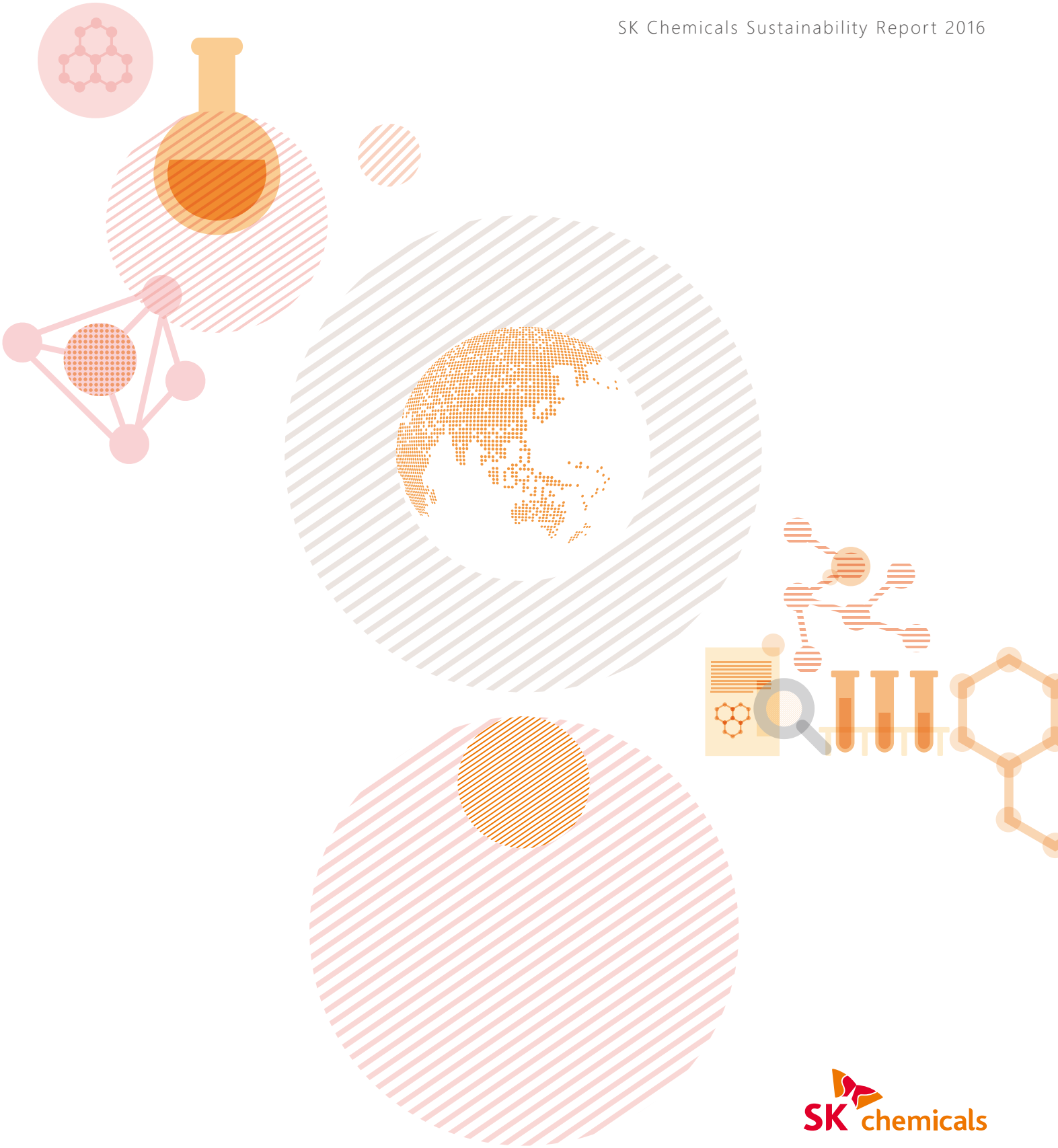
WE CARE FOR THE FUTURE

Healthcare & Earthcare

SK Chemicals Sustainability Report 2016



SK chemicals

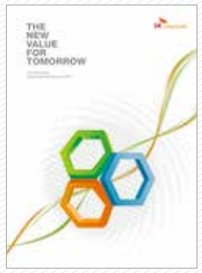
SK Chemicals Sustainability Report 2016

2016

Cover

The cover of “SK Chemicals Sustainability Report 2016” expresses the prestige of a global leading company that provides total health solutions through intuitive imagery and crossing shapes.

2015



2014

Contents

Company Overview

Global Network

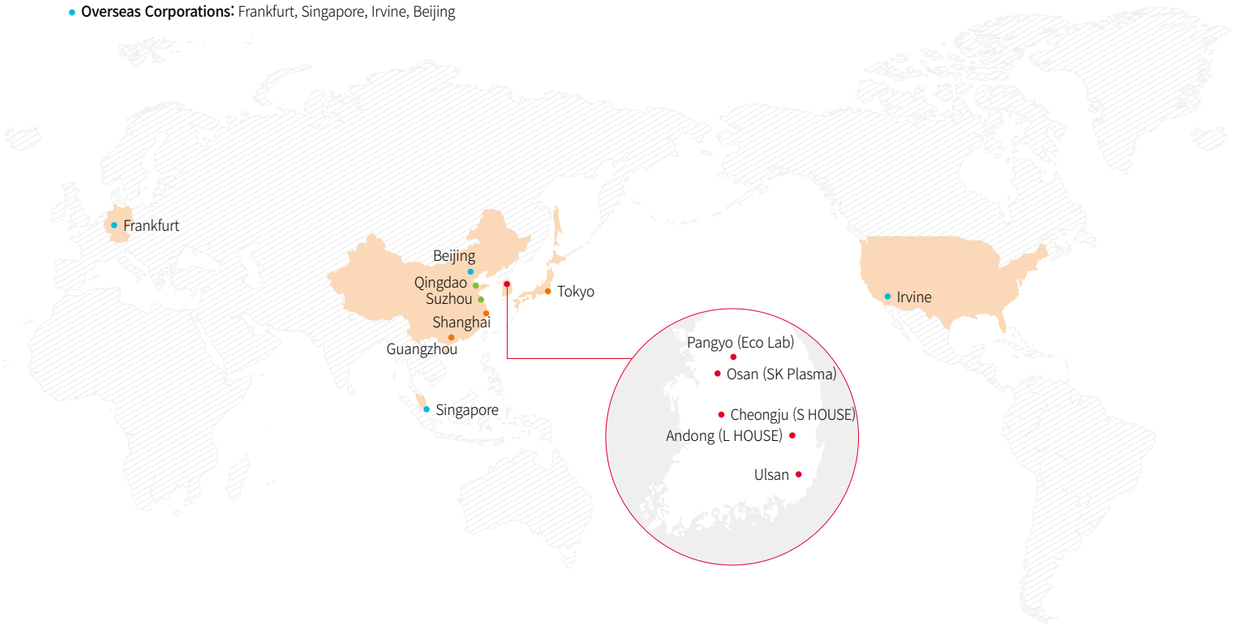
SK Chemicals is headquartered in Pangyo (Eco Lab) and operates four plants: Ulsan, Andong (L House), Cheongju (S House), and Osan (SK Plasma). The Ulsan plant manufactures chemical products, while the other plants—Andong (L House), Cheongju (S House), and Osan (SK Plasma)—produce preventive and therapeutic medicines. The company also has plants in two Chinese cities, Qingdao and Suzhou, and overseas corporations in Germany, Singapore, the United States and China.

Basic Information

Company Name	SK Chemicals Co., Ltd.
Business Line	Chemicals, Pharmaceuticals
Address (Headquarters)	310, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do
No. of employees	1,694

(As of December 31, 2016)

- **Headquarters & Domestic Plants:** Headquarters (Pangyo, Eco Lab), Ulsan, Andong (L House), Cheongju (S House), Osan (SK Plasma)
- **Overseas Offices:** Shanghai, Guangzhou, Tokyo
- **Overseas Plants:** Qingdao, Suzhou
- **Overseas Corporations:** Frankfurt, Singapore, Irvine, Beijing



Mission & Vision

"We care for the future.
Healthcare Earthcare"

Healthcare Earthcare

Health: Prevention and Treatment

We create a healthier world.
Our vaccines and medicines create a healthier world as we provide total healthcare solutions from disease prevention to treatment.

Environment: Environmental Protection

We protect the Earth's environment.
Our eco-friendly materials protect the Earth's environment by serving as alternatives for existing petrochemical materials.

Resource: Energy Efficiency

Our high-performance materials and composite materials prevent the depletion of fossil energy resources by extending the lifecycle of materials and realizing lightweight vehicles, thanks to their excellent functionality.

"Global Leading
Solution Provider
in Eco-friendly Materials
and Total Healthcare"

SK chemicals in the past

Chemicals company + Pharmaceutical company

Global Solution Provider SK chemicals

Eco-friendly materials
Resins
High-performance materials
Bio materials

Total Healthcare
Pharma
Vaccine
Plasma

Providing customer-oriented total solutions
Securing a global competitive edge

Major Subsidiaries

SK Gas Co., Ltd.
Ownership ratio 57.42%
Import, storage, and sale of LPG
* Including 10.31% of ownership of SK Syntec

SK Syntec Co., Ltd.
Ownership ratio 100.00%
Management consulting

SK Plasma Co., Ltd.
Ownership ratio 60.00%
Manufacture of pharmaceutical products

SK Petrochemical Co., Ltd.
Ownership ratio 100.00%
Manufacture of basic chemical materials in petrochemicals

Initz Co., Ltd.
Ownership ratio 66.00%
Manufacture of PPS base resin/compound products

JSI Co., Ltd.
Ownership ratio 56.03%
Epoxy resin manufacturing

SK Chemicals Qingdao Co., Ltd.
Ownership ratio 100.00%
Prepreg manufacturing

SK Chemicals Suzhou Co., Ltd.
Ownership ratio 100.00%
Resin manufacturing

SK Chemicals America, Inc.
Ownership ratio 100.00%
Wholesale business

SK Chemicals GmbH
Ownership ratio 100.00%
Wholesale business

Intervest Biofund Co., Ltd.
Ownership ratio 71.43%
Investments and financing for startup businesses

Major Affiliated Companies

SK E&C Co., Ltd.
Ownership ratio 28.25%
Infrastructure, construction/housing, plant engineering business

ENTIS Co., Ltd.
Ownership ratio 50.00%
Manufacturing business

TSK Water Co., Ltd.
Ownership ratio 25.00%
Maintenance, operation, and design of environment-related infrastructure

Huvis Co., Ltd.
Ownership ratio 25.50%
Chemical (fiber)
*Ownership of SK Syntec

ST Green Energy Pte, Ltd.
Ownership ratio 50.00%
Trading of sources of biodiesel and bio materials

Intervest
Ownership ratio 38.00%
Investment support for startups and loans

Intervest New Growth Fund
Ownership ratio 30.00%
Investments and financing for startup businesses

2016 SK Chemicals Highlights

Green Chemicals Biz.

Reinforced the specialty plastic business by upgrading backend R&D facilities

In March 2016, SK Chemicals completed the construction of SK Chemicals processing lab and launched its operation in the Dongtan Industrial Complex, Hwaseong, Gyeonggi-do to secure competitiveness in the specialty plastic sector, a high-value-added chemical industry. SK Chemicals processing lab will carry out various tasks such as compounding research on plastic developed by SK Chemicals, research on extrusion and injection processes, and evaluation and analysis of properties. It is expected to greatly shorten development processes and respond to individual customers' requests for development more swiftly.

Succeeded in developing the world's first high shrinkage grade PETG film

In 2016, SK Chemicals developed P-SF, P-SF2, and SF200, which are high shrinkage grade films using eco-friendly PETG (Polyethylene Terephthalate Glycol) material—a first in the world. Shrink film is a type of product packaging that helps attach the product label with its name, logo, color (design), or contents description more smoothly to a container's surface. The high shrinkage grade PETG shrink film developed by SK Chemicals is likely to reform the shrink film market in the near future by overcoming the limitations of existing materials such as PVC (Poly Vinyl Chloride) and OPS (Oriented Polystyrene). These materials release environmental hormones with use, and it is difficult to write on them.

Developed Korea's first high-functioning secondary cell battery electrolyte additive

In 2016, SK Chemicals developed the electrolyte additive, which is used to improve the quality of secondary cell batteries—a first for Korea. The secondary cell battery electrolyte is one of the core materials which compose a secondary cell battery with the "anode", "cathode", and "separation membrane". This additive developed by SK Chemicals with its independent technology is used to maximize the performance of electrolytes. It can boost the life and safety of secondary cell batteries and improve output. With regard to the development of electrolyte additives, which requires advanced technology and knowhow, the market has been dominated by three or four American and Japanese companies. This development by SK Chemicals is expected to contribute to upgrading Korea's technology for secondary cell battery additives.

Life Science Biz.

Launched "SKYCellflu quadrivalent", world's first quadrivalent cell-culture influenza vaccine

In August 2016, SK Chemicals launched "SKYCellflu quadrivalent", a quadrivalent cell-culture influenza vaccine developed by SK Chemicals—a first in the world. A single inoculation of this vaccine, which can be injected in people at the age of 3 and older, can prevent four types of the influenza virus. Unlike the existing method of producing the vaccine using eggs, this vaccine does not use antibiotics or preservatives in the manufacturing process. This is achieved by adopting cell cultivation technology based on a bacteria-free culture medium. SKYCellflu quadrivalent prevents more viruses compared to the existing trivalent vaccine and contributes to public health by promoting the product more aggressively for medical workers and consumers.

Acquired the final approval for sale of hemophilia treatment 'AFSTYLA' in the U.S., Canada, and EMA

AFSTYLA, a hemophilia treatment product developed by SK Chemicals with its independent technology and whose technology was exported to CSL, an Australian company, earned the approval for sale in the overseas markets. The approval for commercial sale was acquired first in the U.S. FDA (Food and Drug Administration) in May 2016, followed by Canada in December 2016 and EMA (European Medicines Agency) in January 2017. This is the first case in the pharmaceutical sector that shows the performance of new biomedicines developed in Korea. SK Chemicals expects to earn more profits on the royalties and milestones based on global sales.

Applied for the commercial sale of "SID710", a dementia treatment patch developed by SK Chemicals, by the U.S. FDA

In April 2016, SK Chemicals completed the application for the commercial sale of "SID710", a patch-type dementia treatment product, by the U.S. FDA. After earning the world's first approval in the European market as a generic product with rivastigmine in 2013, the SID710 product has been launched in major 14 countries including Germany, France, U.K., and Spain. The product sells under the "WONDRON Patch" name in Korea.

History

~ 2007

- 1969 · Sunkyong Fibers Co. was established
- 1989 · Life Science Research Center was established
- 1999 · SUNPLA®, a third generation platinum anticancer drug, was developed for the first time in the world (domestic new drug #1)
- 2001 · SK Chemicals Qingdao Co., Ltd. was established (SK Chemicals local investment company in China)
  · Eco-friendly and high-performance resin, SKYGREEN®, was developed
  · Dongshin Pharm Co., Ltd. was acquired (vaccine and plasma business)
- 2002 · JOINS®, anti-arthritis drug, was launched (new natural drug #1)
- 2006 · Biodiesel production technology was developed
- 2007 · Mvix®, an erectile dysfunction drug, was developed
  · SK Chemicals merged with bio venture In2Gen

2008 - 2012

- 2008 · UBCARE Co., Ltd., a healthcare company, was acquired
- 2009 · Biomass-containing polyester resin, ECOZEN®, was released
- 2010 · ECOPRIME®, a biodiesel brand, received a prize from the Minister at the Green Technology Award
  · ECOZEN® won the prize for Korea's ten new technologies and the Silver Prize at the Korea Technology Award
  · The Company was listed on the DJSI (Dow Jones Sustainability Index) Korea for the first time
- 2011 · ECOZEN® won a U.S. Food and Drug Administration (FDA) Certificate
  · MVIX® - S, the world's first film-type erectile dysfunction drug, was launched
  · Headquarters (Eco Lab) obtained a green building certificate (LEED Platinum) and won a prize at the Korea Architectural Culture Awards
  · The Company won the Top Prize in the Chemical and Pharmaceutical Sector of the Green Rankings
- 2012 · NBP601 (hemophilia treatment) was selected as one of Korea's ten best new technologies and received a prize from the Minister of Knowledge Economy
  · Environment management website (skecoweb) opened

2013 - 2014

- 2013 · Andong (L House) plant obtained a green building certificate (LEED Gold)
  · SK Chemicals PCT (Polycyclohexylene Dimethylene Terephthalate) material was selected as one of Korea's ten best new technologies and received a prize from the minister
  · SK Chemicals established Initz Co., Ltd. (a joint venture company with Teijin Limited) with regard to PPS (Polyphenylene Sulfide))
  · ECOZEN® and SKYGREEN® obtained an eco-friendly C2C (Cradle to Cradle) certificate
- 2014 · Joint development for vaccines was carried out with Sanofi Pasteur SA
  · SK Chemicals acquired approval for the commercial sale of a cell-culture influenza vaccine for the first time in Korea
  · Project for bio heavy oil (biodiesel) began
  · Andong (L House) plant acquired KGMP (Korea Good Manufacturing Practice) approval for qualification
  · SK Chemicals was listed on the Dow Jones Sustainability Index (DJSI) Korea in 2014 for five consecutive years
  · 2014 K Pharma Night – SK Chemicals received the Innovative Pharmaceutical Company Award
  · 2014 Government Awards for Job Creation – SK Chemicals received the Presidential Citation
  · The Ansan plant and Cheongju (S House) plant were integrated
  · Initz and A. Schulman, Inc. signed a contract for Polyphenylene Sulfide (PPS) supply and joint marketing
  · Global Standards Management Awards – SK Chemicals received the Grand Prize in the sustainability management report category

2015 ~

- 2015 · SK Chemicals rolled out SKYCellflu®, Korea's first cell-culture influenza vaccine
  · The approval for the commercial sale of the world's first cell-culture quadrivalent influenza vaccine was acquired
  · The plasma business was spun off into a subsidiary, SK Plasma Co., Ltd.
  · NBP601 (hemophilia treatment)
  – The company completed the application for the commercial sale of NBP601 to the U.S. Food and Drug Administration (FDA) and EU European Medicines Agency (EMA)
  · 2015 Dow Jones Sustainability Index (DJSI) Korea named SK Chemicals No. 1 in the chemicals category
  · SKYCellflu®
  – The company received the Grand Prize in 2015 Medical Korea's next-generation vaccine category
- 2016 · Hemophilia treatment "AFSTYLA" acquired the approval for sale in the U.S. and Canada—a first for new biomedicine developed in Korea
  · "SKYCellflu quadrivalent" was released as the world's first quadrivalent cell-culture influenza vaccine
  · DMT production facilities were expanded (Capacity-up)
  · Korea's first high-functioning secondary cell battery electrolyte additive was developed
  · The Dongtan processing lab was expanded and relocated

CEO Message

SK Chemicals / CEO **Kim Cheol**

金 徹

SK Chemicals / CEO **Park Mahn-hoon**

朴 萬 勳

Dear Stakeholders,

I would like to extend my sincerest appreciation to our stakeholders for their continued interest and support for SK Chemicals. This year, our company has published our sixth sustainability report, through which we hope to share our financial and non-financial performances, as well as sustainability management measures, with our employees and external stakeholders.
This year's report covers SK Chemicals' responses to issues that can have an impact on our sustainability management as well as annual performance. I sincerely hope that it fully conveys the value that SK Chemicals pursues, as well as the value we pass on to external stakeholders, which include our shareholders, customers, and business partners.

