborhood events to report on construction projects and to give the residents advance notice of construction activities. These events are supplemented with neighborhood hotlines and personal contact information.

We also organize regular tours of our buildings and production facilities to strengthen public trust in the safety of our operations. In addition to individual tours, we also take part in nationwide campaigns such as "Architecture Day" or "Chemical Industry Open House Day."

We also maintain a highly constructive and harmonious dialog with local politicians and media. In places where ALTANA is a well-known and important employer, we also initiate local promotional campaigns to show the public how important we are as a large employer in terms of economic impact and jobs.



“We help our customers  
achieve their goals”

A blue-tinted photograph of a boat's hull cutting through the water, viewed from a low angle. The water is dark blue with white foam from the wake. The sky is a lighter blue gradient. The text is overlaid on the upper left portion of the image.

## Green chemistry for quality and environmental protection

**“Green” has a positive sound with connotations of nature, health, and cleanliness and nowadays is particularly understood to mean “environmentally friendly.” However, there is no globally applicable industry standard that provides an accurate definition of environmental friendliness.**

The development of new chemical products is increasingly dominated by environmental concerns. To give an example, the solvent content of products and base materials is one of the key indicators when it comes to defining how “green” a product is. Manufacturers explore the requirements they have to meet for developing “green systems,” which raw materials are best suited for this purpose, and where they can ideally be purchased. Furthermore, they need to be certain that the use of eco-friendly raw materials will not impact the application properties of their final products.

BYK has made it a principle to consider the issue within the scope of a complete system that it calls “Greenability.” Customers can access the company’s BRIEF (BYK Regulatory Information Extensive Form) online at a dedicated website ([www.byk.com/innovation/Greenability.html](http://www.byk.com/innovation/Greenability.html)) to find out about the environmental compatibility of specific products. Together with REACH CEFIC questionnaires and other REACH documents (see also page 22), which can be downloaded from the website, the BRIEF documents provide answers to frequently asked questions.

## Green chemistry

The share of solvents (volatile organic compounds or VOC) ultimately determines how environmentally sound the products of our customers are. The construction materials industry is a key cause of VOC emissions. Sealants, adhesives, coatings, and floor coverings release VOC into the atmosphere and solvents also have a strong influence on interior air quality. Our goal is to support coatings and plastics manufacturers with the increased use of solvent-free systems. BYK has successfully reduced the VOC content of its product portfolio over the past two years. Nevertheless, BYK only has limited influence on the environmental qualities of a product since additives just account for a small portion of a coating or plastic material.

We are increasingly in a position to offer additives made from renewable resources such as modified fatty acid from tall oil. Product examples with renewable raw materials include BYK-1740, Viscobyk-5120 or BYK-1161. This employs a mostly CO<sub>2</sub>-neutral material and conserves fossil resources.

### Labels and eco-balance

Green quality seals are awarded to products with particular ecological qualities. As part of this evaluation, not just the final products, but also their source materials such as coatings and plastic systems have to meet stringent requirements. Many BYK additives meet the specifications of the European EU Eco-label for interior and exterior coatings and paint products.

### New additives for aqueous coatings

At ALTANA, product stewardship also means the continuous advancement and optimization of existing systems. BYK has demonstrated this with two new multifunctional additives for aqueous coatings, which not only are easy to process, but also environmentally compatible. This is further enhanced by benefits in the process and supply chain. Because the system

only uses a single additive, it offers better product safety. Furthermore, the product is less complex and warehouse inventories can be reduced.

### Environmental compatibility of new pigments

ECKART is one of the leading global providers in the development and production of innovative pigments. The company has recently developed a new generation of effect pigments on the basis of calcium sodium borosilicate, which are primarily used in cosmetics. In contrast to conventional pigments, the new product called "Mirage" stands out for high gloss, good transparency, and pure interference colors. Thanks to their high transparency, the new "Luxan" pearlescent pigments made from borosilicate can be combined with any color shade without affecting the original characteristics of the base color. These new pigments are an alternative to effect pigments that are made from a base material that is surface-mined in India.

#### What are CO<sub>2</sub> equivalents?

The CO<sub>2</sub> footprint is a partial aspect of the lifecycle analysis. It reflects the greenhouse gas emissions generated throughout a product lifecycle and is indicated as Global Warming Potential (GWP100), using kg CO<sub>2</sub> equivalent per functional unit as the calculation unit. All substances that contribute to global warming potential according to the Intergovernmental Panel on

Climate Change (IPCC) are converted into CO<sub>2</sub> equivalents with a specific factor. Thus, methane (CH<sub>4</sub>) has 25 times the global warming potential of CO<sub>2</sub>. In practical terms, this means that the emission of 1 kg CO<sub>2</sub> and 1 kg CH<sub>4</sub> results in a net global warming potential of 26 kg CO<sub>2</sub> equivalents.

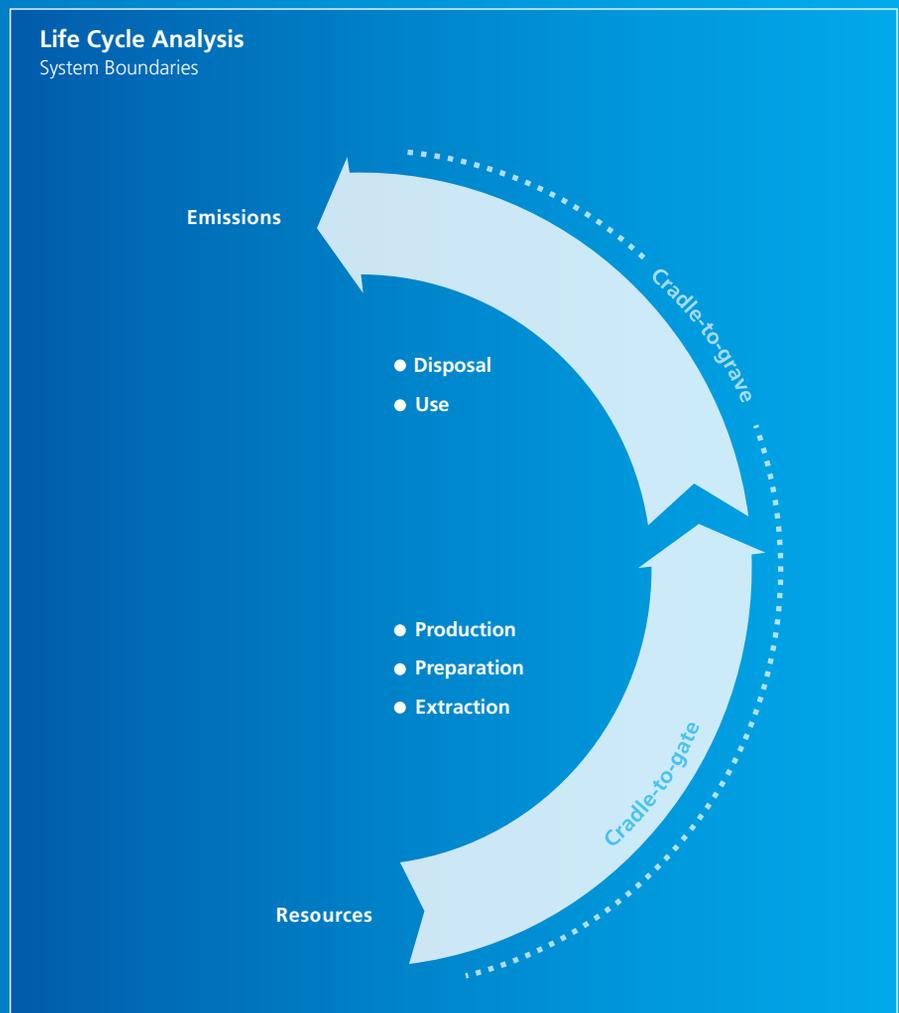
## Lifecycle analysis options for the chemical industry

Lifecycle analysis (LCA) provides an answer to the question of the environmental impact caused by the manufacture of a product. The CO<sub>2</sub> footprint, which reflects greenhouse gas emissions throughout a product lifecycle, is an important aspect of the LCA (see box). ALTANA uses lifecycle analyses according to ISO 14040 and 14044 to evaluate the ecological aspects of its products across the entire product lifecycle, ranging from the extraction and processing of raw materials to necessary transport during the manufacture of the product, the utilization phase, and the subsequent disposal. This is an internationally standardized method that allows for a precise analysis of environmental aspects and potential impacts of product systems.

Aspects such as resource efficiency and the effects on climate change are as important in this regard as VOC emissions, smog, or excessive fertilization. Based on this eco-balance, we can make precise statements about the potential environmental impacts and the resulting ecological product requirements in the early stages of product development. This also assists with the effort to position ourselves in the market with environmentally friendly systems and to pursue our own environmental policy goals within the company. At BYK, the number of customer inquiries for LCA-based product data rose from ten to over 60 between 2004 and 2009. Consequently, BYK performed an eco-balance of the foam inhibitors BYK-1740 and BYK-012 to demonstrate the changes in environmental parameters with different carrier materials. The total energy consumption for the “bio” foam inhibitor (BYK-1740) compared to

the “petro” foam inhibitor (BYK-012) was reduced from approx. 116,000 Mega joule (MJ) per metric ton of product to approx. 13,000 MJ. While the conventional product caused some 8,000 kg of CO<sub>2</sub> equivalents,

the “bio” version only accounted for 1,400 kg per metric ton of product.



### Aqueous protection coatings

Safety is a top priority for manufacturers of food packaging, since systems that are in direct or indirect contact with food are subject to stringent safety standards, for example when it comes to using finishing coatings on food trays, yogurt lids, or blister packs in the pharmaceutical industry. ACTEGA Rhenania is engaged in intensive research in this field. As a specialty coatings manufacturer, the company has developed an aqueous protective coating for flexible packages that meets the demanding requirements of the U.S. Food and Drug Administration (FDA). We do not use any components

with known potential negative impacts, such as phthalates and PVC copolymers, but also melamine resin, bisphenol A and bisphenol A diglycidyl ether. This allows us to provide our customers with solutions that follow the recommendations of the German Ministry of the Environment to restrict the use of bisphenol A. We have also managed to lower the share of organic solvents with VOC content to below ten percent.

## ECKART "Blueffects"

ECKART uses the term "Blueffects" to designate products and processes that make the production process more ecologically sound. This can refer to the selection of raw materials, savings potential from recycling or reuse (for example with reference to water consumption), or to direct energy savings from process improvements such as enhanced seals of energy-intensive compressed air systems. At the same time, Blueffects also refers to product properties.

While conventional wall paints absorb a high share of heat and transfer it to the outside, coatings with aluminum pigments can achieve a tangible insulation effect. One of the simplest ways to save energy in a house is to insulate it with the right paint. Aluminum pigments lower heating costs and create a more comfortable living environment. Aluminum

offers the highest values for infrared reflection among metals. ECKART has developed an innovative series of pigment products on an aluminum basis that reflect up to 50 percent of the impinging thermal radiation. This ready-to-use water-based pigment concentrate is easy to process and is stirred into conventional transparent wall paints. After application, it provides insulation from unwanted heat from the outside or reduces heat loss.

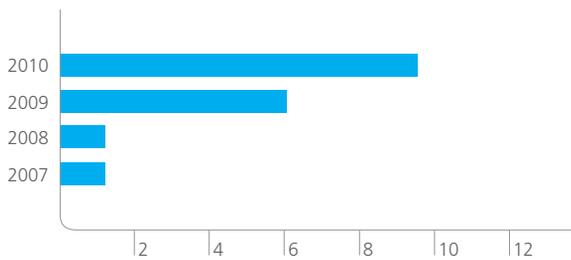


The demand for safe content materials is also on the rise for cosmetic applications. This includes, e.g. natural substances or those with a specifically evaluated production process. ECKART has specialized in particularly environmentally compatible raw materials for a number of years. ECOCERT, one of the leading global bio certification organizations, has certified 36 pearlescent pigments of

ECKART's Prestige series to document that they are made of safe raw materials and manufactured with environmentally sound procedures.

**ACTEGA Rhenacoat**

Dynamic growth of water-based coatings (in percent)



**Sealants without plasticizers**

In the past, PVC was used to seal food packaging, for example in conjunction with screw-on tops. However, when plasticizers in the sealant came into contact with food, they affected the odor and flavor and could even be a health hazard. The fourth amendment of Commission Directive 2007/19/EC of the Plastic Materials Directive 2002/72/EC bans the use of specific phthalates as plasticizers in PVC-based seals. In response, ACTEGA has identified a solution called Provalin. This sealant was specifically designed for metallic screw-on caps and meets the requirements of the current EU directives. Provalin is free of PVC and plasticizers, holds up to sterilizing and pasteurizing, and cannot pass into food. Provalin-coated lids are already on the market and have many successful applications.



**Solvent-free products and renewable resources**

A growing number of customers are specifically asking for solvent-free adhesives. This caused ACTEGA Rhenania to develop a new series of polyurethane adhesives for packaging films that meet this specification—and are even more efficient. The laminating of composite films requires significantly less adhesive than with conventional polyurethane systems. The new adhesives are made of polyols. 80 percent of the resulting polyurethanes are based on renewable resources, for example a component of castor oil.

## REACH

ALTANA supports the replacement of previous chemical legislation with REACH (Registration, Evaluation and Authorization of Chemicals). However, ALTANA also criticized some parts of the law and expressed its opinion at the political level.

We met all specified deadlines to pre-register the substances our company manufactures or imports. As a specialty manufacturer that produces small quantities, we only were required to register two manufactured and three imported substances by November 2010.

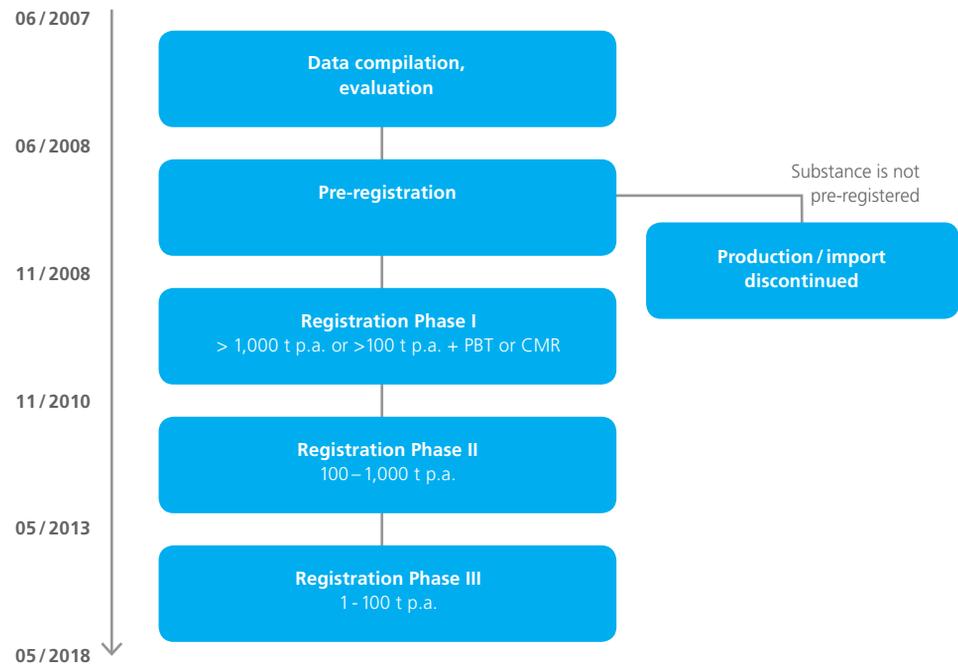
Our cost estimates were approximately right, which upheld our complaint that the expense of the law is tolerable for those producing substances in large volumes, while the expenses for registering smaller quantities (deadlines in 2013 and 2018) will be exceedingly high.