First, SK Chemicals aims to establish transparent and ethical management to enable our sustainable development.
Our goal at SK Chemicals is to maximize stakeholders' happiness and fulfill our corporate social responsibilities. This means that there is a need to go above and beyond merely maximizing our profits. We proactively practice ethical management by enacting our own code of ethics and guidelines. We also operate an autonomous compliance program for fair trade to earn our customers' trust in the market through fair competition.

Second, SK Chemicals is redefining its business model to ensure its growth into a sustainable global company.
Since 2005, we have engaged in a robust restructuring plan where we either sold off or spun off our polyester, PTA (Purified Terephthalic Acid), and PET (Polyethylene Terephthalate) businesses, which allowed us to successfully transform our business model. We have shifted our focus from common use materials to specialty chemicals by making investments in eco-friendly and high-value-added products such as PETG (Polyethylene Terephthalate Glycol) and biodiesel. By completing construction of our premium vaccine plant, we have also laid the foundation to further augment our business portfolio. All of our employees have sought to realize the performance of our new investment businesses—such as PPS (Polyphenylene Sulfide) and plasma—in their nascent stages. Thanks to their hard work, SK Chemicals has been able to attain a dramatic turnaround in performance in 2016 when compared to 2015. We will commit ourselves to having a successful first year in operating our high-value-added business portfolio in 2017 by operating a new PETG plant, collecting royalties from technology export products, and launching the sale of a premium vaccine for shingles.

Third, in order to establish an exemplary corporate culture, SK Chemicals is facilitating an environment in which employees can showcase their talents and maintain a positive outlook thanks to having clear goals, autonomy, and productive camaraderie and teamwork in the workplace.
In this rapidly changing market environment, SK Chemicals leverages its corporate culture in such a way as to help employees continuously perform at their very best. If we can enable employees to unlock a deeper sense of satisfaction and joy in their work, we will surely be able to meet and exceed all of our company's objectives. To create a working environment where employees look forward to coming to work, we provide a diverse range of welfare and leisure programs as a means to boost work efficiency and reinforce corporate competitiveness.

SK Chemicals will continue endeavoring to lay a firm foundation to help realize economic value as a leading company in the chemical and pharmaceutical sector. We continue on our quest to discover new opportunities for future growth, as well as aspire to achieve effective sustainability management. More specifically, we will incorporate ethics in every effort that we undertake, capably handle each and every safety and environmental issue, broaden the talents of our employees, and expand our corporate culture. Through this, it is my deepest hope that our work can contribute to bringing more joy to society. We at SK Chemicals hope that all our stakeholders reading this report will continue to support us as we work toward creating a better society together.

Thank you.

Business Performance

Financial Performance

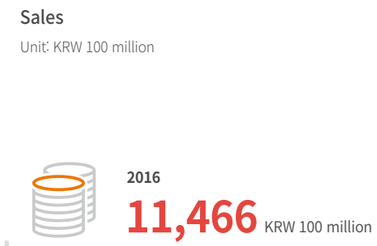
Earnings Turnaround in 2016

SK Chemicals has selected the eco-friendly and healthcare sectors as next generation sectors to cultivate. We concentrate our business on the existing green chemicals business and life science business with the goal of creating stable profits and ensuring sustainable growth. We also conduct business restructuring and search for new business opportunities to establish a supportive organizational system and secure key capabilities such as R&D.
Thanks to our efforts for growth in 2016, the company achieved the complete copolyester production and sale system and expanded sales by securing cost competitiveness in the bioenergy business. Through our company's efforts for cost reduction, SK Chemicals enjoyed the first year of earnings turnaround by attaining annual sales of KRW 1 trillion and 146.6 billion and operating profit of KRW 47.3 billion on a non-consolidated basis.
SK Chemicals has raised its competitiveness in the vaccine business by starting sales of the world's first quadrivalent cell-culture influenza vaccine. We also successfully operate the super engineering plastic plant to drive key engines for growth and further solidify our foundation for growth.

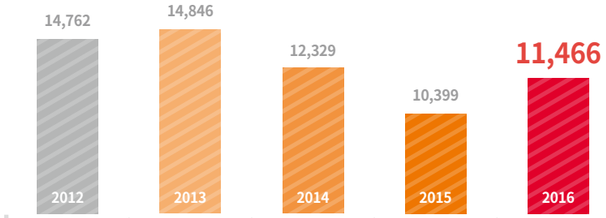
Sales and Operating Profit

Sales

Unit: KRW 100 million



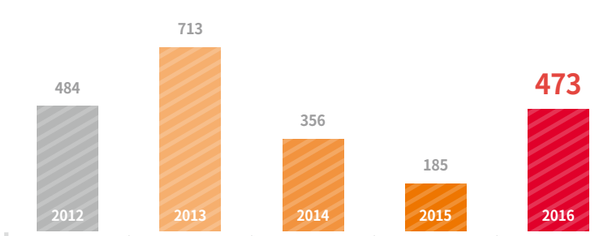
2016
11,466 KRW 100 million



Operating Profit

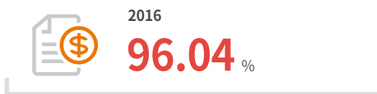
Unit: KRW 100 million

2016
473 KRW 100 million

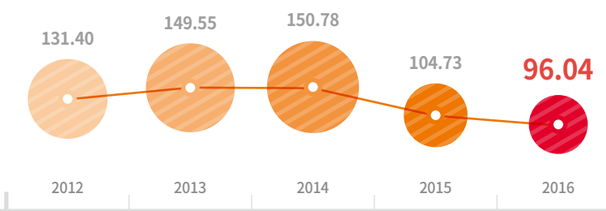


Debt Ratio

Unit: %



2016
96.04 %



Plans and Outlook for 2017

Based on our management performance in 2016, SK Chemicals endeavors to maximize and stabilize profitability in the existing core businesses by enhancing operational excellence in 2017. The company is also speeding up business activities in various sectors with the goal of quickly accomplishing performance in new investment businesses.
We have improved productivity and reinforced fundamental competitiveness both in existing core businesses and new businesses by improving management and focusing on specialization. In terms of organizational culture, our company sets a clear sense of target and creates and develops an environment where employees can tap their full potential based on autonomy and organizational culture. Through these efforts, SK Chemicals will strengthen our essential competitiveness and continue to evolve and take on challenges for future growth.

GREEN CHEMICALS BIZ.

Market outlook

The chemical industry is exposed to various risks, including fluctuations in oil prices (raw materials) and foreign exchange due to a rapidly changing management environment and unstable international circumstances. However, demands for eco-friendly products and materials are on a gradual rise. As automobiles become lighter in weight and demands for electric vehicles increase, SK Chemicals expect to enter the market for engineering plastic materials and carbon fiber composite materials.

Strategic direction

SK Chemicals has revamped its business portfolio based on high-value-added products and is upgrading our business structure to continually generate stable profits despite possible changes in the external environment. We will accomplish this through the commercialization of PPS (Polyphenylene Sulfide), expansion of Synthesis Polyester production facilities, and increasing sales of engineering plastic materials.
In terms of sales, we strive to take the lead in industrial trends by promoting customer development and sales and focusing on high-value-added use (cosmetics, home appliances, automobiles, etc.). Our company prepares high-value-added businesses by utilizing eco-friendly and high-performance resin and provides customized total solutions by improving the management of the supply chain.

LIFE SCIENCE BIZ.

Market outlook

The domestic pharmaceutical business is likely to experience fierce competition in the domestic market for various issues such as medical fee management, diverse regulations by the government, and reinforced ethical and legal compliance activities. To deal with these issues, domestic pharmaceutical companies will expand their product portfolio in partnership and proactively carry out activities for pioneering the overseas market.
Although there was an unprecedented massive technology export contract for the last two years, its cancellation also caused controversy. R&D is expected to reinforce investment based on superior companies as well as diversify businesses. Due to the drop in profitability from strengthening R&D, internal efforts for efficiency will be made to improve profitability.

Strategic direction

With the aim of improving efficiency and reinforcing the specialty in each business, Pharma, Vaccine and Plasma, SK Chemicals is establishing an advanced organization to proactively cope with the rapidly changing environment and pharmaceutical industry. The company will also conduct management activities to secure competitiveness in the market by reinforcing the basis for the pharmaceutical business, focusing on R&D in the vaccine business, commercializing premium vaccines, and establishing a stable production basis for the plasma business. SK Chemicals is growing into a global leading pharmaceutical company by not only carrying out marketing, production, and R&D activities in compliance with international standards, but also fulfilling our ethical duties.

Green Chemicals Biz.

In the Green Chemicals Biz., SK Chemicals is establishing itself as one of the most distinguished domestic companies in the biochemical sector, based on our exclusive technology in the bioenergy industry, including biodiesel, bio heavy oil, and development of the world's first eco-friendly transparent heat resistant copolyester.
ECOZEN and SKYGREEN, the most representative eco-friendly copolyester products developed by SK Chemicals, acquired the "Gold" certificate, which is the highest level, from an eco-friendly certification institution (C2CPII) in the U.S. In 2013, SK Chemicals established "INITS" in collaboration with global chemical company Teijin and launched the business for PPS (Polyphenylene Sulfide), a super engineering plastic that is highlighted as a material for realizing lighter weight automobiles.
In addition, PCT (Polycyclohexylene Dimethylene Terephthalate) resin, a high heat resistant super engineering plastic that was successfully commercialized by SK Chemicals for the first time in Korea, was selected as one of the top ten new technologies in Korea in 2013.

Resin

With high sales of copolyester around the globe, SK Chemicals signed a contract for large-scale supply in the use of cosmetics containers in China and special films in Europe

R&D

SK chemicals laid the foundation for producing differentiated and customized products by proactively utilizing small-sized general facilities.

Ulsan plant

Implementation of long-term tasks for the next five years to achieve management efficiency: SK Chemicals aims to establish and carry out the master plan in cultivating human resources and managing safety environment and facilities.

Resin Business

In 2001, SK Chemicals developed SKYGREEN, a high-performance eco-friendly material without bisphenol A—this is the second time this has been accomplished in the world. This was followed by the commercialization of ECOZEN, the world's first high heat-resistant and transparent polyester resin in 2009. ECOZEN is a bio components-based copolyester and was globally and exclusively commercialized by SK Chemicals.

ECOZEN Biomass-based Polyester Resin

- A product supplementing the weaknesses of petroleum-based plastic that lowers dependency on petroleum-based materials to reduce greenhouse gas emissions
- Used in dishwashers, microwavable containers, and building materials due to its transparency and high durability
- Certified with the FCN (Food Contact Notification) certification from the U.S. FDA (Food and Drug Administration) and the First Grade certificate for bioplastics by the Korea Biopackaging Association

SKYGREEN High-Performance Eco-Friendly Material

- Commercialized the world's second eco-friendly, high-value-added plastic material without bisphenol A developed by SK Chemicals in 2001 as SKYGREEN
- Widely used in various industrial sectors such as cosmetics containers, electronic parts, and building materials and is promoted as a key business

Biomaterials

Biomaterials are becoming increasing popular as an alternative to existing petrochemical-based materials. They are considered much safer because they are derived from biological sources. With the increasing demand from consumers for eco-friendly products and the implementation of government policies to encourage the adoption of new materials, the biomaterials business is quickly expanding at an annual growth rate of 10%. It is expected to create a market worth KRW 80 trillion by 2020. SK Chemicals is not only endeavoring to establish domestic infrastructure, but is also preparing for the certification and registration to enter the biodiesel market in the U.S. and Europe.

Eco-friendly biodiesel

77% or more of biodiesel gets decomposed in its natural condition for 28 days or longer

Absorbed back by plants
CO_2 emitted during combustion

2.2 tons
Reduced CO_2 emissions per ton of biodiesel used

Biodiesel Environmentally-Friendly Alternative Energy

- Eco-friendly alternative energy that is manufactured by the chemical reaction of animal and vegetable oils (fats) with methanol
- SK Chemicals is currently supplying a high-quality biodiesel, ECOPRIME, to major domestic oil companies by developing an independent production process and broadening the range of business to bio heavy oil for power generation.

Bioplastic & Biochemicals Environmentally-Friendly and Human Body-Friendly Products

- Plastics and chemicals made by chemically or biologically processed renewable biomass including plant-derived resources
- SK Chemicals has selected bioplastic and biochemical products as future growth engines and is striving to develop and commercialize these products.

High-Performance Materials

SK Chemicals is proactive in the high-performance resin business (coating & adhesive), which has a high level of added-value products such as engineering plastics and adhesive coating resins. In the engineering plastic business, the company established INITS in 2013 as a joint company in partnership with global chemical company Teijin Limited and began to commercialize PPS (Polyphenylene Sulfide), a super engineering plastic. SK Chemicals also developed PCT (Polycyclohexylene DimethyleneTerephthalate), an engineering plastic with high thermal stability, for the first time in Korea. The company also plans to expand its compounding business with an extensive range of resins. In the adhesive coating resin business, the company has secured a portfolio with a wide range of products since the mid-1980s from eco-friendly polyester resin and powder coating resin to ultraviolet curable resin and epoxy resin. Based on its capabilities developed in Korea, the company established a production base in China (Suzhou) in 2005 and has expanded its business continuously.

Engineering Plastics

ECOTRAN World's First Chlorine-Free Material, Super Engineering Plastic(PPS)

- ECOTRAN is a super engineering plastic product used in electric, electronic, and automotive parts based for its high heat resistance, chemical resistance, and flame resistance.
- It is the world's first eco-friendly chlorine-free PPS material. Compared to existing PPS, it minimizes the use of hazardous substances, chlorine, and solvent in all stages, from raw materials to production.
- Established a production line dedicated to ECOTRAN in the Ulsan plant and started commercial production in 2016.

SKYPURA PCT Material, Super Engineering Plastic

- SKYPURA, a PCT (Polycyclohexylene Dimethylene Terephthalate) material, provides excellent thermal stability, reflectivity, and light resistance, making it an ideal material for TV and LED reflectors. Its applications are further expanding into electric and electronic goods, including SMT connectors.
- In recognition for its technological excellence, SK Chemicals was chosen as the recipient of a Korea Technology Award from the Ministry of Trade, Industry, and Energy, and SKYPURA was listed among the ten best new technologies.

SKYPEL TPEE Polyester-Based Elastomer

- SKYPEL is an elastic TPEE (Thermoplastic ether-ester elastomer) material with various functions, displaying the characteristics of both rubber and plastic.
- Due to its low friction coefficient, flexibility at room and low temperature, and excellent chemical resistance, SKYPEL is used in wire sheaths. Based on its cyclic elasticity, impact absorption, and high mechanical strength, it is also used in automotive bars (roof racks), bed springs, or elastic fiber chairs.
- Business range has been expanded into the automotive and stable fiber sector.

SKYTRA Eco-Friendly, High-Performance Compound Product

- SKYTRA, our compounding brand, is an eco-friendly, high-performance, and resin-based product that can fulfill the varying needs of our customers.
- Supplied to automobiles, civil engineering, electric and electronic appliances, and home appliance businesses

Coating&Adhesive

SKYBON Polyester Resin for Adhesives

- Widely used for coil coating and can coating because of its high flexibility and excellent adhesion
- Recently used as an adhesive and coasting resin in various sectors, thanks to its eco-friendly features without any environmental hormone emissions
- Established the subsidiary SK Chemicals Ltd. (Suzhou) in 2015 and started to produce and sell adhesive-related products

Crylcoat Powder Coating Resin

Ebecryl Ultraviolet Curable Resin

- Powder coating resin is used for metal surface painting such as automotive wheels and home appliance cases.
- Ultraviolet curable resin is used for coating and adhesion in plastic and wood.

Composite Materials

SK Chemicals is producing Prepreg, a composite material that combines reinforced fiber and carbon fiber. Carbon fiber, which is lighter than aluminum and stronger than steel, has been used in the construction of spaceships and aircraft. It is also attracting attention as an alternative material that can be used to make lightweight vehicles and blades for wind power generators.
In 2012, SK Chemicals and Mitsubishi Rayon Co., Ltd. made a strategic collaboration on the supply of raw materials.

SKYFLEX Prepreg, Carbon Fiber Composite Material

- Utilized as not only a material for sports and leisure products, including golf clubs, fishing rods, and bicycles, but also parts for high-tech products such as aircraft, automobiles, and industrial robots
- Recently expanded its use to materials for wind power generator blades and reinforcement materials for concrete structures

High-Purity Solvents, Display Materials Precursors for Semiconductors

- High-purity solvents that are used in equipment analysis, synthesis of ultra-precision chemical products, and electronics and biotechnology industries, were developed with SK Chemicals technology in a technological partnership with Honeywell International, Inc.
- SK Chemicals is producing and developing Quantum Dot based on organic synthesis, OLED (Organic Light-Emitting Diode) display materials, LCD, and precursors and wet chemicals for semiconductors.

Life Science Biz.

In the Life Science Biz., SK Chemicals is providing integrated healthcare solutions from disease prevention to treatment. The company is making continued efforts to develop new medicines and pioneer the global market. After the premium vaccine was selected as the next-generation growth engine in 2008, SK Chemicals completed the construction of Eco Lab, an eco-friendly research institute, in Pangyo in 2011 and L House in Andong, a cutting-edge vaccine factory, in 2012.
In 2014, the company signed an agreement with Sanofi Pasteur SA for joint R&D and the export of next generation pneumonia vaccines. We also launched "SKYCellflu", Korea's first (for adults) and world's first (for children) trivalent influenza vaccine using cell-culture technology, in 2015 and "SKYCellflu Quadrivalent", the world-first quadrivalent cell-culture influenza vaccine, in 2016.
AFSTYLA is a hemophilia treatment product licensed out to Australian company CSL. It was certified and gained the approval for sale from the U.S. Food and Drug Administration (FDA) and Canada in 2016, followed by EMA (European Medicines Agency), Australia, and Switzerland in 2017. The product has entered the major overseas markets, including the U.S. and EU (European Union)—this is a first for domestic technology-based new biomedicines.

Pharma

Hemophilia treatment "AFSTYLA" acquired an approval for sale in the U.S. FDA and EMA—this is a first for new biomedicines developed in Korea.

Vaccine

"SKYCellflu quadrivalent", the world's first quadrivalent cell-culture influenza vaccine, was launched through successful marketing.

Plasma

The new plant for the SK Plasma Fractionation Center in Andong earned approval for construction and is preparing for permission to start commercial operation.

Pharma

Since the development of Korea's first new drug, "SUNPLA", in 1999, the pharma sector by SK Chemicals went on to launch JOINS, Korea's first botanical new drug in 2002. This was followed by "Mvix", the most effective erectile dysfunction treatment in the world in 2007, and "Mvix-S", the world's first film-type anti-impotence treatment in 2011. In the field of formulation development technology, the company owns a DDS (Drug Delivery System) technology that effectively transports medicine in sufficient amounts for patients. The company also started sales of "TRAST", a patch-type arthritis drug that uses its superior DDS technology and has now grown into a leading brand in Korea.

In 2013, "SID710", a dementia treatment patch-type generic medicine, was approved for marketing in Europe. This is the first product of its kind in Europe, which demonstrates the level of advancement of the company's technology. As the company applied for sales approval from the U.S. FDA in 2016, the company is taking a significant step toward entering the overseas market.

Based on its independent R&D capabilities, the pharma sector of SK Chemicals will strive to develop new improved medicines. The company will develop innovative medicines and utilizing patents and medical technologies, as well as broaden its product portfolio through diverse partnership activities.

MVIX(S)
World's First Film-Type Erectile Dysfunction Treatment

Ranked No. 1 Efficacy in the International Index of Erectile Function

JOINS
First Domestically Developed Botanical Drug

As Korea's first natural ingredients-based new medicine, JOINS has been approved for its painkilling effect with low side effects and cartilage protection function.

TRAST
Potent Knee Arthritis Treatment Effect

TRAST minimizes any side effect of oral medicine, but maximizes the effect of treatment by direct application on areas of the body afflicted with arthritis.

GINEXIN-F
No. 1 Gingko Leaf-Derived Drug for Blood Circulation

GINEXIN-F recorded over KRW 10 billion in sales in the first year after its launch. It has maintained solid market dominance as the No. 1 brand in the domestic market, using patented technology to maximize its efficacy.

SID710
Patch-Type Dementia Treatment

SID710 Exelon patch was certified for the first time as a generic medicine in Europe in 2013. It achieved the top status in the European market among generic medicines with the same components. In 2016, SK Chemicals applied for permission for commercial sale from the U.S. FDA and is accelerating its entry into the overseas market.

NBP601(AFSTYLA)
New Recombinant Biomedicine for hemophilia

AFSTYLA is the first domestically developed recombinant biomedicine for hemophilia treatment and was licensed out to CSL Limited in 2009. The product is the first domestically developed new biomedicine approved for commercial sales by the U.S. FDA, Canada, and EMA.

Vaccine

The domestic vaccine market is worth KRW 700 billion (as of 2014). With the expansion of national mandatory vaccination and a paradigm shift in medical service, it is expected to experience an annual growth of 8% or more. Most premium vaccines distributed in Korea, however, are produced by multinational pharmaceutical companies. Under these circumstances, the government has announced a plan to enhance the rate of self-supply of vaccines and expand its support.

In 2006, SK Chemicals began research to develop independent technology-based vaccine. In 2014, the company signed an agreement with Sanofi Pasteur SA for joint R&D and the sale of next-generation pneumonia vaccines. It is also developing numerous premium vaccine products, including Korea's first cell-culture-derived trivalent influenza vaccine (2014) and world's first quadrivalent influenza vaccine using cell-culture technology (2015).

After "SKYCellflu Quadrivalent" was successfully launched and began commercial sales in 2016, SK Chemicals is conducting R&D to release additional premium vaccines. It is preparing for the acquisition of sales approval and successful launch of "SKYZOSTER", a shingles vaccine (2017). The company will also apply for WHO pre-qualification review to pioneer the global market for SKYCellflu and aims to receive approval by 2018. The vaccine business sector of SK Chemicals will endeavor to enhance the domestic medical industry and establish a dominant position in the field of vaccines through our globally recognized vaccine production facilities.

SKYCellflu First Domestically-Developed Cell-culture-derived Influenza Vaccine

- Korea's first (for adults) and world's first (for children) commercialized influenza vaccine using cell-culture technology
- SKYCellflu's production period is shortened by 2 - 3 months by using animal cells and allowing for a stable supply, regardless of crises such as the avian influenza plague or the lack of fertile eggs.

SKYCellflu Quadrivalent World's First Cell-culture-derived Influenza Vaccine

- World's first quadrivalent influenza vaccine commercialized by cell-culture technology
- As a vaccine with the next generation technology, the product can prevent four influenza viruses for people, including two type A viruses and two type B viruses.

TD Vaccine Absorbed Tetanus Toxoid for Adults

- TD Vaccine is a suspension type vaccine combining refined tetanus toxoid and diphtheria toxoid with aluminum hydroxide. This functions as a preventive vaccine for youth and adults.

HEPAMUN Hepatitis B Vaccine Using Genetic Recombination

- Hepatitis B vaccine is designed with the latest genetic reengineering technology by separating the surface antigen from the hepatitis B virus and using yeast cells
- This safety vaccine does not have any risk of blood-borne infections since it does not use human-derived material.

Plasma

SK Chemicals launched SK Plasma Co., Ltd. as one of its subsidiaries in 2015. The company aims to specialize in the plasma business as a new growth engine. We have already laid the foundation to compete with multinational companies in the global market, going beyond simply meeting domestic demands.

A new plasma fractionation center has been recently built in Andong and is currently operating its pilot test. Recently, SK Plasma won a national tender for immunoglobulin in Egypt and aims to secure stable profit by expanding to new emerging markets with high growth potential. By expanding the market share, and solidifying its status of exclusive dominance, SK Plasma will improve profitability further based on its plasma business expertise, state of art technology, and marketing competencies. By expanding the market ratio, focusing capabilities, and solidifying its status of exclusive dominance. SK Plasma will reinforce profitability based on the current plasma business performance capabilities, independent source technology, and marketing competencies.

HEPABULIN SN Human Hepatitis B Immunoglobulin Drug

- IV medicine to prevent liver transplant patients from having recurring cases of hepatitis B
- The product effectively deactivated and eliminated blood-borne viruses and demonstrated its efficacy and safety by Phase 3 clinical trials at multiple centers.

SK ALBUMIN Human Serum ALBUMIN

- IV medicine treats the loss of ALBUMIN caused by burns, new syndromes, or hypoalbuminemia and hemorrhagic shock caused by defective ALBUMIN synthesis from liver cirrhosis
- The product is produced by using only high-purity ALBUMIN with plasma from healthy people as a raw material and prevents any spread of the virus through thermal treatment at 60°C for 10 hours.

LIV-GAMMA SN High-Purity, IgG-Containing Human Globulin

- IV medicine to treat low (non) gamma-globulinemia, idiopathic thrombocytopenic purpura, Guillain-Barre syndrome, and Kawasaki disease

SK ANTITHROMBIN III 500 Units ANTITHROMBIN III Human Deficiency

- IV medicine to prevent and treat thromboembolism caused by congenital Antithrombin III deficiency and acquired ANTITHROMBIN III deficiency

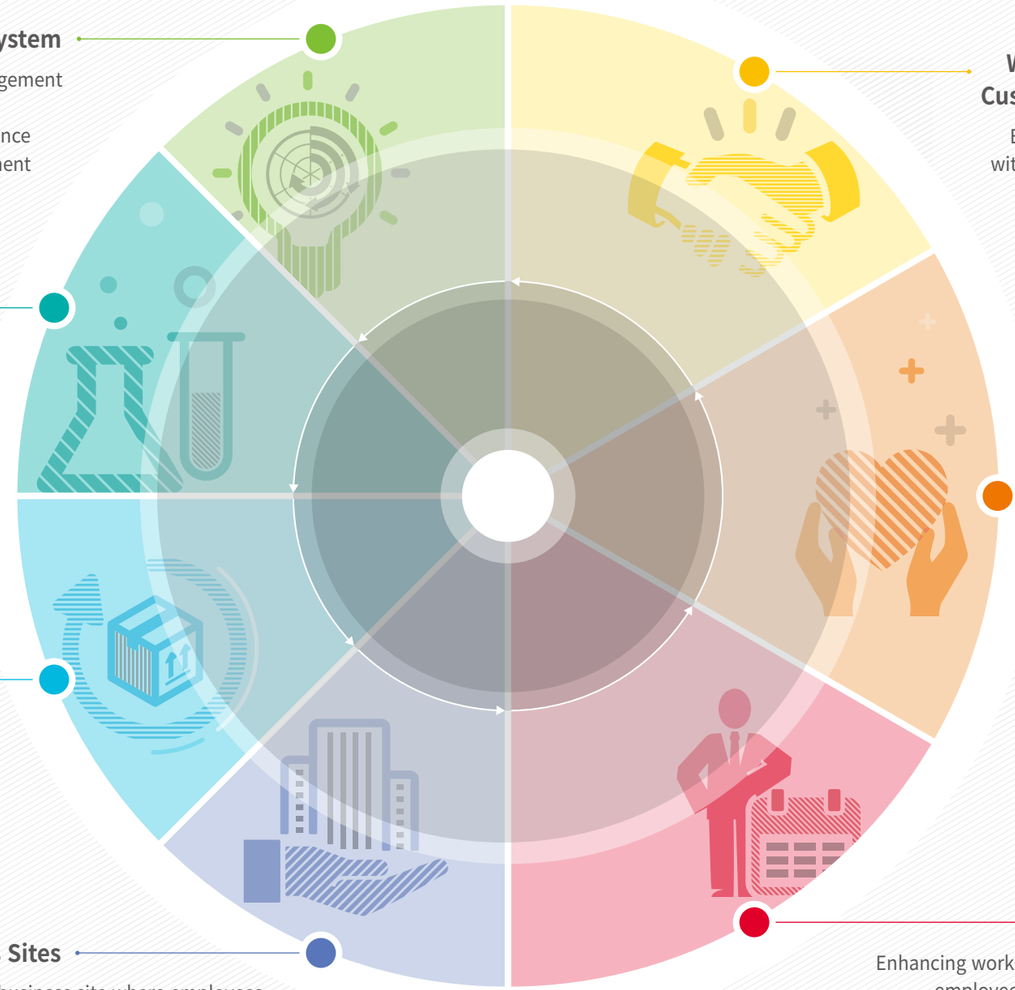
Tetabulin SN Anti-Tetanus immunoglobulin

- Medicine administered by intramuscular injection to prevent tetanus in the early incubation stage or relieve the symptoms following the contraction of tetanus

Operational Excellence

SK Chemicals System Overview

SK Chemicals strives to realize sustainability management through operational excellence and sustainable contribution. Through direct and indirect economic activities from R&D to production and customer satisfaction, the company creates sustainable value, contributes to the society and environment, and shares these values with various stakeholders.



Operational System

Sustainable management activities through corporate governance and risk management

Win-Win Growth for Customer Satisfaction

Ensuring win-win growth with suppliers by providing follow-up service for customer satisfaction and listening to customer voices (VOC)

R&D

Invested 6.2% of annual sales for the past three years in the R&D sector to proceed with the development of enhanced material usage. Also worked to achieve the commercialization of vaccines and other medical products.

Operational Excellence

Sustainable Contribution

Social Contribution

Carrying out local community engagement activities to meet various social needs

Products

Producing safe, high-quality products by managing the integrated lifecycle from raw materials to production and follow-up management

Business Sites

Creating a business site where employees can work safely and adopting process management and eco-friendly processes

Employees

Enhancing work- life balance for employees and operating an HR management system that fully considers the lifecycle in the workplace

Establishment of Corporate Governance

Composition of the Board of Directors as of March 2017

Vice Chairman Chey Chang-won

CEO and Vice Chairman
Largest shareholder

President Kim Cheol

CEO and President
(Green Chemicals Business)
Management Committee ·
Non-Executive Director Nomination Committee

President Park Mahn-hoon

CEO and President
(Life Science Business)
Management Committee

Director Oh Young-ho

Chairman of the Board of Directors

Director Choi Jeong-hwan

Audit Committee ·
Non-Executive Director Nomination Committee

Director Park Sang-gyu

Audit Committee ·
Non-Executive Director Nomination Committee

Director Ahn Deok-geun

Audit Committee ·
Non-Executive Director Nomination Committee

Composition of the Board of Directors

The Board of Directors consists of three executive directors and four non-executive directors. The non-executive directors make up the majority in order to achieve a decision-making process and corporate management that is based on independence and transparency. As non-executive directors are composed of various industrial, economic, and legal experts to secure professional expertise in making decisions, SK Chemicals aims to not only maximize the profits of shareholders and investors, but also protect the rights of all stakeholders and accomplish long-term growth for the company.

Operation of the Board of Directors

The Board of Directors regularly holds a meeting at least once a month to collect the opinions from shareholders and employees and accurately measure performances in each sector, including the economy, environment, and society. The date, time, and venue of the meeting and issues to be discussed and reported are notified to individual directors by the secretariat of the Board of Directors five days before meetings. In 2016, ten meetings were held in total. Directors passed resolutions on key agenda items based on thorough verification and in-depth discussions over actions that should be taken after considering the current status of global economy and domestic market.

2016

No. of regular meetings	10 times
Issues voted down	13 cases
Issues passed	13 cases
Attendance rate for executive directors	90 %
Attendance rate for non-executive directors	83 %

Committees within the Board of Directors

SK Chemicals enhances the transparency and efficiency of the Board of Directors by installing and operating a total of three committees under the Board. The committees swiftly report on all feedback and take corrective measures to perform auditing tasks more effectively. They adopt appropriate procedures in reviewing, comparing, and conducting due diligence on books, financial statements, and other financial documents.

Management Committee	Non-executive Director Nomination Committee	Audit Committee
2 executive directors	1 executive and 3 non-executive directors	3 non-executive directors
· Reviews and makes decisions on matters concerning the company's management · Formulates strategies to enhance corporate performance for long-term company growth	· Nominates non-executive director candidates to be appointed at a general shareholders' meeting · Discusses matters regarding the composition and operation of the candidate nomination committee	· Draws up and implements audit plans, evaluates the results, takes follow-up measures, and proposes recommendations for improvement · Monitors laws, articles of incorporation and bylaws, and other matters entrusted by the Board of Directors

Systemic Review of Agendas by the Board of Directors

With the aim of reinforcing responsible resolution activities, SK Chemicals conducts the procedures to discuss the agendas prior to holding a meeting of the Board of Directors or a committee meeting. SK Chemicals helps to ensure practical review by non-executive directors for agendas to be introduced. With these procedures, each non-executive director makes a judgment on agendas in the meeting, based on sufficient review in advance.

Strengthening the Independence and Transparency of the Board of Directors

Through the operation of the Audit Committee, which is composed exclusively of non-executive directors, SK Chemicals secures external transparency and puts emphasis on the internal independence of the Board of Directors. Candidates for directors who are appointed at a general shareholders' meeting are chosen by the Board of Directors (executive directors) and Non-Executive Director Nomination Committee (non-executive directors). Agendas will also be submitted for the meeting to secure its independence. The Non-Executive Director Nomination Committee (one executive director and three non-executive directors) considers the work experience and experience of the candidates in their field—such as the economy, environment, and society—and judges whether such candidates are qualified based on relevant regulations such as the commercial law and the degree to which it is enforced.

Reflecting the Opinions of Shareholders and Investors

The annual general shareholders' meeting reports the current status of management to the CEO and allows opinions to be collected with regard to major decision-making results and management. Major management issues regarding investors' profits are announced through the Data Analysis, Retrieval, and Transfer System of the Financial Supervisory Service, Korea Exchange, and SK Chemicals' official website. Any shareholder opinions suggested at the general meeting are reflected in overall management through sufficient discussion with the Board of Directors and management.

Compliance

Compliance is a core element for creating sustainable values and ensuring sound corporate management. Recognizing the importance of compliance, SK Chemicals comprehensively implements ethics management with legal compliance, fair trade and response to regulations. To achieve this goal, the company operates a company-wide system and program, while all employees internalize the ethical awareness of legal compliance.

Ethics and Legal Compliance Management

Reinforcement of Executive Ability for Ethics Management

In order to promote a fair and transparent ethical system and culture, SK Chemicals implements a specific code of conduct for employees as the criteria for corporate ethics, including the SKMS code of practice, code of ethics, and code of conduct. To strengthen the execution of ethics management, the company conducts a diagnostic survey and holds an ethical practice workshop based on online training to boost the level of ethics management practice for all employees.
We also reinforce executive ability in the ethics management sector and deal with tasks regarding the "Improper Solicitation and Graft Act," consultation on ethical issues, and reporting cases. With the aim of promoting and maintaining fair and free competition, the company operates a 'Compliance Program.' For any cases that carry a high possibility of legal violation, staff members in departments related to fair trade hold consultations in advance with in-company specialized departments through the checklist and operate an internal monitoring system.
A self-correction committee that reports directly to the CEO autonomously implements internal inspection for ethics management. In January 2016, both the Green Chemicals business and Life Science Business installed a compliance-related team and has further boosted ethics management activities.