We have also noted that the communication within the supply chain requires expanded material safety data sheets with page counts ranging from hundreds to thousands. The relevant information must be reviewed, evaluated, implemented, and forwarded within the supply chain with additional expanded safety data sheets. This creates a lot of red tape, but greater volumes of printed paper don't automatically translate into greater safety. We will therefore advocate improvements and practical solutions during the REACH Review 2012.

However, the law certainly has positive aspects as well: More data will be available for evaluating existing substances and

customers have better information for the safe use of such substances. ALTANA affiliates that are subject to registration requirements are already working to prepare data submissions that will be due in May 2013.

Time schedule for introducing REACH



Lawmakers in the United States are talking about reforming the Toxic Substances Control Act (TSCA). The local ALTANA companies are trying to interpret the content and assess effects. We also are taking part in a working group on the TSCA reform within the American Chemistry Council (ACC). Since the reform appears to be similar to REACH in some aspects, we will be pleased to share our experiences with the experts in the U.S.

## “The events are a good fit for our overall concept”

### **Dr. Kirchner, how far has the implementation of REACH advanced at BYK? What was accomplished in 2009 and 2010?**

We successfully registered two compounds in 2009 and 2010. This involved a compilation of the required toxicology and ecotoxicology data by an external institute with a summary in a dossier. The data were submitted to the European Chemicals Agency (ECHA) in Helsinki. We also registered all substances that meet the criteria for so-called transported isolated intermediates. We already have the results of the required studies in hand for five additional compounds so that further registration dossiers can be generated and submitted during the course of this year. This year, we plan to start three additional registration projects and three to five substances will be addressed annually in the future. By the end of 2016, we will have completed the submissions for all substances that require registration.

### **In this context, can you provide more information on the customer seminars and Downstream User Days organized by BYK?**

We discovered in numerous conversations with customers that downstream users did not have sufficient knowledge and understanding of the obligations of the REACH Regulation. This caused BYK to develop our so-called “BYK Downstream User Days” to close these knowledge gaps for our customers. The content focuses on the needs of product users and we offered presentations to explain the obligations and measures associated with REACH, which included practical examples and discussions for better understanding. Overall, we organized six of these seminars in the past two years with a total of about 250 participants from

mostly European countries. The events were held in Germany, France, Italy, and Switzerland. Further seminars will be offered as required in the future.



Dr. Gerald Kirchner is the Head of Innovation Management at BYK-Chemie

### **What was the customer feedback and what was the significance of these two types of events?**

The customer response was consistently very positive. Attendees particularly liked the focus on downstream users. Our documentation with “ready to use” forms and checklists also won praise. This event series is a good fit for our overall service concept. It underscores that BYK and ALTANA offer more than just a product; our products always come with the corresponding service.

### **Which new challenges will BYK face as a consequence of REACH in the coming years?**

There are three substantial issues:

1. Registration of new and imported substances,

2. Obligations for downstream users, and  
3. Availability of source materials.

We have already addressed many points for Item 1, including the identification of

the affected substances and the selection of the required tests. The next steps will be to perform the examinations and to create dossiers. Item 2 will require the revision of virtually all safety data sheets to adapt them the new requirements. This requires structured communication along the supply chain and outstanding expertise in handling toxicology and ecotoxicology data. Regarding Item 3, BYK has identified all critical source materials and has contacted the suppliers. This is essential to make sure we recognize changes in classification and shifted or discontinued production as early as possible to take proper countermeasures.



## Globally Harmonized System

The Globally Harmonized System (GHS) provides a framework for improved hazard communication on the part of the chemical industry. This “world language” for chemicals developed by the United Nations not only changes classification and labeling systems, but also introduces globally standardized labeling elements and safety data sheets, an optimized global understanding of communication, and facilitated international trading. Unfortunately, the system has not yet been fully harmonized.

This makes it all the more important for us as a globally active company to establish our own GHS network at the corporate level, which includes experts from Japan, China, India, Singapore, the U.S. and Europe. The challenge is primarily to monitor the implementation into national laws in order so we can respond quickly. The following development shows how far the implementation has advanced: All substances and mixtures at BYK have already been converted to the GHS regulation, although the conversion for mixtures will only become mandatory in the EU from 2015. Furthermore, all IT systems for environmental management, occupational health, and occupational safety have been successfully adjusted. This involved reclassifying over 350 BYK products, making new product labels, and adjusting 350 safety data sheets in 27 languages. The effort also included a report to the classification and labeling inventory, employee training, and advance information to our customers and global representations.



## Global Product Strategy

Product stewardship and product safety are cornerstones of the ALTANA sustainability strategy. In addition to REACH and the GHS, this is also reflected in the Global Product Strategy (GPS), a voluntary self-regulation of the chemical industry initiated by the International Council of Chemical Associations (ICCA) that has the support of ALTANA. The system is to be fully implemented by 2018 and pertains to substances that are produced in volumes of more than one metric ton a year or which are heavily toxic. The goal is to reduce differences

in chemicals safety between developing countries, emerging economies, and industrial countries. The effort will increase product safety and sustainably improve the handling of chemical products, while creating fair global competition. This chemical management benefits the environment and occupational safety alike. GPS will be implemented in the EU along with the introduction of REACH, so that it will not cause additional work for our company.



## Biotechnology

Biotechnology is an interdisciplinary science that focuses on enzymes, cells, or organisms in technical applications. ALTANA has been involved in biotechnology research since 2009 to optimize substance production processes, reduce energy consumption and waste, and to conserve resources. At the same time, we hope to reduce our dependency on fossil source materials by using renewable resources and to advance new product and system solutions with a high potential for added value. Nevertheless, biotechnology is often seen in a negative light, for example in conjunction with gene technology and genetically modified organisms (GMO), which may affect naturally occurring species in case of release.

However, ALTANA is exclusively active in so-called “white” or industrial biotechnology. All of our work takes place in closed laboratories and production facilities. Furthermore, we only operate such laboratories in Germany at this time, using stringent security measures. Enzymes and other biological products that are released into the environment as a consequence of white biotech applications such as detergents are quickly biodegraded and cannot accumulate. This is active resource protection and makes a contribution to social responsibility.

To give an example, BYK is working to develop various additive solutions with biotechnology methods. One project involves



the development of a new surface additive for use in aqueous systems, while a second addresses intelligent coating systems, in which additives to coatings are to prevent mussel growth on the hulls of boats and ships. Organisms that grow on hulls increase flow resistance, and therefore, fuel consumption. After market introduction, these new additives have the potential to make a sustained contribution to resource and climate protection. The third BYK project pertains to a biosynthesis product for a surface additive, which is close to market introduction. This product is manufactured with live cells to make efficient use of resources and energy.

A link between ALTANA and green biotechnology, or plant biotechnology, could result from the procurement of resources generated from genetically modified plants or animals. The biggest public concern in this regard is that the cultivation of genetically modified plants makes it difficult to rule out spread or influences on other wild species. Overall, the challenge will be to weigh risks and opportunities. This also requires a social discourse that will result in legislation, and ALTANA will actively support this process.

In the debate about green biotechnology, it is frequently argued that its application in agriculture helps fight food scarcity. As an aggravating factor, a large percentage of food in industrial countries goes to waste. In the United States, this applies to some 40 percent of food items. It is important to improve the shelf life of food items to reduce the quantity of food that goes to waste. The food packaging products of ACTEGA make a contribution to this effort. Since food production is also associated with significant greenhouse gas emissions, preserving food is also a contribution to climate protection.

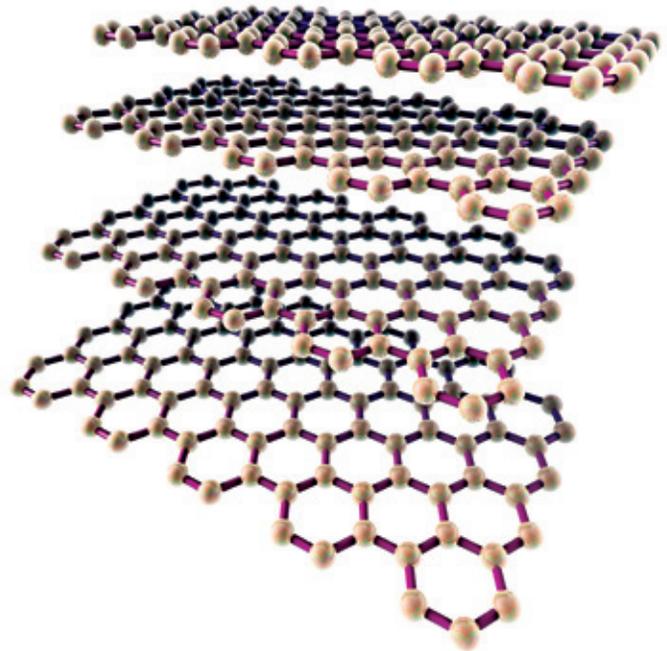
## Nanotechnology

For ALTANA, product stewardship is an essential component of responsible management, and nanotechnology is no exception. We are convinced that nanotechnology can contribute to the optimization of systems in the fields of energy, climate protection, environment, and medicine. However, new substances, materials, and technologies not only open up new opportunities, but can also involve potential risks for humans and the environment. Consequently, product stewardship also calls on us to safely assess potential risks and to implement effective measures for risk management before a product is introduced. In Germany, we follow the guidelines of the German Chemical Industry Association (VCI) and the German Institute for Occupational Safety and Health (BAuA). Accordingly, our risk management always assumes the greatest possible hazard and is based on stringent standards.



The discussion of potential risks primarily focuses on “free” or powdered nanomaterials, because they are most likely to enter the body through aspiration. When nanomaterials are bonded in a matrix, the risk of exposure is much smaller and can be prevented with further measures.

All nanomaterials supplied to customers by companies of the ALTANA Group are part of a matrix, which is at least a liquid.



In final applications, the materials are then part of a coating or plastic matrix. ALTANA and BYK are taking part in studies of the German Coatings Association to investigate consequences of eventual release, for example from sanding or weather impact. Sanding results are already available and do not show any release of the integrated nanoparticles.

It is of equal importance to us to point out the general consensus among experts that nanotechnology per se does not pose a risk, and that at most, specific substances may be hazardous in nano format. Until this has been fully studied, the corresponding risk management measures should assume a high level of hazard. Unfortunately, no agreement has been reached on testing methods yet.

ALTANA promotes open dialog about nanotechnology. We provide our customers with information in the form of material safety data sheets that follow the corresponding VCI guidelines. Nevertheless, ALTANA considers end-product labels that state “contains nanomaterials” mostly unsuitable, since the term “nanomaterials” provides no information about hazards or risks, as explained above.

# “Health and safety have no price tag”

## Protecting employees is always our first priority

**Safety and health protection have always been top priorities at ALTANA. We follow the guidelines of the chemical industry's global Responsible Care initiative, which requires companies to continuously enhance their employee safety. This includes health services as well as occupational and process safety.**

At ALTANA, all three of these elements are closely integrated in a culture of safety. We implement risk management measures for handling chemicals in accordance with their hazard potential. We are continuously enhancing our comprehensive culture of safety throughout the entire company with a whole range of initiatives. The heart of this culture is safe employee work behavior, since human error is the most frequent cause of accidents.

Of course, ALTANA prides itself on strict compliance with all occupational and health standards applicable in the many countries where we are located. Beyond such statutory requirements, however, we look to implement reasonable preventative measures that may not be mandatory.





## Managing health

Taking responsibility for the health of our employees is not just a statutory obligation at ALTANA; it's in our own best interest. We believe our employees' wellness is a fundamental precondition for their commitment, their performance, their creativity, and their agility.

Three challenges are the primary drivers of a company's active health policy:

- Growing shortage of skilled and management personnel;
- Demographic changes; and
- High cost of lost time by sickness.

According to the Luxembourg Declaration on Workplace Health Promotion (WHP), which ALTANA has signed, traditional occupational safety—such as wearing the right protective gear—contributes substantially to improving workplace health by decreasing accidents and preventing occupational disease. But these types of measures are simply not enough. That's why WHP aims to prevent occupational disease (which includes work-related illnesses and on-the-job accidents, occupational disease and stress), to enhance the capacity for good health, and improve wellness at work.

It has been proven that companies that comprehensively promote health in the workplace not only reduce sickness-related costs and improve productivity. They also enjoy healthier employees with greater motivation, better morale, and a better atmosphere on the job.

Starting points for promoting workplace health or health management include healthy working conditions (such as ergonomic workspaces), guidelines governing working hours, and career opportunities. At the same time, promoting healthy personal habits such as healthy diet, workplace sports, and prevention of drug and alcohol abuse are also part of a comprehensive program.

ALTANA has instituted a wide range of initiatives to promote workplace health management. ECKART, for example, has consolidated and improved health and social support within the company under the rubric of WHP. The focus here is on reintegration support, drug and alcohol addiction counseling, and general promotion of healthy practices. WHP comprises modules that are understood as a single process aimed at

achieving a healthy organization of work and healthy behavior on the job.

This includes ergonomics as well. Each employee's well-being is significantly impacted by workplace ergonomics, which has a major influence on muscular/skeletal problems such as back pain, one of the most widespread health problems in Europe. ALTANA strives consistently to educate all our employees and provide comprehensive information about healthy living.

At ELANTAS Beck, influenza vaccinations and dermatological consultations are integral components of WHP, along with the treatment and prevention of addiction. In 2009, BYK set a goal of instituting company-wide health management. A comparison clearly reveals why: In 2009, with 673 employees, 7,400 days were missed due to sickness, or 10.9 days per employee, while absences due to accidents on the job accounted for only 307 days (0.4 days per employee). Clearly, health is a much more significant component in reducing absences. Today, promoting health at BYK includes yoga classes, fitness programs, nutrition awareness, massage, qigong, and running clubs. And at BYK USA, workplace health management is known as iHealth.