Systemization of Activities for Supporting Legal Compliance

Process for Compliance Support Activities

Prevention
- Providing regular advice
- Supporting major projects
- Education for legal compliance

Monitoring
- Checking whether employees comply with the standards for legal compliance/ observing overall legislation
- Examining major points regarding compliance with legal risks

Post Management
- Analyzing results of activities for compliance control
- Implementing educational programs for compliance

The Board of Directors operates a legal compliance support management system linked with the Compliance Program and appointed the head of the Ethical Management Department as the legal compliance support manager. Further, as the head of Legal Affairs Department is the fair trade compliance manager, training and follow-up inspection for the Compliance Program are conducted to encourage employees to comply with laws and regulations autonomously. In addition, the compliance standards are drafted as the highest-level rules governing compliance activities pursuant to the resolution by the Board of Directors. Compliance education and the results of checking whether or not compliance standards are met are reported to the Board of Directors once every year.

Autonomous Inspection of Ethics and Legal Compliance Reports

In 2016, there was a total of three online reports regarding ethics and legal compliance, and we promptly made the appropriate replies and took measures for guidance. The results of the autonomous inspection in 2016 showed no violations. Through SK Chemicals' efforts to self-correct, we are creating a sound corporate culture and fulfilling our social responsibilities.

Responding to Environmental Regulations

In 2016, the greenhouse gas emission credits were first purchased in accordance with the "Act on the allocation and trading of greenhouse-gas emission permits" (greenhouse gas emission trading, purchase of emission credits worth of several billion won a year or imposing a penalty). Financial impacts by environmental regulations have begun as the company applied for environmental impairment liability insurance with the implementation of the "Act on liability for environmental damage and relief thereof".
In 2017, as the "Act on the integrated control of pollutant-discharging facilities" takes effect, SK Chemicals will deal with the laws by considering the grace period for each business type and integrating environmental licensing by phase.

Management Consulting

SK Chemicals carries out independent management consulting for headquarters and subsidiaries. Management consulting is conducted for overall management activities, including the current status of general management, current status of investment, management plan, CEO reporting materials, management performance and financial materials, and current status of operating internal management regulations. Management consulting will be conducted for each job sector such as HR, finance, legal affairs, R&D, production, sales, and IT.
Along with management consulting, the company continues to provide information on the internal control system and regulations. This management consulting aims to create value by checking the current status of progress in future growth tasks, essential competitiveness in each business, internal control, and business risk. With the goal of carrying out management consulting at the entire group level, SK Chemicals conducted independent management consulting for SK Chemicals Suzhou Co., Ltd. from December 2016 to January 2017. Consulting sectors were divided into purchased inventory, accounts receivable, budgets, and contracts. In 2017, we plan to carry out management consulting for inventory and processing trade and one overseas corporation.

Fair Trade

Distribution of the Fair Trade Handbook

SK Chemicals appointed a fair trade compliance manager and revised a new fair trade handbook for all employees so that they can better comply with domestic and overseas anti-corruption laws and regulations, including the Fair Trade Act, Subcontract Transactions Act, FCPA (Foreign Corrupt Practices Act) in the U.S., and Bribery Act in the U.K., and implement business based on legal and ethical standards. We have also published a new handbook regarding pharmaceuticals (LS) marketing and distributed it to our employees.

Education for Fair Trade

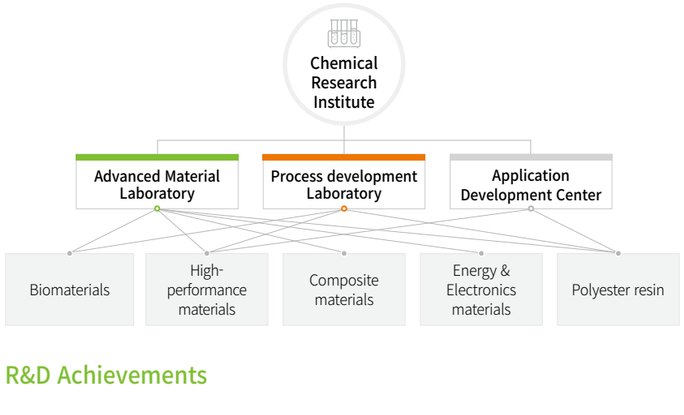
SK Chemicals conducts fair trade education for our employees as a part of our efforts to promote their awareness of autonomous compliance each year. In 2016, the company provided training on the newly implemented Improper Solicitation and Graft Act and amended the Fair Supplier-Vendor Trade Practices Act. In addition, all employees are kept informed of any new developments regarding fair trade, as well as enactments of, or amendments to, the relevant laws and regulations as they arise.

Expansion of Investment in R&D

Green Chemicals: R&D

R&D Strategies

The Chemical Research Institute is reinforcing technological competitiveness and commercializing super engineering plastic with the aim of becoming one of the world's top class companies copolyester and specialty chemicals sector. The institute also conducts research and development tasks to search new growth engines, including display materials utilizing organic synthesis technology, research on secondary cell battery electrolyte, and new biomaterials.



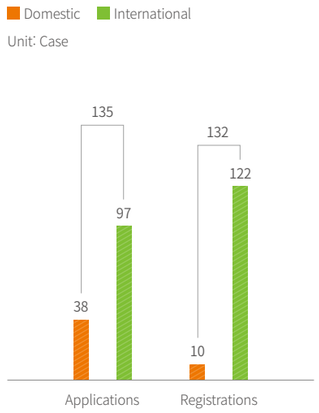
R&D Achievements

Since its foundation in 1980, the Chemical Research Institute has significantly contributed to achieving various accomplishments, including the world's second commercialization of copolyester, development of eco-friendly super engineering plastic and top market share of domestic biodiesel. In addition to these achievements, SK Chemicals developed various technologies as follows:

Technology and Product Development

- Biodegradable aliphatic polyester resin
- Polyester adhesive
- PET (Polyethylene Terephthalate) resin for bottles
- C2C Cerficiation of ECOZEN®/SKYGREEN®
- ECOTRAN®, an eco-friendly super engineering plastic
- FCN (Food Contact Notification) certification of ECOZEN®, an eco-friendly, transparent, heat-resistant copolyester, from the FDA (Food and Drug Administration)
- PCT (Polycyclohexylene Dimethylene Terephthalate), a high-performance super engineering plastic
- Super-cap electrolyte
- Display light-absorbent
- Biodiesel production technology
- License acquisition of OAT (Organic Acid Technology), an engine-coolant technology
- High-heat-resistant Prepreg
- Organic semiconductor material for electronic materials
- Eco-friendly, water-soluble OPV (Overprint Varnish)
- New toner binder
- Commercial production technology acquisition of CHDM (CycloHexane DiMethanol)
- SKYGREEN®, an eco-friendly, high-performance, high heat-resistant resin for profiles
- Eco-friendly quantum dot precursor
- PCT resin for LED
- PCT compound for lead-free SMT connectors
- PCT compound for microwave and oven containers
- Thermoplastic polyester elastomer TPEE (Thermoplastic ether-ester elastomer)
- Composite materials for lightweight automotive parts
- Low temperature curing polyester resin for coating

Current Status of Patent Applications/ Registrations by the Chemical Research Institute in 2016



Key R&D Performance in 2016

Development of Shrink Film Resin
SK Chemicals developed a new PETG resin for shrink film, whose eco-friendliness and percentage of contraction significantly improved compared to PVC (Polyvinyl Chloride) shrink film.

Diversification of ECOZEN Products
SK Chemicals developed resin for bottles with handles, which are able to contain a massive content of over 1 liter and which feature greatly improved impact strength compared to existing products. This bottle with independent handles is generally produced by the extrusion blow-molding process. The currently developed new ECOZEN product for bottles with handles provides polymer properties and formability, suitable for the extrusion blow-molding process.

Development of PCT Compound for Lead-Free SMT Connectors
SK Chemicals succeeded in commercializing engineering plastic PCT, a world-second development, for vehicle connectors with its excellent heat resistance and electric characteristics. PCT Compound developed by SK Chemicals has a sufficient heat-resistance level and connectors made with SK Chemicals' PCT does not require usage of lead, which is hazardous for the environment in manufacturing connectors.

Commercialization of Eco-Friendly Biopolyol PO3G (ECOPROL)
SK Chemicals developed PO3G, eco-friendly corn sugar-sourced polyol, and successfully commercialized the product used as base material of polyurethane for artificial leather. PO3G is likely to experience a high level of growth as it can be utilized as materials for automotive lightweight parts.

Development of Elastic Fiber Elastomer Resin
SK Chemicals developed resin for manufacturing elastic non-woven fabric, high-quality mesh chairs, and lightweight sports shoes by performing bicomponent-spinning of PET or elastomer with different hardness. As a functional material utilizing the elasticity of fiber, TPEE will expand its range of use to automobiles and furniture.

Development of Thick Prepreg for Wind Power
SK Chemicals developed low-temperature curing prepreg, secured manufacturing technology and expects further application to industrial parts such as wind power generator blade structures and high-value-added yacht structures.

Development of low-temperature curing polyester resin for coating
SK Chemicals developed and began selling three types of non-toxic polyester for low-temperature curing polyester resin for coating. This polyester resin can reduce the amount of energy consumption as the curing temperature is lowered and meets the needs of the eco-friendly powder coating market.

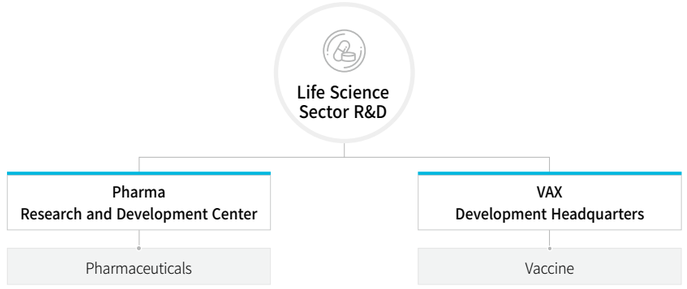
Development of Binder Resin for Polymerized Toner
SK Chemicals developed binder resin for polymerized toner, which is applied to new printers with high-energy consumption efficiency and high-quality printing performance. The product is under the process of completing quality certification and commercialization by domestic clients as well as performance evaluation for commercialization with overseas global printer companies.

Expansion of Investment in R&D

Life Science: R&D

R&D Goal

SK Chemicals' Life Science Research Institute has built a wide-ranging product portfolio and made continuous investments in the Pharma, Vaccine, and Plasma sectors, which will serve as pivotal growth engines in the future Life Science business. We are continuously striving to achieve a competitive edge in the R&D sector to reach the goal of "promoting the health of humans."

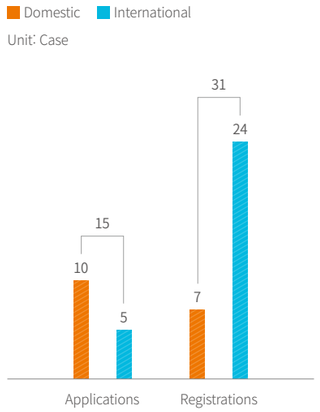


R&D Achievements

The Life Science Research Institute makes great efforts to launch various products and acquire overseas certification for export and permission for commercial sale. The institute conducts research in partnership with distinguished institutions such as Sanofi Pasteur and the International Vaccine Institute (IVI) and maintains the best-quality research performance. The list of released products, permissions, and developments is as follows:

- Launch of SKYCellflu®, world's first cell culture-derived quadrivalent influenza vaccine
- Applied for the sale of SID710, patch-type dementia treatment SID710, in Europe (first generic) and approval by the U.S. FDA (Food and Drug Administration)
- Launch of immune globulin (IV Hepabulin SN Inj)
- Launch of SKYCellflu®, Korea's first cell culture-derived trivalent influenza vaccine
- Launch of marketing of Promac®, a gastritis drug
- Release of Montefree ODF®, improved new drug in a new type
- Release of MVIX-S, ODF®, improved new drug in a new type
- Release of the anticoagulant, ANTITHROBMIN®
- Release of the hyperlipemia treatment, Esrotine®
- Release of the antithrombotic Renexin tab®
- Release of Joins®, the first domestically developed botanical drug for knee arthritis
- Release of Nexad tab®, a drug for hypertension
- Release of Skad tab®, a drug for hypertension
- Release of Pranair®, a drug for asthma
- Release of MVIX®, an erectile dysfunction drug
- Acquired approval for the sale of hemophilia treatment AFSTYLA® in the U.S. and Europe
- Acquired approval for SKYPNEUMO, Korea's first protein conjugate PCV13
- Coverage registered VIMSK tablet, an antiepileptic drug, for the first time in Korea among lacosamide medicines
- Acquired marketing approval for SID530® (Docetaxel injection) in Europe
- Contract to sell NBP601® to CSL of Australia
- Development of SUNPLA Injection®, the first domestically developed new drug and a third-generation platinum-based chemotherapy
- Development of Ginexin®, a blood circulation-improving drug derived from gingko leaves
- Development of Trast®, an anti-inflammatory and analgesic drug
- Korea's first exporter of the newly improved ulcer drug Omed® to Europe
- Contract signed with Sanofi for the development and supply of a next-generation pneumonia vaccine
- Contract signed with International Vaccine Institute for the joint development of typhoid fever conjugated vaccine

Current Status of Patent Applications/ Registrations by Life Science in 2016



Key R&D Performance in 2016

- **Acquisition of Approval for the Commercial Sale of NBP601 AFSTYLA® in the U.S. and Europe**

New biomedicine NBP601 (product name: AFSTYLA), whose technology was exported to the Australian company CSL in 2009, acquired approval for commercial sale from the U.S. FDA. The product will be commercialized for the first time in the U.S. and Europe among new biomedicines developed in Korea and exported for the technology.

- **Release and Sale of SKYCellflu®, Cell Culture-Derived Quadrivalent Influenza Vaccine**

SK Chemicals launched SKYCellflu®, the world's first cell culture-derived quadrivalent influenza vaccine, and achieved the accumulated sales of 2.4 million doses in the first year of launch.

- **Acquisition of Approval for the Commercial Sale of SKYPNEUMO**

SK Chemicals acquired the Ministry of Food and Drug Safety's approval for the commercial sale of SKYPNEUMO, Korea's first protein conjugate PCV13.

- **Completion of Application for the Commercial Sale of SKYZOSTER**

SK Chemicals successfully finished the clinical study of phase III for the shingles vaccine and completed the application for commercial sale.

- **Launch of VIMSK Tablet (SID151)**

VIMSK Tablet is an antiepileptic drug with lacosamide, which is at the top in global sales, and a generic medicine product which is the first registered in Korea.

- **Application for the Sale of SID710, Patch-Type Dementia Treatment, by the U.S. FDA**

Launched as the first generic medicine product in Europe, SID710 is a patch-type dementia treatment drug whose technology is verified and is underway for the approval of commercial sale in the U.S.

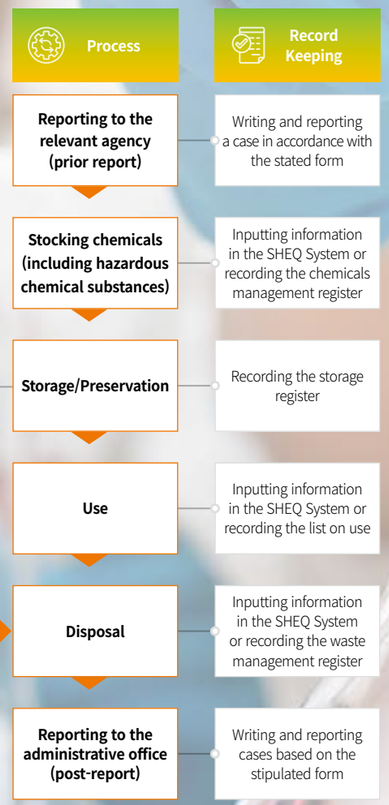
R&D Tasks

Category	Task name	Application	Development Stage	Notes
Biomedicine	NBP601	Medicine for hemophilia	Acquired global permissions (U.S., Europe, and Canada)	Global export of technology
	NBP606	Preventing pneumococcus	Approval for treatment of adults obtained Clinical Phase 3 for the approval for use in the treatment of children	Clinical Phase 3 for children is underway
	NBP607-TIV	Preventing influenza	Domestic launch, overseas licensing underway	Korea's first cell culture trivalent influenza vaccine
	NBP607-QIV	Preventing influenza	Domestic launch, overseas licensing underway	World's first cell culture quadrivalent influenza vaccine
	NBP608	Preventing shingles	Applied for approval	
	NBP608	Preventing chicken pox	Clinical Phase 3	
	NBP602	Preventing and medicine for hepatitis B	Released	SK Plasma item
	NBP613	Preventing pediatric enteritis	Clinical Phase 1/2	
	NBP615	Preventing cervical cancer	Clinical Phase 1/2	
	NBP618	Preventing typhoid	Clinical Phase 1	
Compound medicine	THVD201	Treatment for irritable bladder syndrome	Applied for approval	
	SID710	Treatment for dementia	Applied for approval by the U.S. FDA	Launched generic for the first time in Europe
	SID143	Anti - thrombotic agent	Pre-clinical	
	SID151	Anti-epileptic drug	Released	Registered for coverage for the first time in Korea
Natural ingredients-based medicine	SID142	Chronic arterial occlusion treatment	Clinical Phase 3	

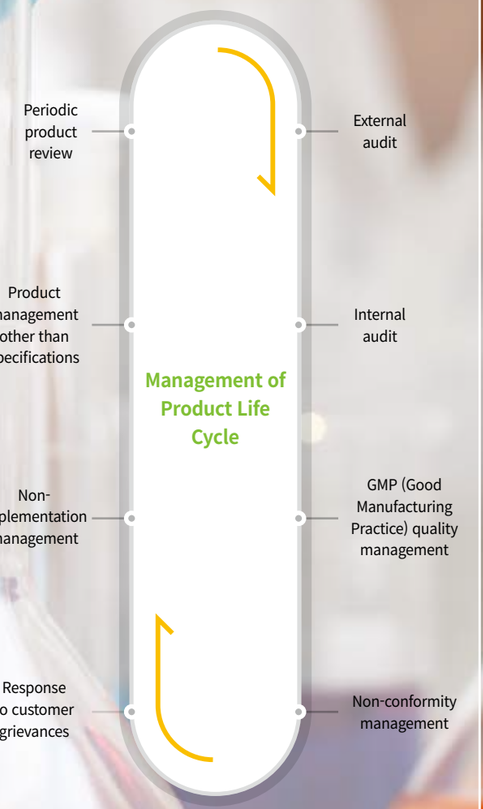
Products:
Material and Quality Management

SK Chemicals implements responsible management activities in each production stage. In the Green Chemicals business, we manage hazardous chemicals based on the chemical management process. In the Life Science business, the company complies with global guidelines and laws in terms of the overall R&D and quality management and strives to improve product quality and raise competitiveness. By reinforcing safety and product responsibility, SK Chemicals deals with any chemical accidents in advance and safety and ethical risks with regard to medicine to boost corporate reliability.

Management Process for Hazardous Chemicals



Pharmaceuticals Management System



Amount of Hazardous Chemicals Handled

37,411 tons

Hazardous Chemical Accidents

0 cases

Management of Hazardous Chemicals

Green Chemicals: Chemicals Management

In compliance with the regulations on the management of hazardous chemicals, SK Chemicals has been implementing the SHEQ (Safety Health Environment Quality) System, an integrated information system for safety, health, and environmental quality since 2005 to ensure the systemic management of such chemicals. SK Chemicals conducts workplace environment assessments twice each year for facilities exposed to hazardous chemicals, including methyl alcohol, sodium hydroxide, ethyl acetate, toluene, chloroform, and xylene. The assessment is intended to measure the degree of exposure to hazardous materials and use the data to create a healthier and safer working environment.

Hazardous Chemicals Management System

In response to the tightened regulations under the "Act on the Registration and Evaluation, etc. of the Chemicals" and "Toxic Chemicals Control Act", which took effect in 2015, SK Chemicals operates a department in charge of managing chemicals.
In addition, the company appoints one or more hazardous chemicals managers to each department to strengthen monitoring and supervision for managers and inspects hazardous chemicals handling facilities once a week. Hazardous chemicals managers in the procurement, marketing, and research department conduct monitoring for the entire cycle of handling chemicals (import, research, manufacturing, sale, and disuse). They also ensure compliance with other advanced management regulations, including the REACH and FDA regulations, thereby further increasing the safety of our products and contributing to boosting exports.
R&D centers designate chemicals regulations handling managers and safety managers and provide training on checking how to put on protective gear and ensure safety. We also perform training for the safe use and disposal of hazardous chemicals by performing a monthly safety patrol around research facilities.

Responding to the Chemical Substances Control Act

SK Chemicals has completed six out of eight processes and is reviewing two processes in the "off-site risk assessment," which analyzes the level of impact of any chemical accident on a person or environment outside the business site. We have also completed all five processes in the "risk management plan" in which accident prevention, off-site risk assessment, and emergency handling program are prepared and implemented, while relevant information is notified to local residents. Based on this plan, we also minimize any damage in case of a chemical accident by establishing an independent prevention plan, preparing for the installation of an emergency depot and notifying the case to local residents near the business site. In May 2016, a regular inspection for facilities handling hazardous chemicals by the Korea Environment Corporation verified our facilities as adequate; in case of facilities handling new hazardous chemicals, three cases of installation inspections were performed in accordance with the Chemical Substances Control Act, and the company is responding meticulously to the new laws and regulations.

MSDS

A document which stipulates general information of chemicals, emergency measures, safety and health precautions for handling chemicals, harmful properties for health, and physical risk

Management of the Material Safety Data Sheet (MSDS)

In 2016, SK Chemicals further reinforced the management system so that when an MSDS (Material Safety Data Sheet) for a company's product is drafted and amended, it can be distributed to customers through the review by the chemicals management department. In addition, about 700 existing MSDSs for the company's products were comprehensively reviewed.

Products: Material and Quality Management

Life Science: Responsibility for Medicine

The pharmaceutical sector is a long-term investment industry in which it takes at least 10 years or more to finish the entire process from R&D to launch. SK Chemicals provides safe and reliable medicines through responsible management activities at each stage from investment in research and clinical studies to the development and management of medicine.

R&D Stage

SK Chemicals develops various products regarding pharmaceuticals, vaccines, and plasma products through continuous investment in research. We also produce competitive products in the global market by exporting technology and acquiring approval for commercial sale.

Pre-Clinical Stage: Minimization of Animal Tests

To minimize and alleviate distress in laboratory animal care for pre-clinical efficacy and toxicity testing of drug candidates, SK Chemicals has established guidelines for research ethics in animal experiments and implemented training sessions on a regular basis based on regulations and laws. Also, the Institutional Animal Care and Use Committee (IACUC), consisted of two external and three internal members, was formed at SK Chemicals. The committee members review protocols of animal experiments semiannually to limit animal pain or distress. IACUC members at SK Chemicals are required to submit the Semiannual Report related to animal experiments to the Ministry of Food and Drug Safety (MFDS) and the Animal and Plant Quarantine Agency (APQA).

Animal Test at the Life Science Research Institute

Clinical Stage: Compliance with Laws and Regulations for Clinical studies

SK Chemicals complies with the laws and regulations at home and abroad, including the GCP (Good Clinical Practice) and IND (Investigational New Drug) standards, and develops safe products through responsible clinical study. In order to raise the quality and safety of our pharmaceutical products, we work closely with domestic and overseas clinical trial institution and CRO (Contract Research Organizations).
We respect the rights of our stakeholders in connection with the pharmaceuticals, and pay close attention to what they have to say while closely managing any risk factors that our clinical study may entail at each phase in order to minimize any negative impact on the environment. We have raised the level of clinical trials through top-level professional manpower and we have monitored the safety issues of clinical trials by experiences and regular training of the laws and regulations.
Through clinical study for the past two years, SK Chemicals has successfully verified the efficacy and safety of a new overactive bladder treatment with reduced side effects by combining components of two medicines, which are commercially sold; approval by the Ministry of Food and Drug Safety is pending. We are also conducting clinical study to verify the efficacy and safety of medicine in which an immediate release product is changed into sustained release medicine and a pilot clinical study to discover additional value in existing products.

Medicine Quality Control · Assurance System

An integrated QA (Quality Assurance) and QC (Quality Control) system is being implemented for two plants in Andong (L House) and Cheongju (S House)(Osan (SK Plasma) is separately managed).
Along with this management, the company operates the QMS (Quality Management System), which is integrated for all business sites and is working to unify medicine QMR (Quality Management Review). We will run the system effectively and enhance reliability required in the international guidelines by reviewing major management indicators and adopting a computerized system.
From 2015, with the membership of the PIC/S (Pharmaceutical Inspection Co-operation Scheme), the level of GMP (Good Manufacturing Practice) has been further tightened. In response we have established quality management system which allows for quality improvements based on risk analysis considering the product life cycle, laying the foundations to meet the GMP requirements.
The Cheongju (S HOUSE) Plant, which produces synthetic drugs, was remodeled in 2014 and obtained GMP approval. Both solid dosage forms and patch-types have acquired the EU GMP, attesting to our excellent quality management ability that is in line with international standards. In addition, as general regulations were reviewed, the plant established policies on training, complaints, deviation, change, CAPA (Corrective Action & Prevention Action), returned goods, and recall.

Follow-Up Management Stage: Investigation and Management after Sale

- **Post-marketing safety management of medicine**

After a new medicine is launched, SK Chemicals collects information on safety and efficacy for 600-3,000 patients who were treated by the medicine for four to six years based on the Pharmaceutical Affairs Act and Regulation of Re-examination for New drug, which can happen in the actual treatment environment. We also collect any adverse events by carrying out pharmacovigilance activities for commercial medicines and drugs. Based on such activities, we continuously collect and analyze information and strive to ensure the safe and beneficial use of medicine to fulfill a sense of responsibility for the safety of medicine.

- **Thorough Disposal of Unused Medicines**

SK Chemicals entrusts the disposal work to a professional disposal company licensed by the government to minimize the environmental impact of the chemicals to follow strict rules to dispose or manage unused medicines. From the collection to the complete disposal of unused medicines, each person in charge checks the state at each phase, and government guidelines are applied to each disposal process.

Business Sites: Safety and Green Management

SK Chemicals operates business sites sustainably through safety management and eco-friendly systems. We operate a business site based on the SHE (Safety, Health and Environment) management system and safety and health program. The Ulsan Plant has established and implemented a mid- and long-term master plan regarding safety and management. In addition, the company runs business sites and headquarters on the basis of strategies and goals for environmental management and continuously strives to cope with climate change.

SHE Policy

SHE operation elements 17 types	SHE regulations
Practice guideline with approximately 30 categories	SHE regulations for plants Research institutes, Osan (SK Plasma), Ulsan, Andong, Cheongju plants, Overseas offices
By the company group	By affiliate companies

Environmental Management System

Green Triple 40!

Green Culture

Social contribution activities per employee

40 hours

- Establishing an environmental management system
- Increasing awareness of environmental management
- Reinforcing environmental communication

Green Process

Reducing CO_2 emissions

40 %

- Integrated management of environmental information
- Establishing a system to manage an eco-friendly supply chain
- Creating eco-friendly plants

Green Product

Ratio of eco-friendly sales

40 %

- Dealing with environmental regulations proactively
- Raising eco-efficiency in products
- Reinforcing eco-friendly business capability

SHE Key Performance Index

Operation Indicator

Guidelines

Points are deducted when a safety/environmental accident happens (based on the Ulsan Plant)
- 90 points if no safety/environmental accidents happen
- Deducted points x 100/number of team members + Material loss (10 points/KRW 10 million)

Extra points will be awarded for extraordinary efforts that have contributed to preventing safety & environmental accidents.

Emergency Drills

With the aim of minimizing environmental impacts, harm to people, and property loss in case of emergency, each plant makes great efforts to establish an emergency contact network and a response system such as an action flow chart. Employees also receive mock training on a regular basis so that they are ready to deal with emergencies including fires, explosions, environmental accidents, or other natural disasters.

Ulsan Plant

The Ulsan Plant has established and implemented a mid- and long-term plant master plan (2017-2019) to perform long-term tasks, cultivate human resources, and manage safety, the environment, and facilities. The plant also acquired the certification of ISO 9001 (Quality Management System), ISO 14001 (Environmental Management System), OHSAS KOSHA 18001 (Safety and Health Management System), and runs the SHEQ (Safety, Health & Environment Quality) system.

Task	Master Plan
Comprehensive facility management	Maintenance, management of life and planning investment by checking and inspecting facilities comprehensively
Core technology tasks	Improving quality, ensuring innovation in cost, and rationalizing the process and facilities
Fostering engineers	Securing the capabilities of engineers and establishing an outsourcing system
Advancement of SHE system	Training employees, reinforcing monitoring and audits, and managing the construction process
Improvement of corporate culture	Making corporate operations more efficient, improving working styles, enhancing the monthly wage system, and vitalizing on-site opinions

Introduction of Safety and Health Programs at the Ulsan Plant

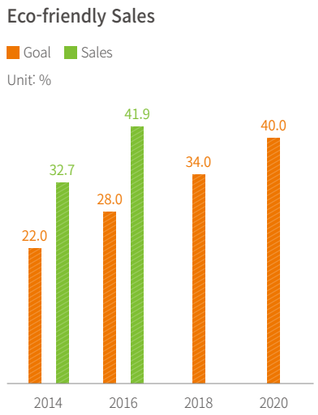
Safety Inspection and Audit	Preventing any safety accidents under the permit to work system to inspect all construction projects and works and risk assessment for each process and conducting self-audit twice a year
SHE Performance Evaluation	Clarifying company-wide KPI guidelines to evaluate SHE performance at plants and carrying out fair evaluation based on objectified data
Industrial Safety and Health Committee	Holding a meeting of the industrial safety and health committee on a quarterly basis to share the current status of safety with management and employees, improve safety and health-related issues, and collect opinions
Safety Green Card System	Dividing the level of safety management into a green, red and yellow card at the Ulsan Plant and applying the results to regular maintenance and construction site-related companies
Safety 7 Rules	Applying seven key safety rules to root out safety accidents for employees before entering the Ulsan Plant
Safety and Health Programs for Coexistence and Cooperation	Providing seven in-company suppliers and 30 external suppliers with various safety and health programs, including risk assessment training and joint safety inspection, at the Ulsan Plant

Business Sites: Safety and Green Management

Eco-Friendly Plants

Strategies and Goals for Environmental Management

SK Chemicals aims to enhance eco-friendliness in products, minimize any environmental impact from business activities, and achieve an eco-friendly company and society through environmental protection activities. For these goals, the company has set the goal of 'Green Triple 40!', an objective for environmental management by the year 2020, and carried out activities along with three strategic directions (social contribution, reduction of CO_2, increasing eco-friendly sales). We also strive to achieve the quantified target with these activities.



Systemic Management of Environment-Related Information

To manage all environment-related data comprehensively, SK Chemicals records information on raw and subsidiary materials, air pollutants, water quality pollutants, energy, greenhouse gas, safety and health, and eco-friendly procurement in the company-wide integrated management system, 'Environment Information Integrated Management System,' early every year.

Headquarters Eco Lab

Eco Lab, our headquarters building, was planned and designed to be environmentally-friendly, and 101 eco-friendly materials and eco-friendly technologies were used for the construction. The building acquired domestic and international certifications, and it has become a landmark for eco-friendly architecture.

Ulsan Plant

The Ulsan Plant has installed a reverse osmosis system to reuse general drainage. 75% of the water discharged from the general drainage system, which makes up about 62% of the total net water use, will be recollected and reused.

Andong Plant (L House)

The Andong Plant (L House) has received the world's first eco-friendly building certificate LEED Gold among pharmaceuticals plants by not only complying with the standards of pharmaceutical manufacturing and quality management (GMP, Good Manufacturing Practice), but also applying eco-friendly technology to save energy and water resources. The plant acquired the certificate of OHSAS KOSHA 18001 in 2016.

Osan (SK Plasma)

Osan (SK Plasma) recollects and distills low-content waste ethanol, which is generated in the production process, and produces a daily average of 1,500L of renewable ethanol, which accounts for 95.1% or over of the total amount. As renewable ethanol is used after it is proved to be suitable for the quality test, the plant minimizes ethanol procurement costs and environmental impact.

Current Status of GHG Emission Management System

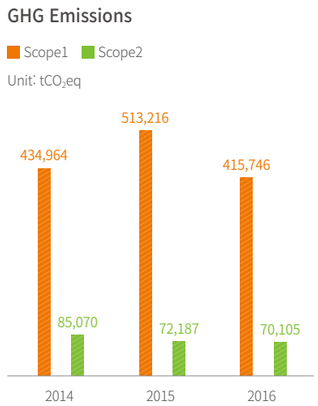
2009
Ulsan Plant
Operated the GHG Inventory System

2011
Cheongju Plant (S House)
Operated the GHG Management System

2013
Andong Plant (L House)
Identified sources of GHG emissions and emission calculation methodology

2014
Andong Plant (L House)
Managed GHG emissions associated with vaccine production and registered the sources

2015
All plants
Began to respond to the Emissions Trading System with resolution



Responding to Climate Change

Systemization of Response to the Greenhouse Gas Emissions Trading System

SK Chemicals has been designated eligible for the allocation of permits under the ETS (Emissions Trading System) that was launched in 2015 and assigned a fairly high target of a 15.4% reduction from 2015 to 2017. To meet this target, the company reviewed the expansion of the use of biogas by discovering an idea utilizing eco-friendly emission facilities and developed company-specific emission factors. As ETS-related tasks are systemized, including setting GHG emission targets for each plant, emission monitoring, and decision-making for purchasing credits, we not only carry out company-wide management comprehensively, but also continuously conduct emissions reduction activities.

Green House Gas Emissions Reduction Activities and Results

The Ulsan Plant, which generates 90% of GHG emissions, monitors the flow of GHGs specifically and consistently. Meanwhile, as sales of large amounts of steam through the Steam Highway Project have led to increasing GHG emissions, we were constantly developing reduction strategies and achieved a certain number of achievements.

Reducing Emissions through the Use of Eco-Friendly Fuels

Using biogas as fuel creates the double effects of reducing GHG emissions through the substitution of fossil fuels and eliminating GHG (methane gas) generated in the waste treatment process. SK Chemicals collects methane generated in the Yongyeon Sewage Treatment Plant and uses it as boiler fuel at the plant as a partial alternative to fossil fuels. In 2016, a total of 10,735 tons of biogas was used as fuel, resulting in GHG reduction of 30,747tCO_2eq.
In addition, the company replaces part of fossil fuels in the process of producing biodiesel, one of major products by SK Chemicals. We process Eco-300, a byproduct of biomass, into ion refined oil and utilize it as a fuel for combustion facilities in the plant. Thanks to these efforts, in 2016, the company used 2,506 tons of bio liquefied oil after reducing 5,467tCO_2eq of GHG compared to when diesel was used.

Early Reduction Performance

Even before the Emissions Trading System was enacted, SK Chemicals has consistently responded to climate change in a proactive manner. Since 2012, the company exceeded the performance assigned under the system. As our efforts for GHG emission reduction projects, which were voluntarily performed prior to the ETS, were credited, including the introduction and use of Eco Green Boiler using waste wood as fuel and biogas collection at the sewage treatment plant, the Ministry of Trade, Industry and Energy recognized the performance of early GHG emission reduction of approximately 200,000 tons in October 2016; the company was assigned with the emission credit as part of achievements in February 2017.

Sustainable Contribution

Stakeholder Value Distribution

Selection of Stakeholders

SK Chemicals defines key stakeholders for management activities in five groups: shareholders and investors, customers, employees, business partners, and government and local communities. Our company leads sustainability management by creating and sharing value with each stakeholder and ensuring management for win-win relationships.

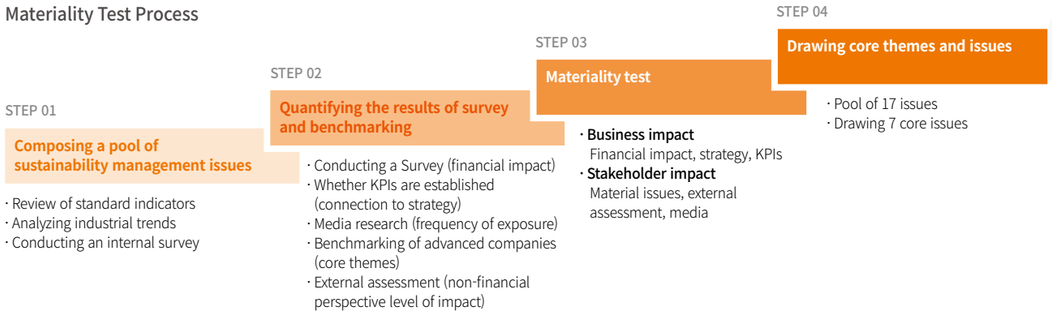
Communication with Stakeholders

SK Chemicals promotes engagement and communication from stakeholders by collecting their opinions and conducting direct inspections on the environmental management website (skecoweb). Collected opinions are managed and reported through diverse channels, including our sustainability report.