### Dependence and addiction prevention

Workplace health management also addresses prevention of addictions. It's not only nicotine, alcohol, and drugs that can fuel addiction. Prescription drugs and food, gambling and shopping can all be culprits, setting off a vicious cycle that few of us can break out of with sheer willpower or self-control alone. In principle, anyone can develop an addiction. Since addiction or dependency is not limited to certain substances, any form of human behavior can become addictive, including widespread eating disorders and workaholism. It is still too often the case, however, that issues of dependency

and addiction are treated like taboos. That's why ECKART integrated them into its health management program four years ago.

Issues involving psychological and psychosomatic illnesses, such as burn-out, have also been integrated into the ECKART health management program. As in the case of addiction prevention, the company starts with management training, which covers training to recognize symptoms in the workplace and analysis of the work situation and risk factors.

### Occupational diseases

Occupational diseases comprise those that are recognized by the relevant national organizations and result in disability payments. These diseases have not been appeared to date at ALTANA. We are confident that, with constantly improving health protection initiatives, we will be able to maintain this outstanding record. Other occupationally-related illnesses are not as easy to identify, however, and often difficult to distinguish from non-occupational illnesses, with general analysis further barred by patient/doctor confidentiality. That's why some of our companies have worked with insurance providers to analyze causes of disease, and incorporated the results of this analysis in their health promotion programs, since the employee absentee figures can't distinguish between occupational and other diseases.

## "Management should respond with awareness and compassion"

Dr. Reinhard Salinger directs the workplace medical service at ECKART in Günthersthal. He is a specialist in treating dependence and preventing addiction.



### **Dr. Salinger, does ECKART have a special workplace addiction counseling service?**

ECKART is fully cognizant of its responsibility both within the workplace and to the larger society with regard to addiction. It was awareness of this responsibility to our employees that led to a special training course for more than 200 managers. They are trained to respond with awareness and compassion toward employees who are susceptible to addiction, to offer them the help they need, and, when necessary, to involve their workplace addiction/dependency representative in the discussion.

### **How many such representatives does ECKART employ?**

ECKART has seven of these volunteers, supported by the works physician. These volunteers and the occupational health service are there for both management and the employees involved. They alert employees with human resources responsibilities when problems become obvious at the workplace, and they offer anonymous counseling that is strictly confidential. They cooperate with facilities that provide psychological and social treatment for addiction and dependency, taking care that intervention guidelines are applied when problems become apparent. Finally, they provide follow-up support and workplace reintegration assistance.

### **And how are these representatives trained?**

The volunteers regularly attend external training every two years. The works physician receives regular advanced training at seminars organized by the Bavarian Medical Association in Munich. He also updates the volunteers in three month intervals. And since last year, we have also been sharing information about these issues with the City of Nuremberg.

## Occupational safety

Occupational safety involves avoiding employee accidents. To measure our performance, we have defined key data, and stipulated that they are regularly collected. We have also defined goals to reach on the path to fulfilling our vision of an accident-free company. Enormous efforts have been underway since 2006 to achieve that vision. Since most of the technical options have now been implemented, these efforts focus primarily on employee behavior.

Most (work-related) accidents are the result of human error, referring to improper handling of machines or tools, failure to wear protective clothing or wearing it incorrectly, too much haste, or stumbling. That makes constant reminders of correct behavior all the more important. One approach is known as behavior-based safety, based on behavior analysis. Positive intervention should change employees' unsafe behavior.

ELANTAS Deatech became the first ALTANA company to implement the behavior-based safety concept. According to statistics, 80 to 90 percent of work accidents can be traced to employee behavior. That can only be changed with timely influence on that behavior. The accident pyramid documents the statistical relationship between unsafe behavior, minor accidents, serious accidents, and fatal events. The theory therefore is that the incidence of unsafe behavior must be addressed to prevent serious and even fatal accidents.

Behavior-based safety holds that any given human behavior is based on an estimation of utility/benefit, and that in turn derives from that person's own experience. ELANTAS Deatech applies the commonly used ABC model to explain this situation. The ABC model—antecedent, behavior, consequence—is based on praise for correct behavior and criticism of the incorrect. But to succeed, a behavior-based system must respond quickly and consistently to incorrect and correct behavior. Between February 2009 and February 2010, correct behavior was found in three-quarters of the 479 reviews that were performed. These positive results also solidified the trust between shift supervisors and safety officers. In another step toward accident prevention through correct behavior, ECKART held a safety workshop for executive management in 2009, which resulted in a number of initiatives to improve the



company's culture of safety that were implemented in 2009/2010. And the key data show that safety performance has improved significantly.

There was also room for improving work safety at BYK, where the accident rate per WAI 1\* increased noticeably between the first and third quarters of 2009. The causes included superficial safety reviews, employee inattention on the job, and overwork. That led management to establish a working group in cooperation with the responsible departments.

The working group's efforts included:

- Public speech by management on the importance of workplace safety, supported by communication tools such as newsletter, brochures, and meetings;
- Articles in the employee newspaper;
- Posters warning about three accident scenarios (falling, crushing, and cutting);
- Information about accident trends on BYK TV, the company Intranet and IMS portal;
- Three-day workshops to raise supervisor's/manager's awareness, given by the liability insurance association, with lawyers and psychologists; and
- Updating risk evaluations and training requirements.

\* Work Accident Indicator 1 (number of on-the-job accidents resulting in absence of more than one day per million hours of work)



ALTANA is constantly making technical changes that will better protect our employees from workplace dangers. For instance, safe handling of methylene dianiline (MDA) must be ensured. MDA is a powdered precursor material that ELANTAS uses for further reactions. Because of its carcinogenic properties, MDA is generally used in closed systems. In the past, the powder was measured out from containers at two ALTANA sites in China. The employees wore appropriate protective clothing and breathing equipment to protect them from the dust that can be hazardous to their health.

When the operation was moved in Tongling, the process was migrated to an automated closed measuring system. Now MDA is delivered in insulated or heated containers and pumped through closed tubing into a tank. It is then diluted using a solvent so the melting point can be maintained below 80°C. The MDA can then be measured out from the heated tank through closed tubing into the reaction container. This process is significantly safer for employees, who are no longer required to wear protective clothing and breathing equipment.

ELANTAS Zhuhai also began installation of similar tanks for MDA in 2010. After that work will be completed, work safety and employee health will improve here as well.

### Process safety

Three incidents occurred at ALTANA in 2010 that we classified as "significant" according to our internal definitions. At ELANTAS Deatech in Quattordio, leakage in an older type of pipe resulted in spillage of about 3,000 liters of liquid raw material during pumping from a tank into the reaction vessel. We were able to collect the liquid in the safety pans that were there for precisely this purpose. This spill did not represent an environmental threat, no soil contamination occurred, and there was no other negative impact. To avoid similar events in the future, the piping to all raw material tanks was replaced and brought up to the latest standard, at a cost of €35,000.

In June 2010, a hose burst at ACTEGA Terra, resulting in damage. The tank truck driver was contaminated while pumping a corrosive liquid. He required medical attention but fortunately did not suffer any lasting injuries. The cause was determined to be insufficient requirements for pressure checks of the hoses that were used. These requirements have been revised since the incident.

At ACTEGA Rhenania, an electrostatic charge resulted in an explosion in October 2010. Failure to use equipment designed to conduct electricity while filling a tank with powder was determined to be the cause. The tank contained solvent. One employee was injured and had to be taken to the hospital. Property damage was minimal. In the aftermath, employees were given intensive training and on-site supervisors now perform more careful monitoring. Additional personnel have been brought in to accomplish all this, and all powdered precursors are kept in grounded containers.

**What is a damage incident?**

ALTANA recognizes two levels when defining damage events such as fire, explosions, or product leakage into the environment. These levels reflect the VCI definitions of damage incidents.

**1. Serious damage:**

internal damages exceeding €500,000, or external damages of more than €100,000.

**2. Significant damage:**

accidental release greater than the following quantities:

- > 5 kg in the case of EU categories T and T+, toxic substances, and mixtures
- > 100 kg for GHS categories, all other hazardous substances and mixtures
- > 2,000 kg of all other substances and mixtures

or damage incidents with injuries

- resulting in employee or contractor absence of > 1 day, or
- hospitalization of an uninvolved person,

or fire or explosion resulting in direct costs of > €20,000.

An explosion in the exhaust incinerator at ELANTAS PDG in August 2010 did not meet the definition of "significant incident." It was only luck, however, that the accident did not result in any injuries. The concentration of organic components in the equipment was too high, which led to the explosion. The automatic cut-off did not react quickly enough. In the future, the employees involved will be warned automatically when a certain level of concentration is exceeded.

ALTANA companies regularly exchange information about all damage incidents because constantly learning from each other reduces the number of damage incidents and, with them, the number of serious injuries to employees and damage to the environment.

**Fire fighting**

When fire breaks out, it may be too late by the time the firemen arrive. The fire may already have spread so fast that the fire crew can only attempt to contain it and the burning property is lost. That's why automatic fire-extinguishing equipment at critical points—especially in a chemical company—is so important. Such equipment can immediately extinguish a fire when it's still small. That means less danger for firemen since they will face a much smaller fire when they arrive and don't have to get so close to the source of the fire. Automatic fire-extinguishing equipment is often set up to automatically alert the fire department as well.

All production and storage facilities at BYK in Wesel are furnished with fire-extinguishing equipment. The older equipment floods the area involved in the fire with CO<sub>2</sub> but that means that all employees must have left the area beforehand, since they will be denied oxygen just like the fire is.

For that reason, newer equipment uses either water or water and foam to extinguish fire. The foam covers larger surfaces covered with solvent as well, so it is very efficient for that type of fire.

In older locations, such equipment is being retrofitted or installed for the first time in new buildings. At BYK USA, the raw materials storage has been retrofitted with automated water/foam extinguishing equipment. A new storage facility for finished products has also been equipped with new water/foam equipment that was designed with the required collection capacity for the water

used to extinguish the fire. The warehouse doors also feature barriers that can be shut so that no such water escapes into the environment.

At ELANTAS PDG in the U.S., the CO<sub>2</sub> fire-extinguishing equipment in a production building was replaced with automatic water-based equipment that automatically notifies the fire department as well. The required detention volumes for water to extinguish fire have already been reached. The total investment was approximately €850,000. At ELANTAS Deatech in Ascoli, automated water/foam fire-extinguishing equipment was installed for the area where raw material tanks are emptied from tank trucks because electrostatic charges could develop here as well that could lead to explosions. A new warehouse that ELANTAS Deatech has established in Quattordio has also been furnished with automatic water/foam fire-extinguishing equipment with the appropriate detention capacity.

Even more important than this equipment to fight fire is the avoidance of it in the first place. Here too our plants are equipped with the latest state of the art in explosion protection, ventilators with multiple ventilation and warning sensors.

Just as important as the right technology are the correct work methods our employees follow, such as careful monitoring of electrostatic charges. Analysis of the causes of explosions in years past has shown this to be the case. That is why special training classes with experimental presentations on electrostatic charges and their impact were given by outside experts at BYK-Chemie in Wesel and ACTEGA Rhenania. These experts were able to give our staff graphic demonstrations of the importance of avoiding electrostatic charges. These training sessions are to be given at other ALTANA companies with similar situations.

## Custom-tailored inferno

Fire safety assistants must be counted among the most critical employees at any chemical company. With their thorough knowledge of the plant, they are able to support the local firefighters in an emergency situation. That's certainly the case at BYK-Chemie in Wesel. BYK doesn't need its own plant firefighters because the municipal fire station is so close. In turn, BYK covers the cost of training firefighters, a win-win situation for everyone involved, as Thomas Verbeet of the Wesel fire department described it.

Since 2002, BYK's fire safety assistants have been practicing firefighting with the professional rescue workers twice a year at the Rotterdam International Safety Center (RISC). As a result the Wesel fire department is very well trained in extinguishing solvent fires and hazardous materials transport fires too. While BYK is not directly involved

with the transport of hazardous freight, the special knowledge required to extinguish them is an asset to the City of Wesel as well because the heavily-used freight train route from Rotterdam to the Ruhr industrial area runs through the city, a route that is used to transport large amounts of hazardous materials.

Only one site in Europe provides the means to realistically practice fighting major industrial fires: the 46,000 square meters dedicated to this at the RISC, a kind of mecca for firefighters. No other place in Europe can offer better the drill opportunities than this training center at the Port of Rotterdam, built in 1986 by two Dutch companies. All conceivable types of fires, even the most complex, can be simulated there. Here, everyone gets a custom-tailored inferno. Whether it's fire at a refinery, a tank car ex-

plosion, or a simple house fire—almost any disaster scenario can be enacted.

The RISC repertoire of exercises includes ship fires and chemical accidents as well as particularly tricky events like flashovers and back drafts. When a fire is enclosed within a space, smoke and gases can collect under the roof and temperatures can often exceed 800 °C or more. When it gets simply too hot, the gases explode, creating what is called a flashover. Just as dangerous is a backdraft. When there isn't much oxygen, a fire can just smolder—until a door or window is opened. The incoming rush of air unleashes a powerful flash flame that can often result in death.



Fire fighting drills at the RISC (left), at ECKART (top), and at ELANTAS

“We can consume less and  
still live better”

## Environmental protection remains a consistent goal

**Compared to problems such as climate protection and secured energy supply, the issue of resource efficiency has faded from public eye awareness, although it continues to be of major significance and is becoming increasingly urgent. Numerous raw materials are only available in limited quantities and are not renewable.**

The scarcity of resources has become evident to everyone in the form of resource costs that have increased heavily in many areas. While the economic crisis of 2008 and 2009 slowed this trend down to some extent, the economic recovery has again caused resource prices to soar.

In view of the rising standard of living in high-growth countries such as China, India, or Brazil, and the consistently high consumption of resources in western industrialized nations, price increases and resource shortages will drastically accelerate in the years to come. In accordance with a calculation by the Wuppertal Institute for Climate, Envi-

ronment, and Energy, we would need almost three-and-a-half earths if the entire world population were to adopt the lifestyle of Europeans in the future. That means that the per-capita consumption of resources has to drop significantly if we want to leave more than just an exploited world to future generations.

ALTANA is committed to the conservation of natural resources. Overall, only five percent of raw materials used at ALTANA are not associated with final products and we have lowered our specific energy consumption by approximately 14 percent since 2007.

## Resource conservation

A more efficient handling of raw materials can be achieved in three different ways, namely reuse of materials (recycling), longer product lifecycles, or reduced material use. For the chemical industry, this means that a maximum percentage of the utilized precursor materials has to be converted into final products.