Materiality Test

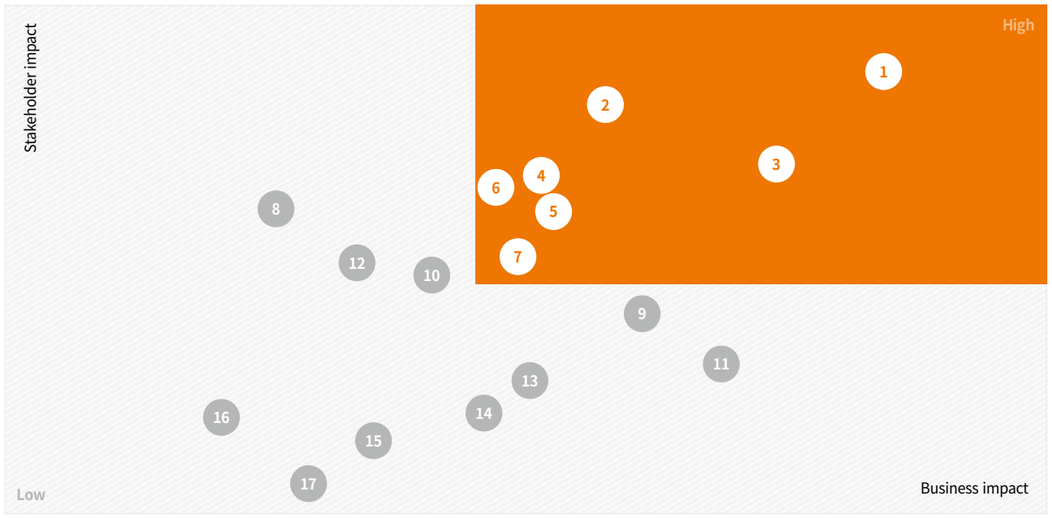
SK Chemicals' material issues for sustainability management were drawn through a materiality test. A pool of sustainability management issues was prepared by considering the review of global standards and guidelines, external environment analysis, and current status of management. After collecting internal opinions and an evaluation by specialists, the materiality test was conducted while comprehensively considering business impact and stakeholder impact.

Materiality Test Process



Materiality Test Matrix

A materiality test matrix is composed on the basis of business impact (x axis) and stakeholder impact (y axis). A total of seven issues were drawn as "core issues" with a high level in both aspects (impact). ""Mid-and long-term issues" refer to issues with a high level in one aspect, while other issuers are classified as "potential issues".



Mapping of Core Issues

Category	Material issues	Theme	GRI G4 category and aspect	Reporting page
1	Resource efficiency and response to climate change	Business site	Environment (raw materials, energy, water, emission, effluent, and waste)	38-39p
2	Innovation and pioneering into global market	Management performance	Economy (economic performance)	12-19p
3	Safety and substance management	Business site	Labor (occupational health and safety)	32-39p
4	Product quality and safety	Product	Product responsibility (Customer safety and health)	32-35p
5	Local community	Local community	Society (local community)	48-51p
6	HR management	Employees	Labor (employment, training, and education)	44-47p
7	Management strategy and performance	Management performance	Economy (economic performance)	10-11p

Other Reporting Issues

Category	Issue
8	Win-win growth, management of business partners
9	Corporate governance
10	Ethics management
11	Diversity of employees and work and life balance
12	Environment management system and keynote

Category	Issue
13	Reinforcement of employees' capabilities
14	Pharmaceuticals: Health promotion and improvement of medical approach
15	Customer satisfaction
16	Respect for human rights
17	Macroscopic issues related to the industry

Employees:
Establishment of Corporate Culture and Talent Development

SK Chemicals enhances work efficiency and recruits outstanding human resources through a sustainable corporate culture and employee lifecycle management. The company secures human resources as “caring professional”, operates HR system based on fair evaluation and reward and professional development system, and endeavors to strengthen employees’ capabilities. We also establish a corporate culture to guarantee work-and-life balance and assure the welfare and human rights of employees.

Supportive Activities to Assure Work-and-Life Balance for Employees

Support for Rest and Family Members

Collective annual leave
All employees are entitled to a fixed number of days of annual leave to help employees recharge and maintain a good balance between their work and personal life

On time leave
Every Wednesday, employees are encouraged to leave work on time to spend time with their family, enjoy hobbies or focus on self-improvement activities

Support for leisure activities
Employees can book up to four nights per year at a condominium at the company’s expense

Internal employee welfare fund
The fund promotes the financial stability of employees by providing housing loans, tuition subsidies for their children, and medical expenses

Support for Childbirth and Childcare

Encouraging childcare leave
One-year childcare leave is guaranteed to create a culture where work-and-life balance is taken care of

In-house daycare center
The company runs an in-house daycare facility to help employees avoid career hiatus due to childcare responsibilities and alleviates the child-rearing burden for employees

Support for Cultural Life

G.rium Program
The company offers lectures and performances that employees can enjoy to contribute to making our society healthier by sharing and spreading universal values, the ideas and teachings of the humanities, and worthy cultural activities

Italy Arete Tour
As part of our efforts to promote life-long learning in the field of humanities, the company provides employees with opportunities to travel to Italy to broaden their horizons, which in turn can help them achieve the mission of the company

Support for Health

Fitness Center
The company operates an in-company fitness center to promote physical strength and health of employees.
A professional trainer stays in the center, so employees are provided with personal coaching

Mind-Body Control Training
The company conducts mind-body control training to give employees and their family members the opportunities to maintain health and cultivate their minds

Education System for Employees

Fostering ‘Warn-Hearted Professionals’ By Creating ‘Favorable Workplace to Work’

Fostering employees through work
- Accumulating experiences and developing careers through each job and course for pursuing SUPEX
- Basis for developing capability

Mentoring Program

Education and training
- Systemic short- and long-term/online and offline education and training

Establishment of a Sustainable Corporate Culture

Labor-Management Relationship with Communication

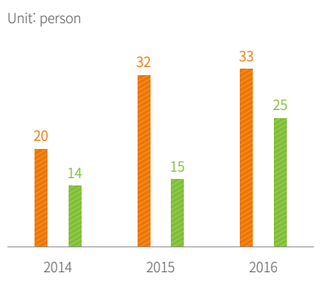
● Direction in Creating a Win-Win Labor-Management Relationship
SK Chemicals runs diverse labor-management partnership programs to create a win-win labor-management culture. Based on our experience to reach an agreement between labor union and management through communication even in business risk situations, the company has enjoyed a dispute-free cooperative relationship for the past 48 years since the foundation and performed management activities based on mutual confidence between labor and management.

● Agreement on the Wage Peak System
Many companies are introducing a wage peak system as the legal retirement age is due to be raised to 60 in 2016, but reaching an agreement with the labor unions remains elusive. Based on a high level of mutual trust built by labor-management discussions, SK Chemicals reached an agreement to introduce a wage peak system to reinforce job security for the increased retirement age. Based on this system, we will also take a lead in enhancing youth employment.

● Guarantee of Labor Union Activities
SK Chemicals stipulates content on guaranteeing the rights and activities of the labor union in the collective agreement, which was drawn by agreement between laborers and management and complies with the relevant legislations to protect the rights of employees. When there is a change that can affect the state of employment, we notify the labor union at least three months before the change.

● Work-and-Life Balance for Employees
SK Chemicals creates a corporate culture where employees can enjoy work to achieve each goal and continuously generate good performance. We also provide employees with various welfare programs to create an ‘favorable work environment’. With improvement in the quality of office life, we will boost work efficiency and ultimately promote the reinforcement of corporate competitiveness.

Childcare Leave Users



Employees: Establishment of Corporate Culture and Talent Development

Securing Excellent Human Resources

The goal of "Caring Professional", SK Chemicals' target of human resources, ultimately aims to create a high-performance organizational environment where employees work with a clear sense of goals and autonomy based on teamwork. For this objective, the company secures optimal human resources who can grow with the company. We also create an environment where employees' performance and capability are sufficiently recognized by operating a reasonable and fair evaluation and reward system and support employees to improve continuously.

Job-Focused Recruitment

SK Chemicals runs an effective system, 'Target Recruiting' with a high level of job fitness, to enable employees to adapt to the organization swiftly after joining the company. We also build an HR pool suitable for each job by conducting an elaborate job analysis and continuously identify the current status of job seekers by selecting recruiters for each college research lab and visiting schools and academies on a regular basis. Furthermore, the company operates a company tour and mentoring program in the recruitment period to provide job seekers with a chance to experience our vision and corporate culture. SK Chemicals are expanding the scope of recruitment roles so that outstanding people can mutually grow with the company in an optimal job position.

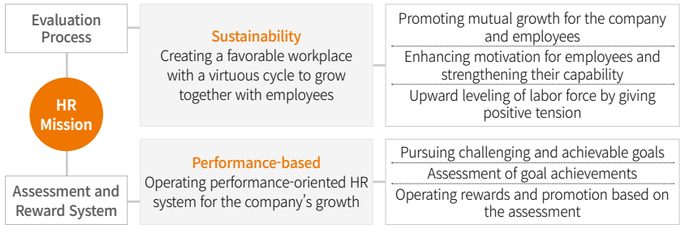
Reinforcement of Fairness and Objectivity of Evaluation System

SK Chemicals operates the PECS (Performance Evaluation & Coaching System), an IT-based performance evaluation system to give more fair evaluation level set by considering information analyzed by system, achievements, and capabilities. We also enhance fairness and objectivity in the evaluation level by providing subjects with various evaluation tools, assigning them with an adjustment period for each stage, and conducting evaluation audits. After evaluation results are made, the company gives feedback in person to identify subjects' strengths and weaknesses and supports a plan for supplementing capabilities to create further advanced performance.

Implementation of a Systemic Reward System

SK Chemicals gives appropriate rewards based on the performance of each employee. For this goal, the company maintains a competitive level of reward and provides not only monetary rewards (annual salary, bonuses, incentives, etc.) but also non-monetary rewards (sense of pride and achievement, recognition, vision sharing, etc.). New employees are treated fairly regardless of gender, however, they are rewarded in a differentiated and reasonable manner based on the above-mentioned standard after joining the company.

SK Chemicals Evaluation and Reward System



Talent Development

With the belief that people are the essence of corporate competitiveness, SK Chemicals has endeavored to strengthen employees' capabilities since its foundation. The company operates education and training programs by setting a goal and making sure that at least 10% of our employees are enrolled in an educational program at all times.

Implementation of New Employee Training

Talent Development by SK Chemicals begins once employees become a part of the company. As an introductory program based on each job is operated, new employees learn about communication and socializing with other employees, leadership and cooperation, and the importance of trust. The effect of this training program is maximized through mentoring in which a selected mentor from outstanding employees takes the lead for junior employees.

Training for High Performers

Training programs for company-wide employees are mainly divided into a selective course and general course. Employees in the selective course of High Performers are provided with the chance to cultivate their capabilities in a school and specialized institution at home and abroad and can concentrate solely on their studies as the company not only gives wages, but also other expenses for the training period.

Strengthening Marking Job Capabilities

To reinforce the executive ability of business, SK Chemicals has two main business sectors which are Green Chemicals(GC) business and Life Science(LS) business and established a system to nurture job capabilities in the marketing sector. In the GC business, we built a job capability system and education system and defined and divided abilities required for each job position. In the LS business, the company has provided employees in the marketing sector with empowerment training since 2001. We share marketing strategies and secure professional capabilities based on the launch of products and a plan for pioneering the overseas advanced market.

Improving Team Leaders' Leadership Capabilities

From 2016, SK Chemicals started a leadership capability improvement program to reinforce teamwork and ensure effective communication with various stakeholders. The program was run for team leaders at the Chemical Research Institute and Ulsan Plant and gave them the opportunity to recognize their own mistakes in leadership and strive to improve the relationships with team members.

Implementation of Language Intensive Courses

In order to cultivate language skills to strengthen business abilities, SK Chemicals will begin a new language intensive course (GCTD, Global Core Talent Development Program) from April 2017. With three courses in total, this program is expected to obviously contribute to improvement of the language skills in all business English sectors. After this program ends, the company will give language instruction through one-on-one consulting so that trainees can continue to develop their capabilities.

Social Contribution:
Harmony with Local Communities

Social contribution activities by SK Chemicals are carried out in two ways—theme-based businesses and local community support businesses. With theme-based social contribution businesses, we started various projects with the key directions of 'eco-friendliness', 'social welfare', and 'spreading happiness' to achieve a sustainable society.
For local communities, the company intends to provide more effective and practical benefits by identifying stakeholders' needs and planning activities in cooperation with experts. In addition, we judge whether social contribution projects can continue by collecting objective materials such as surveys for participation and satisfaction and strive to ensure systemic business. The company also encourages employees to participate in the programs so that the spirit of "warm-hearted professionals" can flourish.

Theme-Based Social Contribution Business

Main Theme

To create a sustainable society by promoting eco-friendliness, social welfare, and happiness for all

Direction

Eco-friendliness	Social welfare	Spreading happiness
Contributing to realizing healthy and safe eco-friendly lives by carrying out eco-friendly management such as activities and education for cleaning the environment	Leading a respected corporate culture by implementing social contribution activities with the engagement of employees along with the socially disadvantaged	Spreading a healthy social culture by sharing sound values, cultural sectors, and expertise

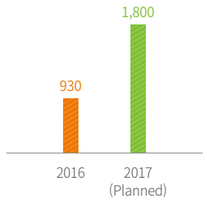
Key Programs

Eco-friendliness	Social welfare	Spreading happiness
• Happy Green Class (environmental education) • A.cure (activities for protecting rivers)	• Hope Maker • Regular voluntary work • Supporting Silver Theater	• Business site voluntary group • G-rium (spreading humanities)

Theme-Based Social Contribution Performance

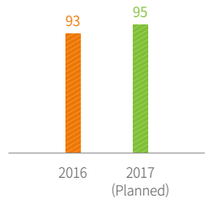
No. of employees for environmental training

Unit: Person



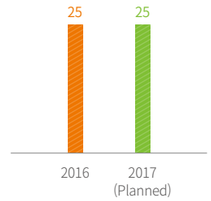
Membership of Hope Maker

Unit: %



No. of audiences for Silver Theater

Unit: 10,000 persons



Eco-Friendly Programs

Green Point System

SK Chemicals operates the Green Point System where employees can receive and donate points for their participation in eco-friendly activities, while the company contributes to funds that match the donated points, which are used to support social contribution programs.

Environmental Education: Happy Green Class

The 'Happy Green Class' is part of environmental education efforts to make lessons fun and teach students about environmental protection as employees of SK Chemicals visit elementary schools and give lectures on environmental issues by using videos and various teaching materials. So far, more than 5,560 students have participated in the program. Currently, the program is run in Seongnam and Ulsan and will be expanded to all business sites in 2017.

Activities for Protecting Rivers: A.cure

As a project for protecting rivers, 'A.cure' is the activity for environmental purification to protect the ecosystem and create a healthy river and is run for rivers near headquarters and business sites.

Regions for River Protection Program A.cure Activities

Joint Programs for Headquarters and Affiliated Companies	Unjungcheon Eco Marsh
Ulsan Plant	Yeocheoncheon Stream, Cheoyong Park, Ganjeolgot, Solmaru-gil Path
Cheongju (S HOUSE) Plant	Mipyeongcheon Stream

Prevention of Environmental Pollution in Areas near Our Plants

Employees of the Ulsan Plant visited Cheoyongam for cleaning and preservation activities (once) and Pyeongdong Village in Ganjeolgot for the preservation of the ecosystem, volunteered at the Yeocheon workshop for the physically challenged, and cleaned the Yeocheoncheon Stream (four times). Employees of the Cheongju (S House) Plant strive to carry out environment-cleaning activities near the plant.

Social Contribution: Harmony with Local Communities

1


2


3


4

5


6


7


8

1. Year-End Event by Hope Maker
2. Visiting Silver Theater
3. Blood Donation Event
4. Voluntary Work at Headquarters' Local Welfare Center
5. G.rium Artist Award Sponsorship Project
6. Voluntary Work for Pear Harvest in Geonam Village
7. Sharing Kimchi with Happiness
8. Happiness Sharing Bazaar

Social Welfare Programs

Hope Maker

SK Chemicals operates the 'Hope Maker' as a program for sponsoring and mentoring low-income children and young people. 1,758 employees based on the unit of an in-company team connect 14 local welfare centers and support a total of 160 children and young students with economic and cultural activities. We will continue more effective social contribution projects by surveying the effectiveness of and satisfaction with the Hope Maker program.

Nurturing Social Enterprises by Supporting the Silver Theater

SK Chemicals supports and helps to operate the Silver Theater, Korea's first theater designed for the elderly. By holding the 'Visiting Silver Theater,' performances and films are screened at local elderly welfare centers to help senior citizens in regions where it is difficult to enjoy cultural and welfare benefits. Since 2009, the accumulated amount of support is a total of KRW 940 million.

Blood Donation

SK Chemicals holds an annual blood drive to help ease shortages in the blood supply. In February 2017, employees at the headquarters participated in a blood drive to address the issue.

Sharing Happiness Programs

SK Probono Talent Donation Activity

SK Probono is operated by all members of the SK Group. Employees of the SK Group donate their talent with professional knowledge, technology, and qualifications to social enterprises and groups in need of help.

Voluntary Work by Plant Voluntary Groups

SK Chemical employees prepare free meals for, and deliver boxed lunches to, elderly people on a regular basis with welfare centers near plants, participate in welfare center voluntary programs, and visit rehabilitation facilities for people with disabilities. For these activities, a company-wide voluntary group has been organized to carry out various voluntary works and activities of sharing.

G.rium Artist Award

'G.rium Artist Award' by SK Chemicals seeks to nurture and sponsor talented young artists in the field of classical music in partnership with Platon Academy. SK Chemicals will contribute to supporting the growth of talented classical artists and promoting a healthy social culture of sharing the power of humanities by sponsoring the award recipients.

Social Contribution Business with Local Communities

Sisterhood Relations with Two Villages by One Company and Support for Social Enterprises

To conduct a partnership business meeting the needs of local residents, the Ulsan Plant carries out various activities such as volunteering to help during busy farming seasons, running weekend farms jointly with the villages, purchasing agricultural products from the farming villages, and supporting village festivals and tours organized for elderly members of the villages through sisterhood relations with two villages—Geonam Village and Pyeongdong Village, Nam-gu, Ulsan. Employees of the plant also visit the 'Yeocheon Protected Workshop for the Disabled' every month and perform volunteer activities, including cleaning the workshop environment and assisting in the manufacture of cotton gloves.