The degree of conversion is also referred to as the yield, while the rest usually becomes waste. Consequently, the amount of waste is an expedient indicator of resource efficiency. ALTANA records this volume as an environmental benchmark and establishes specific goals for improving it. The overall share of waste at ALTANA is approximately 5 percent, which means that our degree of conversion to finished products is 95 percent.

**The waste stream of ALTANA is subject to one of the following processes:**

- Some 20 percent of the entire waste volume is reused or recycled.
- 47 percent of waste is used in thermal processes. The ALTANA production uses large volumes of solvents in cleaning processes, which are highly suitable for generating energy.
- Some 34 percent of waste is brought to landfills



ALTANA has set itself the goal of reducing its specific waste volume by a total of five percent in the period from 2007 to 2012 and to cut landfill waste by at least ten percent. We achieved these goals already in 2010 and significantly exceeded our target for cutting down on landfill waste (see page 64).

### Influence through products

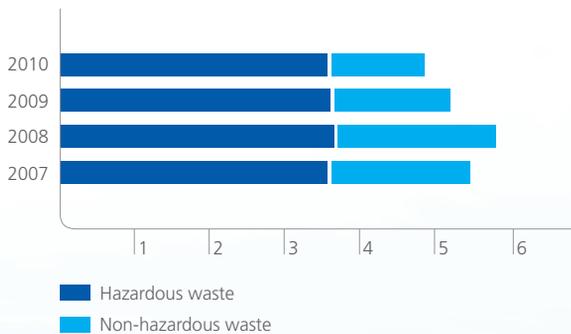
ALTANA can also influence resource efficiency by way of its products, which consist mainly of coatings and source materials for coatings. No method has yet been found to recycle coatings and none is likely to develop in the future.

Consequently, our contribution to resource efficiency has to be made through product properties:

- Improved durability of coatings thanks to scratch resistance or UV protection
- Anticorrosive agents increase the durability of final products, for example with the zinc pigments (for coatings and paints) made by ECKART.
- Similar properties with less material, for example with coupling agents for cold-curing plastics, which lead to improved bonding of resins and fillers and can improve mechanical properties by up to 50 percent. This approach can save approx. 25 percent of the material used in pipes. A second BYK additive of this type was in development in 2010 and will come on the market in 2011.

Another option for resource efficiency is the use of water instead of organic solvents made from fuel oil. Since solvents evaporate from coatings after application, their volatile organic compounds (VOC) lead to so-called summer smog and also contribute to climate deterioration. In contrast, water is more environmentally friendly. Furthermore, water transport through pipelines is significantly more energy efficient than transporting solvents by truck. 25,000 cubic meters of tap water save 1,250 truck deliveries.

**ALTANA waste volume**  
(in percent by production volume)



### Renewable resources

Renewable resources are making increasing contributions to resource efficiency and will certainly be an expedient alternative for the chemical industry in the future. Potential competition with food products always is a concern, but applies mostly to plant fruits, not residual materials, wood, and grasses.



Since ALTANA does not produce any base chemicals, we typically have to rely on the efforts of our suppliers to use renewable resources. We are currently doing in-house research for producing an important solvent, which we want to manufacture from a renewable resource without creating competition for food.



## Energy efficiency

According to the International Energy Agency (IEA), improved energy efficiency of buildings, traffic and industry has the potential to lower global energy consumption by 17 to 33 percent until 2050. A study by the German Industry Initiative for Energy Efficiency (DENEFF) documented that the efficiency measures taken until 2020 have the potential to reduce annual power consumption by more than 68 billion kilowatt hours. This is approximately the capacity equivalent of ten nuclear power plants.

Many ALTANA sites have taken numerous large and small measures for improved efficiency. For instance, ELANTAS Beck reduced the natural gas consumption of a thermal afterburner that included a steam generator. Its maximum thermal capacity is 2.1 megawatt (afterburner) or 3.5 megawatt (steam generator). However, the efficiency of the afterburner is comparatively low due to the time and quantity fluctuations in the heat demand of the production. To use the exhaust heat more consistently, a heat exchanger was installed into the afterburner, which is connected to the steam generator. The automatically closing flaps in the outlet air pipes of the exhaust system also prevent unnecessary combustion air input when production is idle over the weekend. This step reduced the natural gas consumption of the steam generator by an average of 45 percent and by an average of 25 percent in the afterburner. The cost

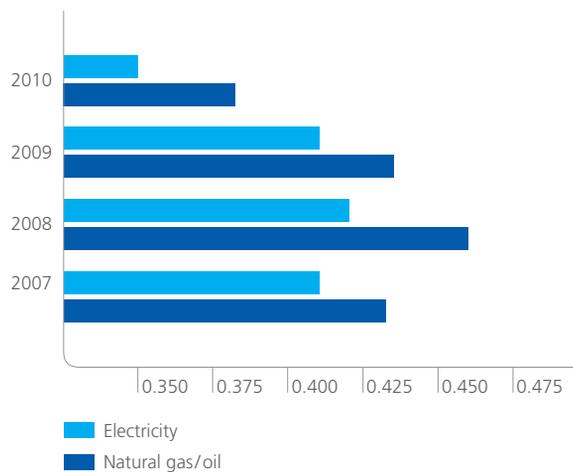
for the restructuring was €15,000, but annual savings will be approximately €80,000 a year.

ELANTAS Zhuhai also installed a heat exchanger into the heating system for heat transfer oil, which cools exhaust gases from 330 to some 120 °C. At the same time, the exhaust heat is used for hot water heating in the bathrooms, which had previously been based on electrically operated systems. A heating boiler at the site was upgraded for operation with natural gas. It is currently still fueled with oil, but there are plans to build a gas pipeline to the plant, which will reduce CO<sub>2</sub> emissions by approximately 20 percent. The automatic control of the cooling tower fan, which switches off automatically when it is not needed depending on the temperature of the cooling water, also contributes to energy savings.



### ALTANA energy consumption

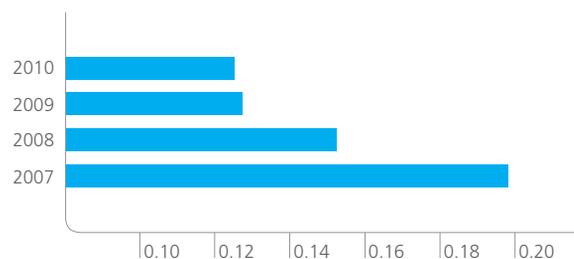
With reference to gross value added<sup>1</sup> (KWh/Euro)



At BYK USA, more than €90,000 were invested in upgraded lighting until the end of 2009 (this sum included some €30,000 of subsidies). The resulting energy cost savings are €24,000 per year. In terms of gross value added, power consumption dropped by 17 percent, although a new finished

### Power consumption at BYK USA

Power consumption with reference to gross value added (KWh/Euro)



<sup>1</sup> Gross value added (cost of labor plus EBITDA)

product warehouse became operational. BYK USA as well as ELANTAS PDG in St. Louis replaced old heating boilers for steam generation and thermal oil heating with more efficient boilers. ELANTAS also installed a heat exchanger and increased its energy efficiency to approximately 95 percent with the €285,000 investment. The resulting energy savings amount to 600,000 kWh of natural gas a year. The measure was supported by the local natural gas provider with a reimbursement of approximately €10,000.

### Small and large steps taken by the energy manager

At the ECKART plant in Günterstal, in-house energy manager Siegfried Kreuzer implemented a number of optimization measures in 2010. The exhaust heat of three compressors is now used for heating, the pressure level of compressed air systems was partly reduced, two major compressed air leaks were fixed, and a heat exchanger was optimized for the feedback of distillation heat. All of these measures save the equivalent of €85,000 or 450 metric tons of CO<sub>2</sub> a year.

In a separate effort, the company is developing concepts for larger projects, evaluating their feasibility and profitability, and has assessed their CO<sub>2</sub> reduction potential. However, these options have to be coordinated appropriately and combined into an overall concept. They include heating the building with wood chips or pellets, a higher milling temperature with low-temperature heating (e.g. floor heating

systems) based on cooling water, as well as utilization of cooling water in heat pumps and community heating networks. Furthermore, the company is currently evaluating the feasibility and profitability of using renewable energy sources such as photovoltaics and particularly wind-generated power.

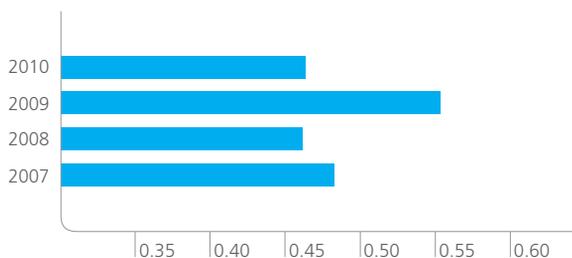
Mr. Kreuzer, the energy manager, has also performed five-day energy audits at other sites of ECKART. These led to the identification of several reduction potentials, including steam system optimization, reducing energy losses, use of energy-efficient compressors and exhaust heat utilization, air-air and wastewater heat exchangers, exhaust heat use of atomizers and calcining furnaces for reducing heating needs, and the building insulation or heating with compressor exhaust heat. Overall, this resulted in a savings potential of approx. 1,500 metric tons of CO<sub>2</sub> emissions.



### Renewable energies under review

Another renewable energy project became operational at ELANTAS Deatech in Ascoli. Since 2009, a photovoltaic system covers a roof area of 6,500 square meters at the site, consisting of 5,000 solar panels with a peak output of 785 kilowatt (kWp). The system is engineered to generate at least a million kilowatt hours per year and will cover a fifth of the current power needs of the plant. The purpose of the €4.7 million system was not only to reduce power costs, but also to help fulfill the environmental protection goals of the ALTANA Group. 2010 was the first full year in which the system was operational. It produced 948,000 kWh of power (five percent less than anticipated) and consequently saved some 377 metric tons of CO<sub>2</sub> emissions with reference to the Italian power mix.

**CO<sub>2</sub> emissions at ECKART**  
With reference to gross value added (kg/Euro)



### Energy-efficient new construction

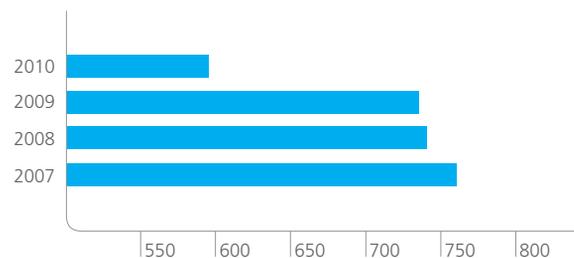
The construction of a new research laboratory began at the Wesel site in early 2010. From the end of 2011, the three-story building with a utility area of 5,600 m<sup>2</sup> will house the areas plastics, biotechnology, industrial applications, research and development, and analysis, with workplaces for up to 130 people. The €18 million investment will offer the latest laboratory technology and an energy-optimized building concept with an excellent eco-balance. The entire energy consumption will be approximately 30 to 40 percent lower than in a conventional laboratory. For example, some 60 percent of the heating and cooling systems are supplied through heat pumps and groundwater. The new structure meets all requirements for a LEED certificate. LEED (Leadership in Energy and Environmental Design) of the American Green Building Council defines a number of standards for sustainable construction.



### Water

According to Welthungerhilfe, the global consumption of water has increased almost tenfold in the past 100 years. Today, 31 countries have permanent water shortages, and this number could rise to 50 countries with some three billion inhabitants by the year 2025. Agriculture accounts for about two thirds of total global water use, while the industry uses another twenty percent, and households, ten percent. In contrast, industrial production in Germany accounts for over eighty percent of water consumption.

ALTANA drinking water consumption  
absolute (thousands of m<sup>3</sup>)



ALTANA consistently records its consumption of drinking water, surface water, and ground water. Overall, the Group not only reduced its use of drinking water in absolute terms from 770,000 m<sup>3</sup> in 2007 to 596,000 m<sup>3</sup> in 2010, but also in terms of the produced volume. In 2010, our drinking water consumption was 1.2 m<sup>3</sup>/t (equivalent of 1,200 liters/ton). Our goal is to reduce our drinking water needs by five percent from 2007 to 2012. In 2010, approximately 650,000 m<sup>3</sup> of groundwater and surface water were consumed, mostly for cooling. This water is either returned without contamination (once-through cooling) or it evaporates (cooling circuit with cooling towers).

### Saving water in spite of high availability

ECKART Pigments in Finland is by far the largest water consumer in the Group and used as much as 383,000 m<sup>3</sup> in 2007.



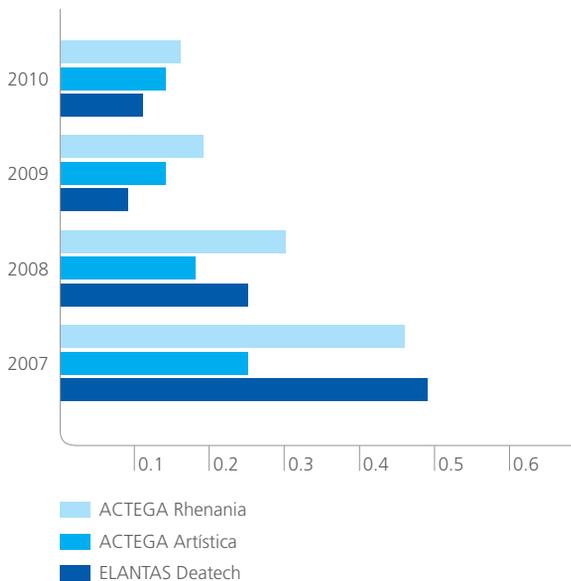
(from 5,750 to 2,390 m<sup>3</sup> or from 0.5 to 0.19 m<sup>3</sup>/t) and at ACTEGA Artística (from 1,020 to 662 m<sup>3</sup> or from 0.235 to 0.155 m<sup>3</sup>/t) over three years. This is particularly important for ACTEGA Artística, which is located in Spain, where water is scarce. The same applies in Italy, where the drinking water consumption at ELANTAS Deatech in Ascoli was reduced from 9,600 to 2,100 m<sup>3</sup> or from 0.26 to 0.06 m<sup>3</sup>/t with a new water treatment system.

Thanks to optimized processes, this demand was decreased to 287,000 m<sup>3</sup> by 2010. In terms of the produced volume, consumption therefore was reduced from 255 to 216 m<sup>3</sup>/t. In light of the ample water supply in Finland, this high consumption continues to be acceptable. However, ECKART plans to further reduce water consumption with the development of new effect pigments such as Mirage and Luxan (see page 20) in the coming years. The installation of a closed cooling circuit also achieved water savings at ACTEGA Rhenania

### Water for climate protection

The total water consumption within our Group does not include the water volume of 25,000 m<sup>3</sup> we use as solvent, since this represents an environmentally sound alternative to fossil fuel-based solvents (see page 38). The U.S. has the highest per-capita consumption of coatings with about 10 liters per year. Assuming that coatings consist of 50 percent water, this would amount to 5 liters a year. The following comparison highlights the comparatively low volume of this use: The per-capita consumption of drinking water in Germany is approximately 47,000 liters a year.