'Beautiful Hearts Group' at the Ulsan Plant

The Ulsan Plant operates the 'Beautiful Hearts Group', a social contribution club to engage more proactively in social contribution. The club makes an annual donation to the Green Umbrella Children's Foundation to help local children grow healthy and will start various support projects by planning social contribution activities jointly with the plant.

SK Group 'Happiness Sharing Season' Voluntary Work in Winter

SK Chemicals' employees actively participate in the 'Happiness Sharing Season' program, a seasonal volunteer activity in winter organized by the SK Group every November. In 2016, the 'Happiness Sharing Bazaar', which was jointly held by SK affiliates in Seongnam, contributed to supporting poorly-fed children in winter for their meal expenses. A total of 200 voluntary workers participated in 'Kimchi Sharing', made a total of 8,000kg of kimchi, and delivered it to local elderly people living alone and children for the Hope Maker through a connected welfare center.

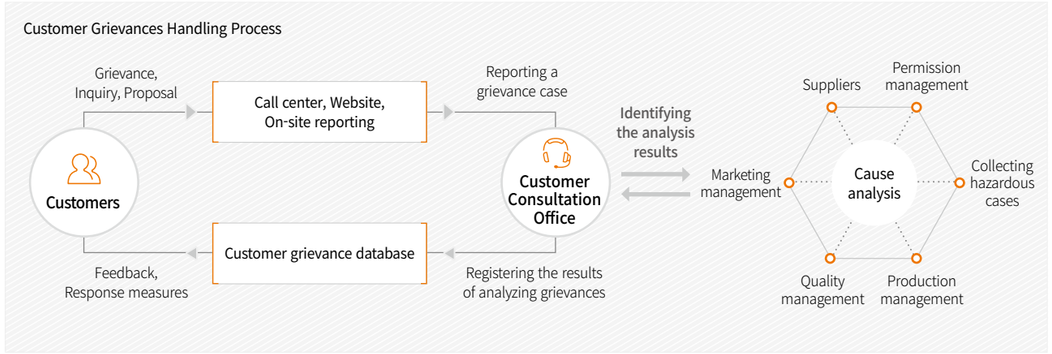
Pursuit of Customer Satisfaction and Win-Win Growth

Customer Satisfaction

Dealing with Customer Requests and Minimizing Complaints

SK Chemicals deals with complaints more swiftly and smoothly, including subdividing grievances handling regulations and updating a manual for the customer consultation office. As the company has proactively collected customer grievances, including the change of properties in some products, and reflected the results in relevant products, we successfully reduced customer grievances.

Customer Grievances Handling Process



Reinforced Protection of Personal Information

To strengthen protection of personal information, SK Chemicals has reformed policies on handling personal information by the customer consultation office and deleted all personal information whose storage period by law had passed. When a transaction agreement is concluded, the company collects and uses personal information legally with the consent of information holders in accordance with Article 15 of the Personal Information Protection Act. When any credit information is provided, individual consent is given by credit information holders pursuant to Article 32-2 of the Use and Protection of Credit Information Act. We manage collected personal and credit information not to be leaked at all and delete all personal and credit information upon the expiration of the storage period by law.

Six Major Principles in Collecting Personal Information

SK Chemicals Customer Consultation Office Policy on Handling Personal Information

- Consent on collecting personal information is given by comments by phone from the consultation office; for any inquiry in which an immediate reply can be made, personal information shall not be collected.
- If an additional reply is required, a name and telephone number shall be collected; when a reply is completed, such personal information shall be immediately discarded.
- If a grievance case should be handled, additional customer information, which is required for the purpose of processing, shall be collected. Such information shall be stored for the period stipulated in relevant laws and discarded after the period.
- The SK Chemicals Customer Consultation Office shall not provide any personal information of users to the outside in principle.

Win-Win Growth

Policy to Spread Win-Win Growth

SK Chemicals helps suppliers to raise their competitiveness by operating various training programs and providing practical benefits such as economic support and aims to take the lead in spreading a fair trade culture. Win-win growth with suppliers is the crucial activity to achieve the ‘pursuit of happiness for stakeholders’, the basic philosophy of the SK Group.

Support for Win-Win Growth with Suppliers

Since 2013, SK Chemicals has constantly operated the SK Shared Growth Fund and contributed to helping suppliers to perform stable management activities. As a result, a total of KRW 4.2 billion was paid to eight companies as of late 2016. To ensure suppliers’ management activities without problems, the company makes 100% cash payments within ten days for subcontracting services.

Win-Win Growth System

Size of the SK Shared Growth Fund

Unit: KRW 100 million, Number

Category	2014	2015	2016
Amount of the Shared Growth Fund	75	75	75
Total loans	69	43	42
No. of suppliers with loans	13	9	8

Support for Reinforcing Competitiveness in Suppliers

SK Chemicals supports raising competitiveness and capabilities of suppliers and ensures win-win growth through education support programs such as online training, SK Shared Growth MBA, and CEO seminar. In 2016, the CEO seminar was attended by 83 CEOs, while three intermediate managers benefited from the SK Shared Growth MBA. With SK affiliates in Ulsan, we also held the ‘SK Shared Growth Job Fair 2016’ to contribute to addressing recruiting difficulties for suppliers as well as difficulties in job searching in the local community.

SK Group Shared Growth Academy

CEO Seminar	SK Shared Growth MBA
15 companies / 83 persons	3 companies / 3 intermediate managers
Improving the CEO’s capability, enhancing the management competency · Management, economy, leadership, humanities, strategy, latest technology, technology trend, social issues, etc.	Reinforcing management capability of core leaders at suppliers through systemic management education · Strategy, finance/accounting, marketing, HR/leadership, etc. · Global workshop in China

Appendix

Accounting Data

Statements of Financial Position

Unit: KRW

48th period, as of December 31, 2016
47th period, as of December 31, 2015
46th period, as of December 31, 2014

Item	48th Period	47th Period	46th Period
Assets			
Ⅰ.Current assets	535,522,143,987	696,264,685,087	625,451,085,374
Cash and cash equivalents	127,444,618,947	251,035,758,788	20,453,807,375
Account receivables and other bonds	228,244,814,261	238,732,079,364	322,892,199,745
Inventory	175,601,897,691	200,142,049,313	275,241,880,132
Other current assets	4,230,813,088	6,050,792,622	6,559,151,062
Non-current assets held for sale		304,005,000	304,047,060
Ⅱ.Non-current assets	1,913,706,244,242	1,857,874,905,573	1,718,849,352,270
Long-term financial assets	16,237,404,351	19,399,442,546	14,571,242,771
Long-term loans	130,804,493	154,148,493	467,872,212
Deposits	6,580,866,490	8,202,433,078	9,594,195,620
Investment stocks for associates	388,483,429,960	391,544,947,917	409,670,947,917
Investment stocks for subsidiaries	574,383,514,375	566,090,957,835	403,393,311,320
Property	790,501,190,884	745,118,213,735	750,872,150,255
Intangible assets	48,026,673,253	37,941,868,213	33,411,422,627
Investment in properties	88,867,780,436	88,928,313,756	88,988,847,076
Other non-current assets	494,580,000	494,580,000	442,080,000
Deferred tax assets			7,437,282,472
Total assets	2,449,228,388,229	2,554,139,590,660	2,344,300,437,644
Liabilities			
Ⅰ.Current liabilities	571,839,778,591	536,876,478,578	515,005,385,157
Sales debt and other debts	213,296,361,862	196,532,855,760	160,978,402,326
Short-term borrowings	95,898,684,629	106,202,361,948	157,977,148,472
Long-term current borrowings	244,633,482,768	212,546,047,297	181,270,708,176
Corporate tax payables	1,268,199,740	7,251,463,036	1,319,982,085
Other current liabilities	16,078,274,442	14,343,750,537	13,459,144,098
Current provisions	664,775,150		
Ⅱ.Non-current liabilities	628,024,845,236	769,727,721,799	894,482,621,523
Bonds	531,873,207,182	641,612,473,946	765,077,845,521
Long-term borrowings	50,463,892,316	87,791,485,957	104,115,505,895
Defined benefit liabilities	17,819,578,988	25,355,027,596	24,455,946,859
Deferred tax liabilities	7,890,920,888	14,062,931,162	
Allowance	19,977,245,862	905,803,138	833,323,248
Total liabilities	1,199,864,623,827	1,306,604,200,377	1,409,488,006,680
Capital			
Capital	135,601,900,000	135,601,900,000	118,300,860,000
Capital surplus	326,127,554,604	326,127,554,604	145,530,430,546
Other capital items	(98,068,499,377)	(98,068,499,377)	(98,068,499,377)
Accumulated other comprehensive income	5,998,212,003	8,441,437,659	4,325,109,810
Earned surplus	879,704,597,172	875,432,997,397	764,724,529,985
Total capital	1,249,363,764,402	1,247,535,390,283	934,812,430,964
Total liabilities and capital	2,449,228,388,229	2,554,139,590,660	2,344,300,437,644

Statements of Comprehensive Income

Unit: KRW

48th period, as of December 31, 2016
47th period, as of December 31, 2015
46th period, as of December 31, 2014

Account	48th Period	47th Period	46th Period
Sales revenue	1,146,625,579,296	1,039,863,882,327	1,232,853,528,219
Cost of sales	885,725,078,834	809,864,749,658	951,757,923,103
Gross profit	260,900,500,462	229,999,132,669	281,095,605,116
SG&A	213,585,423,788	211,508,923,998	245,498,364,434
Operating income	47,315,076,674	18,490,208,671	35,597,240,682
Other profits	8,892,518,390	190,802,324,092	33,903,232,265
Other costs	32,544,498,442	36,246,044,809	62,282,824,314
Financial profits	41,083,337,491	31,506,857,927	21,986,520,559
Financial costs	54,808,463,367	56,041,202,435	53,665,614,297
Earnings before corporate taxes (loss)	9,937,970,746	148,512,143,446	(24,461,445,105)
Income tax expense (profit)	(1,748,743,190)	28,562,157,103	(4,333,195,648)
Net profit (loss)	11,686,713,936	119,949,986,343	(20,128,249,457)
Other comprehensive income	(2,552,350,467)	1,142,735,868	146,234,813
Items re-categorized as profits and losses for the current term subsequently	(2,443,225,656)	4,116,327,849	1,954,132,169
Profits for assessment of financial assets available for sale	(2,406,604,478)	4,079,706,671	2,018,942,000
Profits for assessment of derivatives (losses)	(36,621,178)	36,621,178	(64,809,831)
Items not re-categorized as profits and losses for the current term subsequently	(109,124,811)	(2,973,591,981)	(1,807,897,356)
Re-measured elements for defined benefit debts	(109,124,811)	(2,973,591,981)	(1,807,897,356)
Total comprehensive profits for the current term (losses)	9,134,363,469	121,092,722,211	(19,982,014,644)
Earnings per share			
Earnings per share for basic common share	483	5,855	(992)
Earnings per share for basic preferred share	533	5,905	(942)

ESG Data

Sustainability Management Performance Data

G4-9 Scale of the Organization_Manufactured Products

Business	Product	Unit	2014	2015	2016
Green Chemicals Biz.	PETG	ton	161,800	161,207	156,788
	Biodiesel	ton	141,609	125,909	155,996
Life Science Biz.	Plasma derivatives	Bottle	1,270,850	1,237,592	1,069,713
	Vaccines	Dose	5,421,648	4,813,692	5,321,420
	Fluids	kl	264	292	254
	Tablets	Tablet	434,988,552	507,564,053	517,746,471
	Patches	Patch	47,394,738	39,726,554	32,951,523

G4-9 Scale of the Organization_Sales by Business Line

Business	Product	Unit	2014	2015	2016
Green Chemicals Biz.	Biomaterials	KRW 100 million	2,471	2,097	2,881
	High-performance materials		590	522	556
	Composite materials		975	680	628
	Polyester resin		3,611	3,167	3,395
	Power UT		826	712	662
	Others		0	25	23
Life Science Biz.	Pharmaceuticals	KRW 100 million	1,831	1,797	1,804
	Vaccines		1,411	1,196	1,477
	Others		611	200	38
Others		KRW 100 million	3	3	3
Total		KRW 100 million	12,329	10,399	11,466

G4-10 Total Number of Employees by Genders, Employment Type

Category	Scope	Unit	2014	2015	2016
No. of employees	Male	Person	1,538	1,400	1,423
	Female		320	364	383
No. of employees by employment type	Full-time	Person	1,640	1,663	1,709
	Contract-based		135	101	97
No. of employees by gender	Male	Person	30	37	37
	Female		2	2	2

G4-10 Total Number of Employees by Plants

Category	Scope	Unit	2014	2015	2016
Male	Headquarters (Eco Lab)	Person	822	766	756
	Osan (SK Plasma)		66	63	84
	Ulsan Plant		357	353	358
	Andong Plant (L HOUSE)		99	120	125
	Cheongju Plant (S HOUSE)		91	98	100
Female	Headquarters (Eco Lab)	Person	217	230	243
	Osan (SK Plasma)		31	24	28
	Ulsan Plant		22	20	23
	Andong Plant (L HOUSE)		30	31	31
	Cheongju Plant (S HOUSE)		57	59	58

G4-10 Total Number of Employees by Plants

Category	Scope	Unit	2014	2015	2016
Full-time employees	Headquarters (Eco Lab)	Person	1,015	966	971
	Osan (SK Plasma)		90	82	89
	Ulsan Plant		375	372	378
	Andong Plant (L HOUSE)		78	102	125
	Cheongju Plant (S HOUSE)		122	141	146
Contract-basted employees	Headquarters (Eco Lab)	Person	24	30	28
	Osan (SK Plasma)		7	5	23
	Ulsan Plant		4	1	3
	Andong Plant (L HOUSE)		51	49	31
	Cheongju Plant (S HOUSE)		26	16	12

* The Osan (SK Plasma), which was established as a subsidiary in 2015, was excluded from calculating labor force; however, the plant has been included in the total workforce as it is considered reasonable to calculate the comprehensive workforce by considering the reporting scope and content.

G4-11 Employees Covered by Collective Bargaining Agreements

Category	Scope	Unit	2014	2015	2016
No. of employees covered by the labor union & labor-management council	Company-wide	Person	401	440	474
Ratio of employees covered by the labor union & labor-management council		%	22	25	26

G4-13 Total Number of Business Partners Managed

Category	Scope	Unit	2014	2015	2016
No. of business partners that are registered and managed	Company-wide	Business partner	1,001	957	968
Total procurements from business partners		KRW 100 million	8,195	6,265	6,934

G4-16 Memberships of Associations

Korea Economic Research Institute	Korea Employers Federation	Seongnam Chamber of Commerce
Korean Fair Competition Federation	Korea Industrial Technology Association	Korean Association of Occupational Health Nurses
Seongnam Branch of Korea Industrial Safety Association		

* This list of membership associations is stated based on associations which are considered significant in terms of sustainability management by SK Chemicals; industry-specific associations are omitted from the list.

EC-3 Coverage of the Organization's Defined Benefit Plan Obligations

Category	Scope	Unit	2014	2015	2016
Size of retirement pension plan (Defined benefit, DB)	Company-wide	KRW 100 million	836	799	873
No. of employees covered by the retirement pension plan (Defined benefit, DB)		Person	1,599	1,642	1,513

EC-4 Financial Assistance Received from the Government

Category	Scope	Unit	2014	2015	2016
Government subsidiary	Company-wide	KRW 100 million	35	7	0
Tax exemption			89	46	38

ESG Data

EN-1 Materials Used by Weight or Volume

Category	Scope	Unit	2014	2015	2016
Volume of raw and subsidiary materials used	Osan (SK Plasma)	ton	614	582	542
	Ulsan Plant		415,338	406,193	441,471
	Andong Plant (L HOUSE)		163	241	248
	Cheongju Plant (S HOUSE)		260	377	421

EN-3 Power Generation Using Renewable Energy

Category	Scope	Unit	2014	2015	2016
Solar heat	Headquarters (Eco Lab)	MWh	7.8	7.8	5.5
Geothermal heat		Gcal	41.6	34.5	9.5

EN-3 Energy Consumption within Company

Category	Scope	Unit	2014	2015	2016
Coals	Company-wide	ton	169,316	188,725	159,748
Waste wood		ton	67,037	66,644	52,766
Gasoline		kl	66	33	22
Diesel		kl	140	24	28
Biodiesel and synthesis gas		ton	-	2,834	2,507
LNG		$1000m^3$	17,683	17,285	12,789
LPG		ton	12	46	26
Biogas		ton	11,504	10,152	11,173
Electricity		MW	180,988	153,379	149,001
Steam		TJ	19	17	17
Propane		ton	-	-	4,819
Process waste heat		TJ	-	-	143
Limestone		ton	2,024	2,782	2,591
SF6		kg	900	900	-

EN-4 Energy Consumption Outside Company

Category	Scope	Unit	2014	2015	2016
Electricity	Ulsan Plant	TJ	1,681	1,243	1,309
Heat			2,386	3,824	3,403

EN-8 Total Water Drawing and Consumption

Item	Scope	Unit	2014	2015	2016
Water consumption	Headquarters (Eco Lab)	ton	78,076	68,812	60,230
	Osan (SK Plasma)		54,180	52,025	73,623
	Ulsan Plant		6,472,319	6,068,847	7,782,366
	Andong Plant (L HOUSE)		128,114	119,839	103,429
	Cheongju Plant (S HOUSE)		46,540	49,467	52,181

EN-10 Total Water Drawing and Consumption from Underground, Recycled, and Reused

Item	Scope	Unit	2014	2015	2016
Total volume of water drawn from underground, recycled, and used	Headquarters (Eco Lab)	ton	3,612	3,060	2,940
	Osan (SK Plasma)		14,112	18,059	15,956
	Ulsan Plant		3,781,238	3,558,774	3,452,159

EN-15, 16 GHG Emissions

Item	Scope	Unit	2014	2015	2016
Scope1 emissions	Company-wide	tCO_2eq	434,964	513,216	415,746
Scope2 emissions			85,070	72,187	70,105

EN-18 GHG emission Intensity

Item	Scope	Unit	2014	2015	2016
Scope1 intensity ratio	Company-wide	tCO_2eq/ KRW 100 million	35.3	49.4	36.3
Scope2 intensity ratio			6.9	6.9	6.1