**ALTANA drinking water consumption**  
absolute (thousands of m<sup>3</sup>)



### Emissions

The principal emissions of ALTANA are solvents, dust, and noise. Solvents (volatile organic compounds or VOC) are at the focus of criticism because of the air pollution and summer smog (ozone formation) they cause. In addition, they contribute to climate change although their impact is relatively small compared to energy generation. VOC are broken down in the air by way of intermediates with varying longevity and climate impact. In the most favorable case, the climate effect corresponds to the combustion of the solvent. The incineration of a ton of solvent generates approximately three tons of CO<sub>2</sub>.

The ACTEGA Division uses some 25,000 m<sup>3</sup> of water instead of solvents in its products. This prevents the release of 75,000 tons of CO<sub>2</sub> equivalent into the environment. For comparison, the entire emissions from energy consumption are just 10,000 tons of CO<sub>2</sub> at ACTEGA, and a total of approx. 140,000 tons

in the entire ALTANA Group. Accordingly, replacing solvents with water represents a significant improvement of the eco-balance.

In most cases, ALTANA measures emissions in the required intervals and estimates the volume for the total reporting period instead of continuous measurement. For the year 2010, all ALTANA sites estimate a joint VOC emission volume of below 300 tons. Dust emissions, primarily from the pigment production at ECKART, are calculated at below 40 tons. In the past years, new exhaust air filtering systems were installed to reduce VOC at ELANTAS PDG, ELANTAS Deatech in Ascoli, and in the ELANTAS Deatech plant that became operational in Quattordio in 2010.

Compared to the VOC emissions that we help our customers save by using water as a replacement for organic solvents (see page 38), our own VOC emissions of 300 tons a year can be considered reasonable. For example, ACTEGA Rhenacoat has increased the share of water-based coatings from one percent (2008) to approximately 10 percent (2010) with new product development and hopes to increase this share to 15 percent in 2011.

ELANTAS Deatech in Quattordio has invested some €400,000 in a new VOC incineration system to reduce its emissions. It incinerates up to 10,000 m<sup>3</sup> of solvent-contaminated air at temperatures of 750 to 780°C. Two heat exchangers help utilize 60 percent of the resulting thermal energy for other production processes. A flame-ionization detector continuously monitors the organic compound content of the exhaust air.

ALTANA complies with statutory noise limits at all of its sites. Noise-reducing measures were taken in the laboratory exhaust system at ELANTAS Deatech (cost: €15,000). This measure reduced the noise level by 3.5 decibels in the daytime and by 4.5 decibels at night.

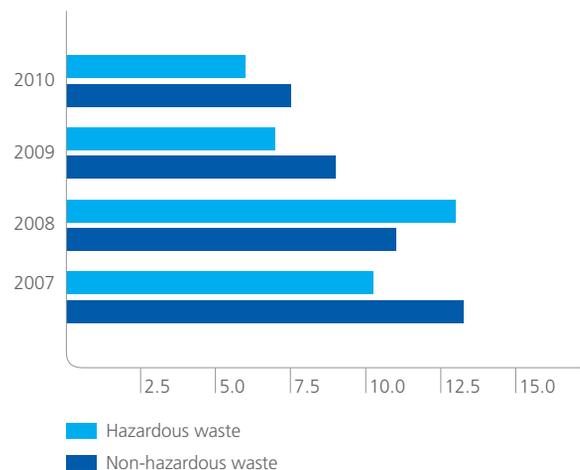
Most dust emissions are generated in the pigment production of ECKART. Filters have been installed at these sites to reduce dust and emissions are consistently below the statutory limits. Further reductions are currently not possible for technical reasons due to the hazard of dust explosions.

## Wastewater/Solid waste/Existing contamination

A part of the waste stream at ELANTAS PDG consists of water with a 20-percent organic substance contamination. To address this, the company started the "Evaporative Thermal Oxidizer" project in 2009, which resulted in the corresponding structural investment in 2010. Today the water is cleaned with phase separation, pH adjustment, and filtration. Nevertheless, the organic substance content in part still exceeds the approved limits. We have initiated further optimization work and hope to successfully continue the work in 2011 to significantly reduce the waste volume. Most ALTANA sites do not produce any wastewater streams with chemical contaminations. Only ELANTAS Beck India has noteworthy emissions, but operates a wastewater treatment system. The transfer in chemical oxygen demand (COD) was approximately 4.5 tons in 2010.

Some ALTANA sites are involved in soil and groundwater restoration work. A groundwater restoration is being carried out on the former premises of Wiedeking GmbH at BYK-Chemie in Kempen. This contamination had been known to the authorities since 1981. Since then, a number of damage prevention measures have been implemented, including the closure of a tank farm for solvents, excavation of another tank farm with soil removal and disposal, and vacuum extraction. The final restoration of the site will be accomplished with the construction of a hydraulic barrier. A number of

**ALTANA waste disposal volume**  
With reference to gross value added (g/Euro)





restoration drillings have been performed for this purpose. The resulting water is cleaned with activated carbon.

The spread of BTX aromatics (benzol, toluol, xylol) and phenols was significantly reduced in the time from 1996 to 2010. Nevertheless, the restoration goals have not yet been achieved in Kempen.

## Biodiversity

The United Nations declared 2010 to be the International Year of Biodiversity to call attention to the global threat of losing biological diversity of plants and animals. The greatest threats to biodiversity come from the increasing loss of habitat as a consequence of climate change, pollution, resource exploitation, and the spread of invasive species.

While many companies have long been aware of conventional topics of environmental protection and have made them part of their management systems, the issue of biodiversity has not yet received the necessary level of attention, including at ALTANA.

## Biodiversity means service diversity

Biodiversity refers to a variety of ecosystems, species, and genes. Natural ecosystems provide so-called system services, which include the supply with drinking water, raw materials, and food, but also regulatory functions such as climate and flood control. Further services include decomposition of toxins, cultural services such as tourism or bionics, and basic services such as soil, water, or biomass. All these services of Nature have an economic benefit of which we are not fully aware. To give an example, the value of insect pollination of agricultural plants in the EU is estimated at €15 billion a year.



ALTANA uses the “Biodiversity Management Manual” by the Federal German Ministry of Environmental Conservation and Reactor Safety as an indication. It provides many practical examples about the benefit of biodiversity for the industry and suggests hands-on activities for promoting biodiversity.

According to the manual, biodiversity is determined by the following factors and the corresponding areas of action:

- Habitat change
- Climate change
- Invasive species
- Overuse
- Emissions/Immissions

**The following six action areas affect biodiversity:**

**1. Site and real estate**

A prospering company such as ALTANA needs new buildings, and thus occupies open space with new construction, which in turn reduces habitat. For example, we constructed a new central administration building and finished-products warehouse in Wesel and moved into the new site of ECKART in Zhuhai and the new BYK site in Tongling.

When it comes to new structures, ALTANA builds high. The height of the administrative building is 23 m, while the new warehouse is 36 m tall, which resulted in limited space consumption. In addition, the administrative building was constructed on an almost fully developed area. The parcel now has 40 percent green spaces and we planted 70 new trees. Older structures in Wesel and a production facility (seven floors, 41 m), a parking garage with five levels, and two additions were built as high as possible.

The new ECKART site in Zhuhai has reduced the transport volume between Germany and China and the move in Tongling released the corresponding space. ELANTAS Beck India uses its roof area to grow trees and shrubs, which are given to the employees for free. Of course, buildings cause climate-relevant CO<sub>2</sub> emissions, but high energy efficiency is a high priority for us in the construction of new buildings (see page 42). ALTANA also donated money toward habitat preservation (Bislich Nature Preserve) and is active in an industry association to promote the restoration of contaminated sites in North-Rhine Westphalia (AAV) (see page 44). The group focuses on restoring industrial locations for further use or replanting.

**2. Supply chain, operating and auxiliary materials**

Until recently, ECKART produced effect pigments from natural minerals (glimmer), which was surface-mined in India. However, this mining method has a negative impact on biodiversity. ECKART developed alternative effect pigments (see page 20) based on silicates (glass flakes) so that the minerals would no longer be needed.

**3. Products**

The products of ALTANA impact biodiversity primarily by way of solvent (VOC) emissions. The manual cites the conversion to water-based coatings at a manufacturer of colored pencils as exemplary. We have made a significant contribution in this area by using 25,000 m<sup>3</sup> of water instead of organic solvents, advancing the development of water-based coatings as well as additives and pigments for the production of water-based coatings or other low-VOC solutions (see page 39). Water-based coatings also make an important contribution to climate protection, since VOC affect climate change.

**4. Production and processing**

The impact of ALTANA primarily consists of spatial needs for production facilities and warehouses (see Item 1), energy consumption, CO<sub>2</sub> and VOC emissions as well as dust. We record key data on our energy consumption and CO<sub>2</sub> output and have defined specific goals and measures (see page 70). VOC and dust output are far below the emissions of products during their usage and were further cut back in recent years with new exhaust filtration systems (see page 44).

**5. Transport and logistics**

The transport of mineral oil products and the resulting CO<sub>2</sub> and dust emissions have a significant impact on biodiversity. The sites of ALTANA are located all over the globe. For our own products, we prefer ships for intercontinental transport to avoid air freight. Due to our low quantities, domestic transports generally rely on road transport by truck (see page 66). However, we have made first attempts to use trains for transport in Germany (see page 47) and have initiated a project for the determination and optimization of CO<sub>2</sub> emissions in our finished product logistics in Germany (see page 47).

**6. Human Resources**

The daily commuting and business travel of our employees has the largest impact on biodiversity. We have accomplished some unmeasured reduction of travel with videoconferencing, for which all sites are now fully equipped. ALTANA also promotes the use of energy-efficient Diesel cars (with particle filters) for business travel and so-called SUVs are not approved for use as company vehicles.

## Transport

To ALTANA, safety is the highest priority, including when it comes to transporting chemicals. Consequently, we place high demands on shipping companies we contract with, since ALTANA does not use any vehicles of its own for transport. In addition to cost, our selection of logistics service providers is based on criteria such as accident statistics or the existence of an environmental management system certified according to ISO 14001 or similar standards.

The hazardous goods transported on behalf of ALTANA include products that are classified as “dangerous” under the Ordinance for the Transport of Dangerous Goods. The specialty coatings or precursor materials for coatings produced by ALTANA are primarily classified as “flammable” or “corrosive.” ALTANA typically ships its products by truck, and occasionally by tank truck. Goods intended for overseas delivery are sent by ship and only in rare exceptions as airfreight.

### Review of train transport

ELANTAS Beck in Hamburg is working with a logistical company that primarily uses trains. The quality of the service and the price-performance ratio has substantially improved, which is why the train transport will be continued. However, this service provider is currently limited to the Hamburg site.

Although we did not measure the reduction of CO<sub>2</sub> emissions generated by transport in the past, we began to look into further solutions in 2010. The primary goal is to measure current emissions that result from the transport performed on behalf of ALTANA. The next step will then be to define specific key indicators to achieve a measurable reduction of CO<sub>2</sub> emissions.

ALTANA participates in the taskforce “International Logistics–Environmental and Resource Efficiency” of the German Logistics Association to approach this project, which could be considered a sub-aspect of “green logistics.” This taskforce brings together a variety of companies from the consumer goods, automotive, and chemical industry and various logistics service providers. Following the evaluation of the first results, our requirements were defined in consultation with Berlin

Technical University. We plan to initiate a sustainability project with TU Berlin on the basis of the preliminary studies and the measurement of CO<sub>2</sub> emissions from transport services is scheduled to commence in 2012.



### Supply chain management

ALTANA is committed to continuously improving its logistics and supply chain to make transport routes and processes more reliable, safer, and more efficient. This not only saves cost, but also benefits the environment. New suppliers need to be approved by our procurement department before they are allowed to deliver goods, particularly if they are located in countries with less stringent environmental requirements than in the EU. Our supplier management follows the principles of the Global Compact (see page 72).

The goal of sustainable implementation of the Global Compact principles into the ALTANA supply chain was explicitly added to the organizational manual of the ALTANA procurement organization as a guiding principle in 2010. Based on the Global Compact principles, a separate supplier Code of Conduct has been developed and communicated to our supplier. We verify compliance with this supplier Code of Conduct during supplier visits.



“Our employees play an important role in corporate development”

## We are a reliable employer

The success of a company is directly determined by its employees. Because ALTANA is a research-intensive company, our highly qualified and committed employees are our most important asset. They apply their knowledge of innovative technologies, global markets, and technical applications and processes for the benefit of the company.

Around the world, about 5,000 employees work for the success of ALTANA. Their high commitment to our company is expressed in our low turnover rate of less than one percent and in their identification with the goals and values of our company.

We take responsibility for our employees and contribute to their personal and professional development. Our company offers excellent entry-level and career advancement opportunities along with a corporate culture that is characterized by openness and honesty, mutual respect, and tolerance.



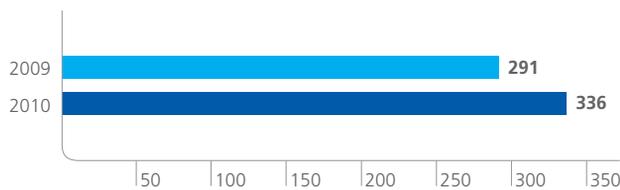
## Apprenticeships

ALTANA sees apprenticeships as more than a social obligation. They also represent a strategic tool to train junior talent and to counter the growing shortage of qualified employees. Our German sites alone provided apprenticeship opportunities for 138 young people in nineteen different professions in 2010. This number was 129 in the year before.

The apprenticeship rate in Germany was 5.1 percent in late 2010. All apprentices receive an offer for at least temporary employment after completing their training. It is our declared goal to offer additional apprenticeship opportunities and not to fall under an apprenticeship rate of five percent in spite of growing employee numbers in order to ensure a pool of qualified junior talent for the future.

To promote the dialog between companies and those searching for apprenticeships, ALTANA as one of the largest employers in the Wesel district supports the Wesel Job Training Initiative 2010/2011. The objective of the campaign is to improve the training situation in the district by making young people aware of professional options and supporting them in their search for apprenticeships.

**Number of persons employed for apprenticeship and professional training**  
(including apprentices, interns, and trainees)



In addition to apprenticeship options, we also offer internships for high school and university students and support student thesis work at various levels. Fifteen academic theses were written in Germany with our support in 2010. ALTANA has voluntarily agreed to fair terms and compensation for our interns and is proud to bear the "Fair Company" quality seal. "Fair Company" is an initiative sponsored by the German Ministry of Labor that fights the widespread exploitation



of interns. It was established in 2004 with 37 participating companies. Today, this number has grown to over 1,000 companies and includes ALTANA. All employees are obligated to act in accordance with the initiative guidelines.

## Professional development

Our employees are our most important assets. This creates an obligation for us to promote the qualification and competency of our team. During our annual progress talks (in which supervisors and employees meet as equals), the professional development needs of every employee are defined and the corresponding continuing qualification agreed to. Internal development options range from professional training to project management and social qualification all the way to in-house internships and job rotation measures. In 2010, ALTANA invested approximately €1.7 million in the continuing qualification of its employees (not counting operational training). On average, every employee took part in some 15 hours of external training.

We offer a variety of staff development programs for especially talented, capable, and committed employees to give them an opportunity to prepare intensively for further, more complex tasks. The Management Development Program (MDP) was introduced in 2004. It prepares executives from all ALTANA companies who show management potential for further tasks within the Group in the context of international training sessions offered in English. This program was expanded by five regional programs (Regional Development Programs) in 2007, which are primarily offered in the local language. DP Asia, DP China, DP Americas, DP Italy, and DP Germany have allowed even larger numbers of employees to participate in a qualification measure.



Our Cross-Divisional Development Program Innovation—or CDDP Innovation for short—primarily targets junior talent with a background in the natural sciences. In contrast to other programs, it is associated with a change of workplace within the Group. The program not only emphasizes professional skills, but also focuses on furthering personal factors, such as social skills. As part of the training, employees are given the opportunity to share experiences with coworkers from other Divisions, which has a positive effect on teambuilding. The networking within our company benefits our employees and supports them with their daily tasks.

### Employee recruitment

The industry is competing hard for talented and qualified employees. As labor markets become increasingly more global and transparent, turnover is on the rise and there is great competitive pressure. Demographic changes (see below) and the associated need for employees make it imperative for ALTANA to position itself as an attractive employer in the entire job market with even greater presence.

In the past, ALTANA companies used to organize their own HR recruiting. To change this practice, the ALTANA Group plans to introduce a standardized global e-recruiting system in 2011. This cross-divisional recruitment management system will simplify and accelerate the entire hiring process and we expect tangible time and cost savings from fewer hard-copy and email applications and less data management for recording applications. Ultimately, Web-based recruiting will improve our communication with applicants, for example with faster responses, and will heighten our attractiveness as an employer with a standardized professional presentation in an Internet application portal.

### Women in management positions

In late 2010, the share of women in ALTANA management positions was 16.5 percent. This share is expected to grow in the coming years, but we are not planning to introduce a corporate quota. All companies will be assessed at a local level and may be given targets if necessary.

At the same time, measures that are designed to increase the share of women in management positions should not exclude male colleagues. We offer equal opportunities to all employees and want to consistently improve our general conditions, for example to balance the demands of career and family. The principle that “the most qualified and suitable employee will be selected or promoted to a position” continues to apply. Consequently, we are discussing measures that will have a positive impact on the professional development of all employees. This includes the introduction of an internal mentoring program, the further expansion of flexible employment models, and improved communication about existing options and services.

#### Survey on promoting women

Some 250 female employees, including 89 in management positions, were surveyed in 2010 to analyze the situation of women at ALTANA and to develop suitable measures for promoting female leadership. According to the results, ALTANA offers a work environment that is friendly to women and families, but will need to take further steps to contribute to the increase of women in leadership positions that the Group wants to see.

## Work-life-balance

ALTANA sees work-life balance as the sum of all measures designed to allow for a healthy and sustainable balance of career and private life in a dynamically changing working world in order to secure the life quality of our employees.

The compatibility of career and family is a central aspect of work-life balance. Family-friendly human resource policy is an important prerequisite for equal opportunities. To allow especially female professionals and executives options for professional (re)entry and career advancement, ALTANA offers flexible working hour models. However, women continue to choose part-time jobs in order to find a balance between their professional and private commitments. In late 2010, ALTANA had 355 part-time employees, of which 282 were women.

Of course, our flexible working hour models are also available to our male employees. In addition to conventional part-time models, we also offer our employees the option to take temporary contracts or to work partly from a home office. Although there are no official regulations yet, the HR department, supervisors, and employees typically work to find an agreeable individual solution. This offer is of course also available to mothers and fathers on parental leave. In some cases, we have combined this approach with job sharing models, in which two employees share one workplace and work partially from home. This allows utmost flexibility for both the employees and their supervisors. The offer has been well accepted, but no exact evaluation is available yet, since these cases are statistically recorded as part-time employment.

Furthermore, we offer daycare/crèche placement our employees at some sites within the scope of cooperating with local daycare centers. This makes it easier to balance career activities with individual lifestyle, different working hours, and family needs. Particularly employees who commute a long distance are glad to find daycare for their children in the immediate vicinity of the company.



## Retirement

ALTANA offers a number of employee programs for company-sponsored and private retirement savings. These offers not only increase the attractiveness of the company in the labor market, but also prepare ALTANA for the work environment characterized by demographic challenges. We offer the so-called Lifelong Time Account (LAZ), an ALTANA retirement savings program (AVK) and the deferred compensation program "AltersvorsorgeAktiv mit ALTANA" (AAA).

The Lifelong Time Account was established in 2010 to offer employees in Germany an individual solution for mid- to long-term flexibility of managing their working hours. The purpose of the program is to fund a long-term paid release prior to reaching retirement age with continued employment and social security protection without sacrificing any statutory pension entitlements. Employees may choose to pay parts of their wages/salary as well as converted overtime or vacation days into the account as a gross cash value. The company introduced the so-called demography bonus in January 2010, which deposits €300 per year into the account of union-scale employees. Employees can also choose to make monthly tax-deferred contributions to their Lifelong Time Account that are deducted from their paycheck. ALTANA also introduced a modern new concept of an employer-funded pension system in Germany in 2010. The ALTANA retirement savings program is a contribution system, in which the company invests the pension contributions for employees in the capital market. At the time of entering retirement, employees then have a certain capital to supplement their income. Employees who joined the company before January 1, 2010 are subject to a benchmark system, in which the company guarantees the employee a specific retirement benefit.



#### Measures in response to demographic change:

- Preparations for age-appropriate workplaces, for example with flexible working hour models or special ergonomic adjustments
- Systematic health promotion
- Professional qualification and career development for all age groups
- Implementation of the collective agreement "Lifelong Work and Demography" in the form of a lifelong work account that allows for early retirement
- Active recruitment of qualified staff, e.g. with university marketing
- Increasing the attractiveness of the company for employees and applicants

The amount of this pension is based on the applicable years of service, a defined pension benchmark value, and a personal allocation factor.

The "AltersvorsorgeAktiv mit ALTANA" program is another retirement savings option based on employee-funded deferred compensation. Employees initially invest in stocks and later convert their savings into less risky bonds and money market funds ("lifecycle model"). For this purpose, we selected so-called target funds that are designed to pay out at a specific time.

## Demographics

The demographic development and reforms of statutory retirement regulations have led to significant changes in the working world and pose new challenges for us. To prepare ALTANA for demographic change, we conducted a number of analyses, including an assessment of the age structure of our employees and managers. In late 2010, the average age of our employees was 41.4 years.

## Employee representation

ALTANA respects and protects the rights of its employees to be active in unions and collective bargaining. In principle, all employees, including those at our international sites, have the option to form unions. In Germany, the Corporate Works Council is the contact for all issues affecting the Group. Constructive cooperation with employee representations and their early involvement in decision-making processes is of great importance to us. Many employee-related regulations, such as our Talent Evaluation Process, have been jointly developed by mixed project teams consisting of HR staff and works-council members.

## Diversity

As an international company, we are proud, and see it as one of our strengths, to bring people of different cultures and backgrounds together in effective teams. This expands our horizon and the valuable intercultural experiences become part of our customer solutions.

Equality is expressly mentioned in our Code of Conduct as well as in the ALTANA vision. In general, we follow the principle of "same work, same pay."

ALTANA makes efforts throughout the Group to increase the share of women at the executive level and to attract more employees from different national and cultural backgrounds. The more diverse the backgrounds and experiences, characters and biographies of our employees, the more a globally operating company such as ALTANA can benefit from employee qualities that go beyond professional qualification. In this regard, the short-term or long-term transfer of employees to other sites is of great importance, since such assignments promote intercultural exchange. We plan to introduce a new guideline with standardized conditions and processes in 2011 that ensures the equal treatment of all employees for international assignments.



“We give children and teenagers prospects for the future”

## Stand up and be counted – as a good corporate citizen

**Social commitment is an important part of the daily work reality at ALTANA. Our achievements are not limited to chemical expertise, but also include good corporate citizenship.**

ALTANA is involved in social initiatives in many different ways. While our focus is primarily on projects associated with education, research, and science, we also provide support to disadvantaged youth as well as to university-level research and science. We see this commitment as an investment in the future, since our society and ALTANA will benefit from investments in tomorrow's talent, for example by getting children and teenagers interested in the so-called MINT subjects of mathematics, information technology, natural sciences, and technology. As a globally active company, we are as dedicated to international education projects as to regional initiatives because they ultimately give children and teenagers real prospects for the future. The social commitment of ALTANA is rounded off with a number of cultural sponsorships.

However, our social commitment does not end with our corporate activities. Many of our employees are active in a variety of social projects as well, donating and working for others in need around the world.



## Sponsoring

ALTANA supports sustained education campaigns. All of our projects are designed to give children and youths the education and training they need to take charge of their own lives as adults. As a sponsor of "Braille without Borders," we support blind and visually impaired people in Tibet. The goal of the initiative is to enable these young people to lead independent lives with an income of their own in the future. While we were pleased to help the association with the purchase of special technical Braille equipment and funds for educational scholarships in 2007, we provided additional support to the project in 2010. Thus, ALTANA helped fund the renovation of the kitchen in the education center and continued the scholarships.

In India, we took a leading role in building and setting up a vocational training center together with the organization "Hope e.V." The center allowed some 30 students at the DOVE Community College in the southern Indian state of Tamil Nadu to complete one-year training in 2009. 32 more graduated from the center last year. The project provides young people with computer training and teaches vocational skills to work as laboratory assistants or nursing assistants.

In Brazil, ALTANA is involved with "Passo Fundo" (see page 58), which allows four scholarship recipients to pursue a full university degree in biology, mathematics, agriculture, or electrical engineering.

As one of the largest employers in the Wesel district, we are also aware of our regional social responsibilities to provide young people with future perspectives by offering hard-to-find apprenticeship options. ALTANA therefore is the main sponsor of the apprenticeship initiative in Wesel, which was begun to improve the vocational training situation in the region by encouraging young people and by motivating regional companies to offer new or additional apprenticeship opportunities. Beyond that, ALTANA is active as a private partner in Wesel Marketing to support the attractiveness of the site. A 5,000 square meter exercise area for the CJD Vocational Center in Wesel was built with the support of ALTANA.

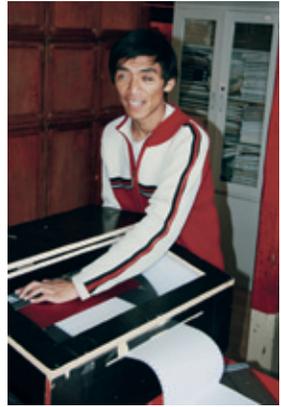
### National and regional commitment

Education and science also are clear priorities in our national sponsoring activities. Thus, we provide support to the Department of Chemistry at Technical University of Munich and are members of the North-Rhine Westphalia chapter of the Foundation for German Science. In addition to our corporate membership, our employees are active in select projects of the Foundation.

The newly established Foundation of the Technical University of Munich is an outstanding initiative that aims to further strengthen the global competitiveness of the university and to retain the best scientific researchers in Germany to attract outstanding students and doctoral candidates. As a consequence, the Foundation is making a contribution to boost the significance of Germany as an industry site. ALTANA has committed some €500,000 to the university foundation over five years and our CEO, Dr. Matthias L. Wolfgruber, is a member of the foundation board.

### Illuminating the region

The new Rhine Bridge in Wesel was officially opened to traffic in 2009. It replaced the previous structure that had been built as an interim solution in the 1950s and will be torn down. With a pylon height of 130 meters, the new bridge over the Rhine is visible from far away in the daytime. ALTANA sponsored an unusual architectural illumination concept for the new bridge, which will light up in the ALTANA colors blue and cyan at night to make it a new symbol of Wesel and the entire Lower Rhine region. The company has been working on this project with the city of Wesel and lighting engineers since 2008. ALTANA has agreed to make a one-time investment of approximately €200,000 in the bridge illumination. The completion of the project is scheduled for the end of 2011/start of 2012.



## “A balance of give and take”

The scholarship program **Passo Fundo** was established by Professor Werner Wittkowski in 1988. The goal of the association based in Münster, Germany, is to allow talented young Brazilians from disadvantaged backgrounds to pursue university studies. ALTANA supports this project. We spoke with Professor Wittkowski on the educational opportunities of needy young people.

### **Professor Wittkowski, where did the idea to support needy young Brazilians originate?**

The idea to support scholarships grew out of the children's support fund **Passo Fundo** in 1988. This organization funds schooling for children from poor neighborhoods through sponsorships. We took over the task to keep funding the education of especially talented students in this group and to allow them to pursue a university degree. In Brazil, only a well-heeled minority has access to high-quality education. Parallel to its abysmal public schools and a small number of openings in state-run universities, the country has a booming education market with expensive private schools and privately run universities. The latter provide two thirds of all university study opportunities.

### **What is the exact purpose of the initiative?**

Our project is based on a balance of give and take, in which talented young Brazilians receive scholarships for university studies, but are expected to give back by getting involved in social projects.

### **Passo Fundo sees the scholarship recipients as multipliers for greater social justice. There is talk about balancing the support given to scholarship recipients with the expectations placed on them. Can you explain that in more detail?**

Indeed, this issue is at the core of our initiative. The students are expected to address the social problems of their country and city and plan their own social projects. Typically, this involves working in poor neighborhoods with various target groups and regional focus topics. However, helping children and teenagers is definitely the top priority. For instance, two groups offer free preparation courses for the university entrance examination. In other cases,

scholarship recipients have created income options for the inhabitants of a poor neighborhood by establishing a recycling cooperative, which is now receiving city support. With such qualified work, our scholarship recipients become multipliers for sustained change. They take their sensitivity for social problems and the shared experience of achieving lasting success with initiatives of their own into their professional lives.

### **You mentioned that the acceptance for the scholarship program has a temporary and a permanent phase. What is meant by that?**

The intensive work with the scholarship students through our partner organizations includes supervision of social projects and monitoring of course grades. Typically, it is decided during the first year whether a probationary program acceptance becomes permanent.

### **What is the importance of socially committed sponsors such as ALTANA?**

Although the subsidy guidelines for public funding in Europe allow for supporting school and vocational training projects, there is no provision for supporting individual students. This overlooks that further funding for socially committed young people is an urgent prerequisite for the sustained development of a country. We therefore have to rely on private donors. Our donor campaigns require very personal information and convincing communication, since we are not looking at immediate emergency assistance, but sustainable development. The donations of ALTANA are of great significance for us and have allowed for expanding the scholarship program.

### **Which projects were the ALTANA donations used for in 2009 and 2010?**

Thanks to the generosity of ALTANA, each of our four partner organizations was able

to fund one more scholarship, which are specifically earmarked for degrees in the natural sciences. We also have been able to approve subsidies for the

country-wide meeting of scholarship recipients in 2010 and for travel expenses of association board members.

### **Are there any shared project ideas for the future?**

We are currently in the process of establishing another scholarship group in addition to the four existing ones in northeastern Brazil, where poverty is much greater than in southern cities. We also hope to improve the national cooperation and coordination of the organizations. An umbrella organization has already been established. We proudly consider our project a model of sustainable development, primarily for social justice. Because of the model's comparatively small use of funds and volunteer commitment, it could be successful in many developing countries.

### **How many scholarship students are currently part of the program?**

We currently support seventy students.

### **What is the role of past program beneficiaries?**

We expect past beneficiaries to make a commitment to social justice in their job and in society, for example by actively participating in the work of the partner and scholarship recipient groups, communicating through the alumni network, providing mutual support, and repaying the scholarships. All of our past experiences support the theory of Professor Klaus Töpfer, who noted that the sustained development of a country is not the result of charity, but of investment in people.



## Sponsorship projects

ALTANA wants to create enthusiasm for natural science and technology in young people. This prompted us to sponsor the "House of Little Researchers" foundation, which targets children aged three to six with its projects all over Germany. We also cooperate with schools to strengthen the teaching of MINT subjects. To give an example of successful cooperation, we have been supporting the booster club of the Böhlstrasse Lutheran Primary School since 2007 to help with the purchase of teaching materials for science classes and to build a new science classroom, where children can experiment with water, explore insects and plants, and learn about the planet system.

ALTANA also is a member of the booster club for the Rhein-Waal University of Applied Sciences. ALTANA CEO Dr. Matthias L. Wolfgruber has taken over the chairmanship of this group and supports the expansion of the international competitiveness of the institution as an economic and scientific location. We also support ten university students who are pursuing degrees in chemistry at the Niederrhein University of Applied Sciences in Krefeld for two semesters with a stipend of €150 per month through the NRW scholarship program.

## Cultural sponsorships

To make further contributions to the quality of life at our site in the Lower Rhine region, we have been supporting the Duisburg Philharmonic Orchestra for many years and officially joined their support organization, Friends of the Duisburg Philharmonic Orchestra, in 2009. In addition to a fixed annual contribution of €20,000, we also support special artistic projects or concert series. Examples include the violin concert series "Great Female Violin Performers," which we were proud to support with an additional €15,000 in the 2009/2010 concert season as well as the production of "The Carnival of the Animals" in 2010, which we sponsored with a donation of €10,000. BYK also supports the Prussia Museum in Wesel with an annual donation of €20,000.

## Check-up for charity

In August 2009, our Wesel site hosted a bicycle project offered by the Psychiatric Initiative Xanten (Spix). For two days, the organization offered low-cost bicycle checkups and repair services to our employees.

## Employees showing worldwide commitment

ALTANA employees keep showing their compassion when it comes to helping victims of natural disasters or people in need. Many of our employees made donations to benefit the victims of the January 2010 earthquake in Haiti. ALTANA ended up matching the donations and we were proud to send €70,000 to a combined German assistance network of charitable organizations.

The employees of BYK also dedicated time to the "International Peace Village" in Oberhausen in 2010 by working to set up a garden with plants and garden tools donated by ALTANA. This commitment will be continued in 2011. The Peace Village is a private initiative that provides therapy for injured and traumatized children from war zones in Afghanistan, Angola, or Sri Lanka.



Social commitment is part of the daily agenda at our sites in other countries as well. The employees of ELANTAS PDG in St. Louis provided impressive evidence of this commitment with their participation in numerous social projects over the past two years, including a blood drive for the Red Cross. They also donated clothing and food to a local soup kitchen, gave financial and material support to the St. Louis North Business Association, and collected donations for the U.S. animal protection group Humane Society.

## Key performance indicators

The following pages provide an overview of our corporate activities in the period from 2007 to 2010 on the basis of various key performance indicators, which are grouped into the areas environment, production, safety, and human resources. We are currently reviewing whether to expand the recording of performance indicators in select areas.



## On the environmental indicators

As in our past two environmental reports, this overview again presents selected environmental data in aggregated form for ALTANA and its Divisions. As a specialty chemicals company, we make a particular effort to compile data on the areas of climate protection and energy consumption, waste, resource efficiency, and water consumption. Data about emissions into water (chemical oxygen demand or heavy metals), emissions of ozone-depleting substances, or climate-relevant gases from production processes play no or just a minor role.

Our environmental data are recorded, reviewed, and released at the individual production sites in accordance with internal specifications. Key environmental data are shown with reference to gross value added (cost of labor plus EBITDA). In their compressed form, the environmental indicators reflect tendencies in the development of the entire environmental burden of the Group. We currently collect environmental data at 30 sites (as of Dec 31, 2010). We only consider data that make reference to gross value

added relevant for our objectives and the corresponding degree of achievement.

The following sites or Group companies were not included:

1. Company acquired during the reporting period
2. Production sites of Instruments

Furthermore, we did not include data of non-production companies (e.g. administration, laboratories). They are not subject to the operational management of the production site or are non-production companies, which are not part of the balancing scope.

Please refer to Section Environment from page 36 for more information on the measures that led to changes in our environmental performance indicators. Further environmental data can be found at [www.altana.com/sustainability](http://www.altana.com/sustainability)

## Energy consumption

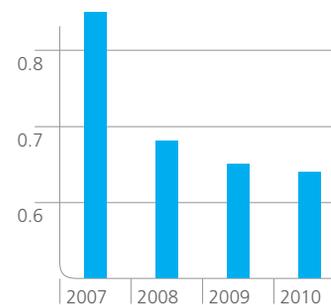
The rise of fuel and natural gas consumption is closely linked to the continuous increase of our production during the reporting

period. However, the specific consumption—with reference to gross value added—as well as our power consumption have declined.

### Oil

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	MWh	73	26,703	13,626	717	41,119
2008	MWh	32	25,574	4,171	1,105	30,882
2009	MWh	330	22,942	3,756	807	27,834
2010	MWh	129	29,539	5,424	1,158	36,250

### Oil (with reference to GVA)

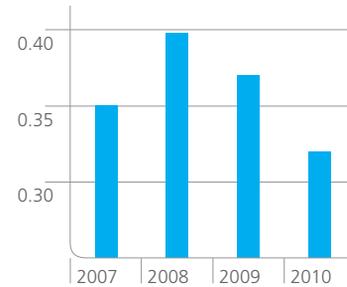


GVA stands for gross value added

**Natural gas**

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	MWh	33,852	52,545	71,339	11,061	<b>168,797</b>
2008	MWh	47,148	52,604	70,194	10,701	<b>180,647</b>
2009	MWh	40,423	36,076	70,262	10,779	<b>157,541</b>
2010	MWh	46,288	45,270	79,272	10,672	<b>181,503</b>

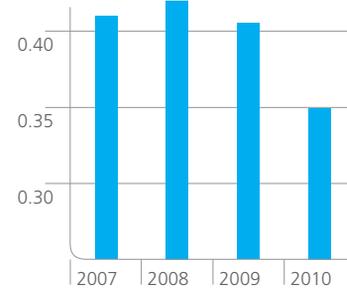
**Natural gas (with reference to GVA)**



**Electricity**

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	MWh	22,732	131,848	28,077	15,759	<b>198,416</b>
2008	MWh	25,329	124,619	26,416	14,946	<b>191,309</b>
2009	MWh	23,293	109,514	25,353	14,977	<b>173,137</b>
2010	MWh	23,642	128,950	27,268	16,603	<b>196,463</b>

**Electricity (with reference to GVA)**



**Emissions**

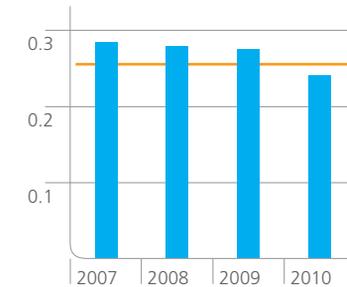
Our absolute CO<sub>2</sub> emissions remained virtually constant during the reporting period. However, energy-efficient technologies had a positive impact on CO<sub>2</sub> emissions with reference to gross value added. We have already met our own goal of reducing these emissions by ten percent by 2012. ALTANA determines its CO<sub>2</sub> emissions in accordance with the regulations of the international

“Greenhouse Gas Protocol” standard and the “Carbon Disclosure Project” on the basis of total energy consumption. The comparison between direct emissions/Scope 1 (in-house energy generation) and indirect emissions/Scope 2 (purchased energies, power), shows that most of our savings potential was achieved with electricity.

**Total CO<sub>2</sub> (Scope 1 + Scope 2)**

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	17,558	76,426	33,153	9,679	<b>136,815</b>
2008	to	20,900	68,843	28,434	8,911	<b>127,088</b>
2009	to	18,727	59,234	30,628	8,860	<b>117,449</b>
2010	to	20,596	73,267	32,957	9,811	<b>136,632</b>

**Total CO<sub>2</sub> (with reference to GVA)**



The orange line indicates the goal set for 2012.

CO<sub>2</sub> (Scope 1)

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	6,857	17,738	17,441	2,426	<b>44,463</b>
2008	to	9,567	17,557	15,329	2,456	<b>44,910</b>
2009	to	8,276	13,408	17,132	2,393	<b>41,210</b>
2010	to	9,958	19,573	18,457	2,599	<b>50,587</b>

CO<sub>2</sub> (Scope 2)

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	10,701	58,687	15,712	7,253	<b>92,353</b>
2008	to	11,333	51,286	13,105	6,455	<b>82,178</b>
2009	to	10,451	45,826	13,496	6,467	<b>76,239</b>
2010	to	10,638	53,694	14,501	7,212	<b>86,045</b>

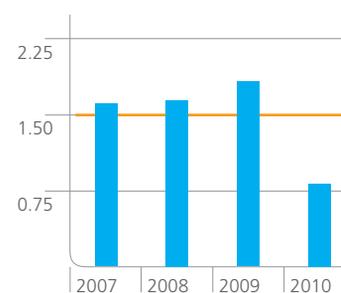
## Water

Absolute drinking water consumption was reducing with a variety of measures during the reporting period. Water consumption was reduced by 33 percent with reference to gross value added.

## Drinking water (not including use of raw materials)

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	m <sup>3</sup>	46,082	501,390	188,624	23,649	<b>759,746</b>
2008	m <sup>3</sup>	47,007	521,017	139,868	32,038	<b>739,930</b>
2009	m <sup>3</sup>	52,370	494,212	159,456	31,200	<b>737,238</b>
2010	m <sup>3</sup>	54,392	384,613	134,498	23,495	<b>596,998</b>

## Drinking water (with reference to GVA)



## Surface/groundwater

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	m <sup>3</sup>	30,486	352,016	30,937	0	<b>413,439</b>
2008	m <sup>3</sup>	27,024	343,181	42,523	0	<b>412,728</b>
2009	m <sup>3</sup>	25,948	409,800	26,477	0	<b>462,225</b>
2010	m <sup>3</sup>	26,017	593,361	25,307	0	<b>644,685</b>

## Waste

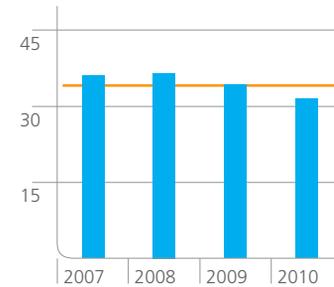
While the hazardous waste volume remained nearly constant during the entire reporting period, the volume of non-hazardous waste decreased significantly. Waste volumes with reference to

gross value added also declined considerably, especially with regard to waste to be disposed. Again, we managed to meet our goals for 2012 ahead of time.

### Hazardous waste

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	4,415	4,481	5,967	2,426	<b>17,289</b>
2008	to	5,229	3,978	5,004	2,426	<b>16,637</b>
2009	to	4,633	3,272	4,181	2,485	<b>14,572</b>
2010	to	5,780	4,274	4,945	2,890	<b>17,888</b>

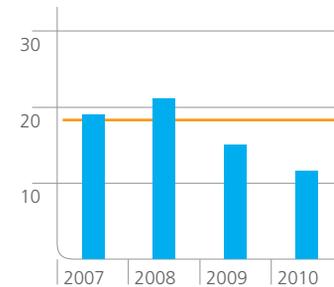
### Hazardous waste (with reference to GVA)



### Non-hazardous waste

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	1,120	5,329	1,196	1,539	<b>9,184</b>
2008	to	1,034	4,448	2,543	1,517	<b>9,542</b>
2009	to	636	3,823	1,091	872	<b>6,422</b>
2010	to	860	3,202	1,048	1,242	<b>6,357</b>

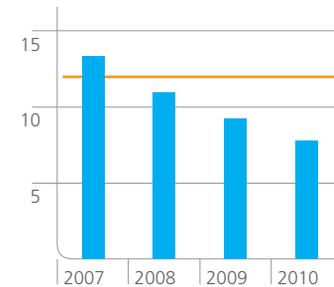
### Non-hazardous waste (with reference to GVA)



### Hazardous waste for disposal

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	403	1,141	4,752	134	<b>6,430</b>
2008	to	201	1,072	3,500	250	<b>5,022</b>
2009	to	106	431	3,061	262	<b>3,860</b>
2010	to	140	540	3,274	328	<b>4,281</b>

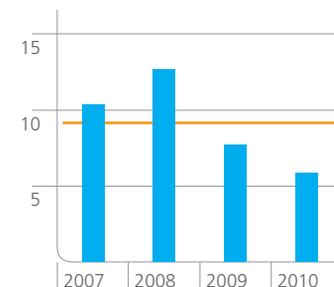
### Hazardous waste for disposal (with reference to GVA)



### Non-hazardous waste for disposal

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	31	3,601	503	742	<b>4,877</b>
2008	to	21	3,346	1,611	747	<b>5,725</b>
2009	to	36	2,371	496	256	<b>3,159</b>
2010	to	36	2,132	375	862	<b>3,405</b>

### Non-hazardous waste for disposal (with reference to GVA)



## Recyclable hazardous waste

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	68	4	1,060	2,052	3,184
2008	to	208	6	1,163	2,065	3,441
2009	to	52	464	896	2,160	3,572
2010	to	55	625	945	850	2,475

## Recyclable non-hazardous waste

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	935	1,223	693	754	3,605
2008	to	829	982	932	737	3,481
2009	to	380	1,347	595	449	2,771
2010	to	501	1,043	662	247	2,452

## Hazardous waste for thermal processing

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	3,945	3,335	155	240	7,674
2008	to	4,820	2,900	341	112	8,173
2009	to	4,475	2,377	225	63	7,140
2010	to	5,585	3,110	726	1,711	11,132

## Non-hazardous waste for thermal processing

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	154	504	0	43	701
2008	to	184	120	0	33	337
2009	to	220	105	0	167	492
2010	to	322	27	12	133	494

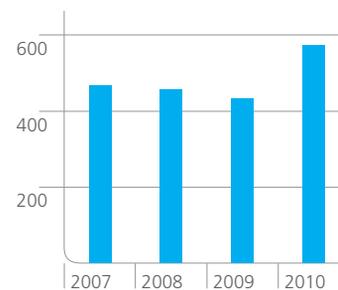
## On the economic performance indicators

Gross value added (GVA) is calculated by deducting the value of prior performance from the total value of the goods and services generated in the production (production value).

### Gross value added

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	thsd €	175,659	158,630	86,988	60,537	<b>481,814</b>
2008	thsd €	165,812	149,064	83,431	57,314	<b>455,621</b>
2009	thsd €	165,590	107,021	88,324	65,618	<b>426,553</b>
2010	thsd €	218,179	158,229	109,689	82,223	<b>568,320</b>

### Gross value added (in million €)



### Finished products

Year		BYK	ECKART	ELANTAS	ACTEGA	ALTANA
2007	to	88,075	42,796	126,847	92,817	<b>350,534</b>
2008	to	81,703	41,499	101,201	83,187	<b>307,590</b>
2009	to	80,064	31,792	102,354	77,444	<b>291,655</b>
2010	to	31,188	36,277	139,694	91,806	<b>298,964</b>

## Transport

The absolute volume of good transported by truck rose slightly compared to 2007 because the overall production volume was larger.

### ALTANA distribution channels for finished products

Year		Water	Road	Air	Rail
2007	to	83,560	288,573	9,687	2,723
2008	to	77,309	224,974	1,477	13
2009	to	72,668	221,226	2,663	3,684
2010	to	87,993	297,009	2,096	1,942

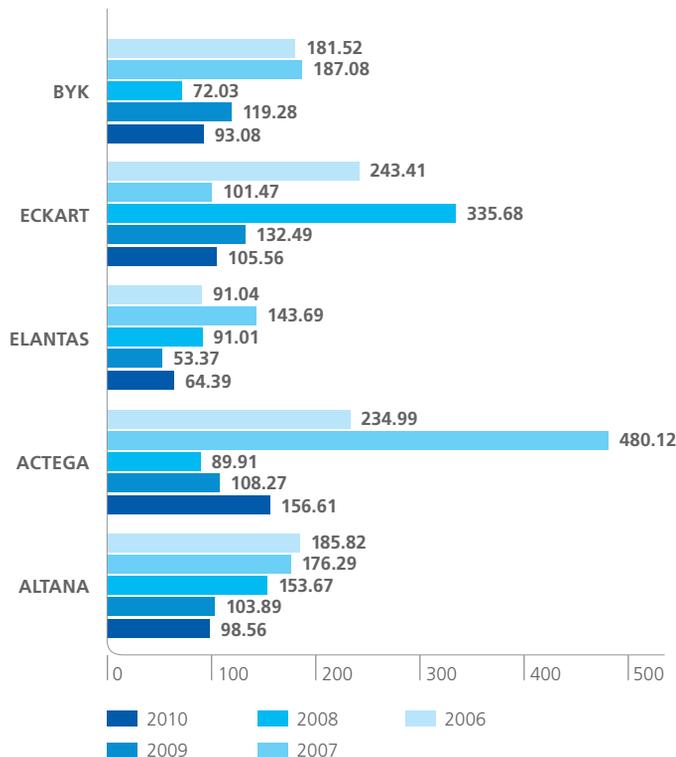
## On the safety performance indicators

The number of lost work days and occupational accidents declined from 2006 to 2010 and we met our goal of staying below 100. Furthermore, the severity of accidents in the Group has consistently declined since 2007. As the accident frequency

index shows, the number of accidents has also dropped in the years 2009 and 2010 compared to 2006. These improvements are due to continuous sensitization and training for proper employee behavior.

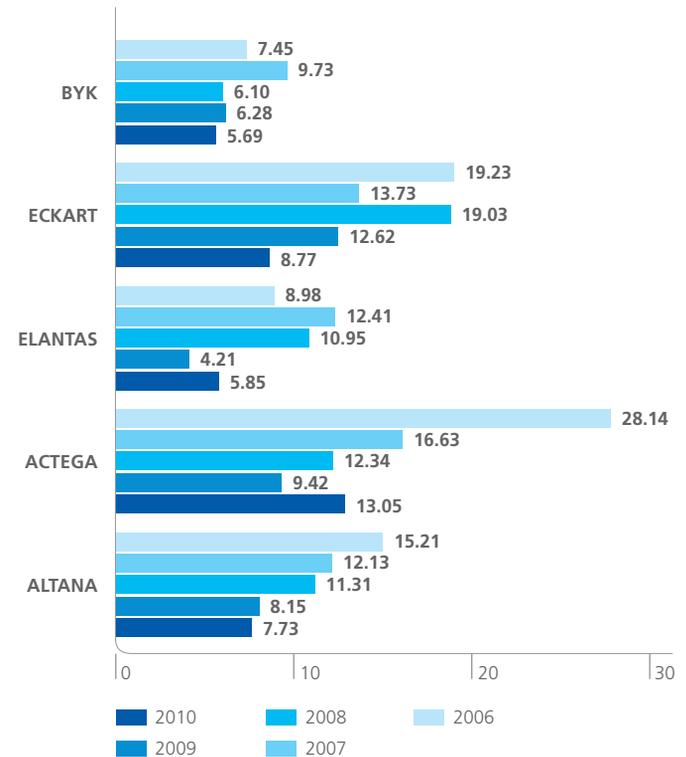
### WAI 3

(Number of lost work days due to occupational accidents per million working hours)



### WAI 1

(Number of occupational accidents with lost work time of more than 1 day per million working hours)

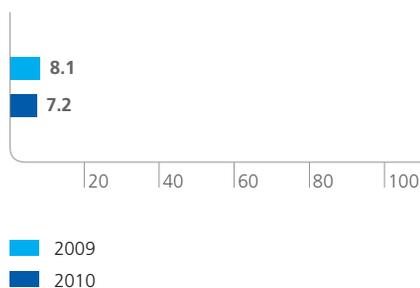


## On the human resource performance indicators

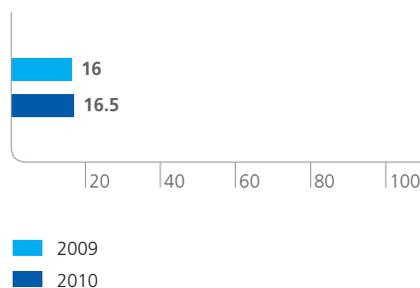
As of the closing date of this report (Dec 31, 2010), the ALTANA payroll included 4,937 employees. This represents an increase of three percent compared to 2009, and is due to the positive economic situation during the reporting period. Compared to the previous year, the number of apprentices in the Group has

also increased. The share of female employees at ALTANA decreased from 27.2 percent to 26.7 percent in 2010 compared to 2009. The number of women in executive positions has increased slightly.

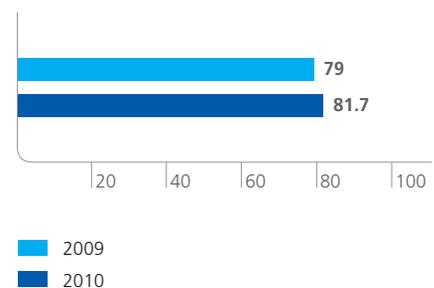
Share of part-time employees (in %)



Share of women in management positions (in %)



Share of employees with access to company retirement plans or company-funded pension plans (in %)



## Highlights

- In fiscal year 2010, ALTANA posted earnings before interest, taxes and depreciation (EBITDA) of €314.1 million.
- Internal energy audits have confirmed further energy efficiency potential at ECKART.
- By the end of 2010, ECKART had not reported any significant industrial incidents for 23 months, and BYK, for 20 months.
- ALTANA achieved the goal of remaining below 100 lost work days due to occupational accidents per million annual work hours (WAI 3).
- The goals projected for 2012 for environmental benchmarks with reference to gross value added were achieved early.
- ACTEGA has developed an adhesive from renewable resources that are not in competition with food production.
- ALTANA and its employees collected some €70,000 for earthquake victims in Haiti.
- BYK has already met its chemical labeling requirements according to the new EU regulation of the Globally Harmonized System, which is to take effect from 2015.
- ELANTAS Beck invested €15,000 in modernizing a thermal afterburning unit to save €80,000 in energy costs a year.
- BYK USA lowered its specific power consumption by 15 percent with efficient lighting.
- The new photovoltaic plant of ELANTAS Deatech in Ascoli saved some 377 tons of CO<sub>2</sub> emissions in 2010.
- Compared to 2007 figures, ALTANA was able to reduce its specific drinking water consumption by 33 percent.

## Lowlights

- Not all sites of ALTANA have a certified environmental management system (ISO 14001) as planned.
- ELANTAS and ACTEGA did not achieve the goal of zero significant industrial incidents.
- With 7.5 accidents, ALTANA failed to achieve the goal of remaining below 5 occupational accidents per year with more than one lost work day per million annual work hours (WAI 1).
- ECKART in Louisville had to pay a penalty of US\$10,000 for failing to comply with specific air pollution limit values.
- The energy yield of the new photovoltaic plant of ELANTAS Deatech in Ascoli remained five percent below projection in 2010.
- The "E50" project for waste reduction at ELANTAS PDG has not produced the expected results yet.
- ALTANA does not have enough women working in management positions.

## Programs/Objectives

The managers in charge of sustainability consistently review our performance indicators to track the achievement of specific objectives. The targets listed below applied primarily to the Divisions until 2010, but were established for every single company as of 2011. This means that meeting these targets is part of the performance evaluations that determine

the variable income components of executive managers. The specified percentages may vary in individual Divisions. These targets should also be reflected in the objectives to be defined for environmental management systems, and measures planned for management reviews are expected to include suitable actions.

### Management

Certification according to ISO 14001 or similar standards by the end of 2012 in companies that are not yet certified	End of 2012
Energy management system at ECKART GmbH: Certification according to DIN 16001	End of 2012
Safety management system at BYK-Chemie: Certification by professional trade association (corresponds to ISO 18001)	End of 2012
Legal Compliance policy: All companies obligated to report penalties to the corporate management	End of 2011
VCI: Open House event at all German companies	Sept. 2011
Global Product Strategy: Establishment of a website for information on all substances registered in 2010	End of 2011
Completion of three energy audits by third parties	June 2011
Communication of voluntary self-obligation of the ALTANA procurement network	End of 2011
Continued communication of ALTANA requirements for suppliers in the context of supplier visits and audits	ongoing

### Products

Expanded development of water-based coatings, especially at ACTEGA	ongoing
Use of renewable resources (without quantification)	ongoing
Additional life-cycle assessments	ongoing
Development of further additives and pigments for water-based coatings	ongoing

### Safety

WAI 1: below 3	by 2013
WAI 3 below 50	by 2013
Further reduction of significant incidents	ongoing

## Environment

Reduction of specific environmental impact (in terms of gross value added):

CO <sub>2</sub> emissions	2007 – 2012	-10 %
CO <sub>2</sub> emissions	2007 – 2020	-30 %
Drinking water	2007 – 2012	-5 %
Hazardous waste	2007 – 2012	-5 %
Non-hazardous waste	2007 – 2012	-5 %
Hazardous waste - disposal	2007 – 2012	-10 %
Non-hazardous waste - disposal	2007 – 2012	-10 %

India: Collection and utilization of rain water	End of 2012
Various measures to conserve water	ongoing
Various measures to reduce waste, including at ELANTAS PDG	ongoing
Wastewater treatment	End of 2011
Energy concept at ECKART GmbH	End of 2012
Assessment of wind power use at ECKART GmbH	End of 2013
Energy efficiency: New administrative building at ECKART GmbH	End of 2013
Energy efficiency training at BYK USA	End of 2011
Various measures for energy efficiency and using renewable energies	ongoing
Co-generation heat/power at ELANTAS Deatech in Ascoli	End of 2011
Result of the finished-product logistics project in Germany	End of 2011

## Human Resources

Implementation of a global e-recruitment system	End of 2012
Plans for systematic recording of illnesses with details about affected areas and functions for occupational health	End of 2012
Implementation of the new vision	Early 2012

# Progress Notes on the Global Compact

Declaration of Support 5  
Preface by Dr. Matthias L. Wolfgruber

Principle	Page	Measure taken
<b>Human Rights</b>		
<b>Principle 1</b> Businesses should support and respect the protection of internationally proclaimed human rights	10, 30, 32, 67	Corporate management, occupational health management, occupational safety
<b>Principle 2</b> Make sure that they are not complicit in human rights abuses	15, 47, 70	Supplier management, supply chain management
<b>Labor</b>		
<b>Principle 3</b> Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	12, 53	Self-obligations, employee representations
<b>Principle 4</b> The elimination of all forms of forced and compulsory labor	n.a.	
<b>Principle 5</b> The abolition of child labor	46, 56	Selection of raw materials; support for education initiatives
<b>Principle 6</b> The elimination of discrimination in respect of employment and occupation	10, 12/13	Compliance management system, Code of Conduct
<b>Environment</b>		
<b>Principle 7</b> Businesses should support a precautionary approach to environmental challenges	13, 14, 60-67, 71	Environmental management systems
<b>Principle 8</b> Undertake initiatives to promote greater environmental responsibility	36-47, 70/71	Changed production, technical updates, programs and goals
<b>Principle 9</b> Encourage the development and diffusion of environmentally friendly technologies	9, 11, 18-21, 26/27, 39, 46	Management, product innovations, use of renewable resources
<b>Anti-corruption</b>		
<b>Principle 10</b> Businesses should work against corruption in all its forms, including extortion and bribery	12/13, 70	Compliance management system, Code of Conduct, legal compliance

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