EN-19 Progress with Green Triple 40! and Plan_Reducing CO_2 emissions by 40%

Item	Unit	2014	2015	2016
BAU emissions	tCO_2eq	620,000	689,000	692,000
Target reduction	%	15.2	36.7	39.9
Actual emissions	tCO_2eq	520,034	585,402	485,851
Actual reduction	%	16.1	15.0	29.8
Strategy	-	Increased volume of biomass used, in liquid, gas, and solid forms	Increased volume of biomass used, in liquid, gas, and solid forms	Adopted external process waste heat and steam

EN-21 Intensity of Air Pollutants Discharged

Item	Scope	Unit	2014	2015	2016
Dust	Osan (SK Plasma)	mg/Sm^3	10	9	8
	Ulsan Plant		4	4	5
	Andong Plant (L HOUSE)		-	-	-
	Cheongju Plant (S HOUSE)		5	4	4
Sulfur oxide (SOx)	Osan (SK Plasma)	ppm	0	0	0
	Ulsan Plant		29	28	30
	Andong Plant (L HOUSE)		-	-	-
	Cheongju Plant (S HOUSE)		0	0	0
Nitrogen oxide (NOx)	Osan (SK Plasma)	ppm	0	0	0
	Ulsan Plant		55	57	67
	Andong Plant (L HOUSE)		-	-	-
	Cheongju Plant (S HOUSE)		0	92	81
Volatile organic compound (VOC)	Osan (SK Plasma)	ppm	0	0	0
	Ulsan Plant		9	0	0
	Andong Plant (L HOUSE)		-	-	-
	Cheongju Plant (S HOUSE)		0	0	15

EN-22 Total Water Discharge

Item	Scope	Unit	2014	2015	2016
Water discharge	Headquarters (Eco Lab)	ton	36,291	28,579	22,144
	Osan (SK Plasma)		37,831	36,078	38,316
	Ulsan Plant		771,610	640,040	697,615
	Andong Plant (L HOUSE)		79,052	75,152	70,446
	Cheongju Plant (S HOUSE)		28,449	31,738	25,969

ESG Data

EN-22 Intensity of Water Pollutants Discharge

Item	Scope	Unit	2014	2015	2016
BOD	Osan (SK Plasma)	ppm	2	4	3
	Ulsan Plant		3	3	5
	Andong Plant (L HOUSE)		101	126	147
	Cheongju Plant (S HOUSE)		2	1	2
COD	Osan (SK Plasma)		2	7	10
	Ulsan Plant		12	12	20
	Andong Plant (L HOUSE)		58	54	51
	Cheongju Plant (S HOUSE)		18	13	16
SS	Osan (SK Plasma)		4	9	12
	Ulsan Plant		2	2	2
	Andong Plant (L HOUSE)		110	41	38
	Cheongju Plant (S HOUSE)		6	5	10

EN-23 Total Waste by Type

Category	Scope	Unit	2014	2015	2016
Amount of generated regular waste	Osan (SK Plasma)	ton	145	80	60
	Ulsan Plant		29,229	27,438	26,732
	Andong Plant (L HOUSE)		54	79	72
	Cheongju Plant (S HOUSE)		137	162	146
Amount of generated designated waste	Osan (SK Plasma)		107	108	104
	Ulsan Plant		4,944	4,759	6,408
	Andong Plant (L HOUSE)		45	53	66
	Cheongju Plant (S HOUSE)		1,543	1,733	1,767

EN-23 Total Waste by Disposal Method

Category	Scope	Unit	2014	2015	2016
Incineration	Osan (SK Plasma)	ton	132	179	165
	Ulsan Plant		368	173	967
	Andong Plant (L HOUSE)		100	107	113
	Cheongju Plant (S HOUSE)		1,596	1,861	1,862
Reclamation	Osan (SK Plasma)		24	0	0
	Ulsan Plant		5,460	8,621	7,168
	Andong Plant (L HOUSE)		0	0	0
	Cheongju Plant (S HOUSE)		37	18	14
Recycling	Osan (SK Plasma)		49	45	0
	Ulsan Plant		23,702	18,644	23,912
	Andong Plant (L HOUSE)		0	25	25
	Cheongju Plant (S HOUSE)		69	79	81
Marine emissions	Osan (SK Plasma)		0	0	0
	Ulsan Plant		6,831	0	0
	Andong Plant (L HOUSE)		0	0	0
	Cheongju Plant (S HOUSE)		0	0	0
Recycling ratio	Osan (SK Plasma)		19	0	0
	Ulsan Plant		69	68	72
	Andong Plant (L HOUSE)		0	19	22
	Cheongju Plant (S HOUSE)		4	4	4

EN-24 Total Use Amounts of Hazardous Chemicals (Manufacturing, Use, Import)

Item	Scope	Unit	2014	2015	2016
Total use amounts of hazardous chemicals (manufacturing, use, import)	Ulsan Plant	ton	36,998	33,355	37,411

EN-27 Progress with Green Triple 40! and Plan_Ratio of Eco-friendly Products Sales

Category	Unit	2014	2015	2016	2018	2020
Target of eco-friendly sales	%	22.0	25.0	28.0	34.0	40.0
Actual eco-friendly sales		32.7	35.7	41.9		

EN-30 Energy Use and GHG Emissions by Business Trips of Employees

Category	Scope	Unit	2014	2015	2016
Energy consumption by use of gasoline	Headquarters (Eco Lab)	GJ	-	325	81
	Osan (SK Plasma)		-	-	163
	Ulsan Plant		-	426	173
	Andong Plant (L HOUSE)		-	289	253
	Cheongju Plant (S HOUSE)		-	79	185
Total			2,322	1,119	855
GHG emissions by use of gasoline	Headquarters (Eco Lab)	tCO_2eq	-	20	5
	Osan (SK Plasma)		-	-	10
	Ulsan Plant		-	29	12
	Andong Plant (L HOUSE)		-	19	17
	Cheongju Plant (S HOUSE)		-	0	12
Total			156	68	56
Energy consumption by use of diesel	Headquarters (Eco Lab)	GJ	-	204	255
	Osan (SK Plasma)		-	-	96
	Ulsan Plant		-	85	95
	Andong Plant (L HOUSE)		-	56	64
	Cheongju Plant (S HOUSE)		-	551	621
Total			835	896	1,131
GHG emissions by use of diesel	Headquarters (Eco Lab)	tCO_2eq	-	14	18
	Osan (SK Plasma)		-	-	7
	Ulsan Plant		-	6	7
	Andong Plant (L HOUSE)		-	4	5
	Cheongju Plant (S HOUSE)		-	4	44
Total			59	28	81

EN-31 Total Environmental Expenditures and Investments

Category	Scope	Unit	2014	2015	2016
Environmental investment and target	Headquarters (Eco Lab)	KRW 100 million	0.0	0.0	0.0
	Osan (SK Plasma)		0.0	0.0	0.0
	Ulsan Plant		0.0	17.0	14.1
	Andong Plant (L HOUSE)		0.6	1.2	1.5
	Cheongju Plant (S HOUSE)		0.0	0.2	5.5

ESG Data

LA-1 Total Number and Rates of New Employees and Employee Turnover_Number of Retirees and Turnover Rate

Category	Scope	Unit	2014	2015	2016
No. of new employees hired	Male	Person	162	129	122
	Female		40	50	58
No. of retirees	-	Person	197	127	171
Turnover rate	-	%	11.0	7.6	10.2

LA-3 Number of Maternity Leave Use and Return to Work after Maternity Leave

Category	Scope	Unit	2014	2015	2016
Male	No. of employees who took maternity leave	Person	0	1	0
	No. of employees who returned after maternity leave		0	0	0
Female	No. of employees who took maternity leave	Person	20	32	33
	No. of employees who returned after maternity leave		14	15	25

LA-6 Type of Injury, Occupational Diseases, Lost Days, and Absenteeism, Total Number of Work-related Fatalities

Category	Scope	Unit	2014	2015	2016
No. of accidents	Company-wide	Case	1	0	2
Death toll			0	0	0
No. of lost days		Day	0	0	7

LA-7 Current Status of Medical Checkup Support and Implementation (2016)

Category	Scope	Unit	Eligible employees	Employees who underwent medical checkup	Employees who did not undergo medical checkup
Comprehensive medical checkup	Headquarters (Eco Lab)	Person	830	827	3
	Osan (SK Plasma)		79	79	0
	Ulsan Plant		203	203	0
	Andong Plant (L HOUSE)		12	12	0
	Cheongju Plant (S HOUSE)		140	140	0
General medical checkup	Headquarters (Eco Lab)		993	992	1
	Osan (SK Plasma)		79	79	0
	Ulsan Plant		381	381	0
	Andong Plant (L HOUSE)		42	42	0
	Cheongju Plant (S HOUSE)		140	140	0
Special medical checkup	Headquarters (Eco Lab)		154	154	0
	Osan (SK Plasma)		45	45	0
	Ulsan Plant		271	271	0
	Andong Plant (L HOUSE)		94	94	0
	Cheongju Plant (S HOUSE)		106	106	0

LA-9 Training Hours and Investments for Employees

Category	Scope	Unit	2014	2015	2016
Annual average training hours per employee	Company-wide	Hour	160	297	207
Total amount of investments in employee training		KRW 100 million	37	30	29

LA-11 Ratio of Employees Receiving Regular Performance Review

Category	Scope	Unit	2014	2015	2016
No. of employees eligible for regular performance review	Company-wide	Person	1,165	1,148	1,031
No. of employees who received regular performance review			1,104	1,108	995
Ratio of employees who received performance review		%	94.8%	96.5%	96.5%

LA-12 Composition of Employees_Diversity of Employees

Category	Scope	Unit	2014	2015	2016
No. of disabled employee hired	Company-wide	Person	15	27	25
No. of patriots and veterans hired			37	37	36
No. of foreigners hired			3	7	5

SO-1 Social Contribution Investment and Support

Category	Content	Unit	2014	2015	2016
Amount of investment in social contribution	-	KRW 100 million	18	17	16
Volunteer activity participation	No. of employee volunteers	Person	1,659	1,671	1,693
	No. of volunteering hours per employee	Hour	8	8	7

SO-7, 8 Legal Actions for Anti-Competitive Behavior, Anti-Trust, and Monopoly Practices, Significant Fines and Non-Monetary Sanctions for Non-Compliance with Laws and Regulations

- SK Chemicals was declared to be in violation of Article 11-4 (Disclosures on Status of Business Conglomerates, etc.) of the Monopoly Regulation and Fair Trade Act on March 31, 2015 and ordered to pay a fine of KRW 4 million pursuant to Article 69-2 of the same Act, and the company paid up accordingly. SK Chemicals is taking steps to prevent the recurrence of such violation in the future.
- On November 3, 2015, SK Chemicals was ordered by the Ministry of Food and Drug Safety to suspend the production of SKYCellflu prefilled syringe for 2 months due to insufficient hemagglutinin content (Legal basis: Article 62 of the Pharmaceutical Affairs Act; production suspension period: November 11, 2015 ~ January 10, 2016)

SO-11 umber of Grievances Regarding Impacts on Social Filed, Addressed, and Resolved through Formal Grievance Mechanisms

Category	Unit	2014	2015	2016
No. of violation cases against the rights of local residents	Case	0	0	0
No. of violation cases against the rights of local residents for measures taken		0	0	0

PR-8 Protection and Loss of Customer Personal Information

Category	Unit	2014	2015	2016
No. of customer data (including personal information) stolen	Case	0	0	0
No. of customer data (including personal information) lost		0	0	0

GRI G4 Index

General Standard Disclosures

*Accordance with Core

Aspect	Index	Disclosure	Page	Reporting Content
Strategy and Analysis	G4-1	Statement from the most senior decision-maker of the organization about the organization's strategy for addressing sustainability	6-7	CEO Message
	G4-2	Key impacts, risks, and opportunities	6-7	CEO Message
Organizational Profile	G4-3	Name of the organization	2-3	Company Overview
	G4-4	Primary brands, products, and services	12-19	GC/ LS Biz.
	G4-5	Location of the organization's headquarters	2-3	Company Overview
	G4-6	Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report	2-3	Company Overview
	G4-7	Nature of ownership and legal form	2-3	Company Overview
	G4-8	Markets served	2-3	Company Overview
	G4-9	Scale of the organization	58-65	ESG Data
	G4-10	Total workforce	58-65	ESG Data
	G4-11	Percentage of total employees covered by collective bargaining agreements	58-65	ESG Data
	G4-12	Organization's supply chain	53	Win-Win Growth
	G4-13	Any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	59	ESG Data
	G4-14	Whether and how the precautionary approach or principle is addressed by the organization for any risk related to sustainability management issues	26-27	Compliance
	G4-15	List of externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	70	UNGC Compliance Report
	G4-16	List of memberships of associations (such as industry associations) and national or international advocacy organizations	58-65	ESG Data
Identified Material Aspects and Boundaries	G4-17	List of all entities included in the organization's consolidated financial statements or equivalent documents and report of whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report	2-3	Company Overview
	G4-18	Process for defining the report content and the Aspect Boundaries and how the organization has implemented the Reporting Principles for Defining Report Content	42-43	Materiality Test
	G4-19	List of all the material Aspects identified in the process for defining report content	42-43	Materiality Test
	G4-20	Aspect boundary within the organization for each material aspect	42-43, 70	Materiality Test, Company Overview
	G4-21	Aspect boundary outside the organization for each material aspect	42-43, 70	Materiality Test, Company Overview
	G4-22	Effect of any restatements of information provided in previous reports, and the reasons for such restatements	58-65	ESG Data
	G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	70	Company Overview
Stakeholder Engagement	G4-24	List of stakeholder groups engaged by the organization	42	Stakeholder Value Distribution
	G4-25	asis for identification and selection of stakeholders with whom to engage	42	Stakeholder Value Distribution
	G4-26	Organization's approach to stakeholder engagement	42	Stakeholder Value Distribution
	G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting	42	Stakeholder Value Distribution
Report Profile	G4-28	Reporting period for information provided	70	Company Overview
	G4-29	Date of most recent previous report	70	Company Overview
	G4-30	Reporting cycle	70	Company Overview
	G4-31	Contact point for questions regarding the report or its contents	70	Company Overview
	G4-32	'In accordance' option the organization has chosen	70	Company Overview
	G4-33	Organization's policy and current practice with regard to seeking external assurance for the report	70	Company Overview

Specific Standard Disclosures

Aspect	Index	Disclosure	Page	Reporting Content
Governance	G4-34	Governance structure of the organization, including committees of the highest governance body	24-25	Establishment of Corporate Governance
Ethics and Integrity	G4-56	Organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	26-27	Compliance
	G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines	26-27	Compliance
	G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines	26-27	Compliance

Category: Economics

Aspect	Index	Disclosure	Page	Reporting Content
Economic Performance	EC1	Direct economic value generated and distributed	10-11	Financial Performance
	EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	39	Responding to Climate Change
	EC3	Coverage of the organization's defined benefit plan obligations	59	ESG Data
	EC4	Financial assistance received from government	59	ESG Data

Category: Environments

Aspect	Index	Disclosure	Page	Reporting Content
Raw Materials		DMA	36	Business Sites: Safety and Green Management
	EN1	Materials used by weight or volume	58-65	ESG Data
Energy		DMA	36	Business Sites: Safety and Green Management
	EN3	Energy consumption within the organization	58-65	ESG Data
	EN4	Energy consumption outside the organization	58-65	ESG Data
Water Resources		DMA	36	Business Sites: Safety and Green Management
	EN8	Total water drawing by source	58-65	ESG Data
	EN10	Percentage and total volume of water recycled and reused	58-65	ESG Data
Emission		DMA	36	Business Sites: Safety and Green Management
	EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	58-65	ESG Data
	EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	58-65	ESG Data
	EN18	Greenhouse gas (GHG) emissions intensity	58-65	ESG Data
	EN19	Reduction of greenhouse gas (GHG) emissions	58-65	ESG Data
	EN21	NOx, SOx, and other significant air emissions	58-65	ESG Data
Effluents and Waste		DMA	36	Business Sites: Safety and Green Management
	EN22	Total water discharge by quality and destination	58-65	ESG Data
	EN23	Total weight of waste by type and disposal method	58-65	ESG Data
	EN24	Total frequency and volume of significant spills	58-65	ESG Data
Products and Services	EN27	Extent of mitigation of environment impacts of products and services	58-65	ESG Data
Transport	EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, transporting members of the workforce	58-65	ESG Data
Overall	EN31	Total environmental protection expenditures and investments by type	58-65	ESG Data

Category: Labor

Aspect	Index	Disclosure	Page	Reporting Content
Employment		DMA	44	Employees: Establishment of Corporate Culture and Talent Development
	LA1	Total number and rates of new employees hires and employee turnover by age group, gender, and region	58-65	ESG Data
	LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major locations of operation	44	Employees: Establishment of Corporate Culture and Talent Development
	LA3	Return to work and retention rates after parental leave, by gender	58-65	ESG Data
Labor-Management Relations	LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	45	Labor-Management Relationship with Communication
		DMA	44	Employees: Establishment of Corporate Culture and Talent Development
	LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, total number of work-related fatalities, by region and by gender	58-65	ESG Data
	LA7	Workers with high incidence or high risk of diseases related to their occupation	58-65	ESG Data
Training and Education		DMA	44	Employees: Establishment of Corporate Culture and Talent Development
	LA9	Average hours of training per year per employee by gender and employee	58-65	ESG Data
	LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	47	Talent Development
	LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	58-65	ESG Data
Diversity and Equal Opportunity	LA12	Composition of governance bodies and breakdown employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	58-65	ESG Data

Category: Society

Aspect	Index	Disclosure	Page	Reporting Content
Local Communities		DMA	48	Social Contribution: Harmony with Local Communities
	SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	58-65	ESG Data
Anti-Corruption	SO4	Communication and training on anti-corruption policies and procedures	26-27	Compliance
Anti-Competitive Behavior	SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	58-65	ESG Data
Compliance	SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	58-65	ESG Data
Grievance Mechanisms for Impacts on Society	SO11	Number of grievances regarding impacts on society filed, addressed, and resolved through formal grievance mechanisms	58-65	ESG Data

Category: Product Responsibility

Aspect	Index	Disclosure	Page	Reporting Content
Customer Health and Safety		DMA	32	Products: Material and Quality Management
	PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	32-35	Products: Material and Quality Management
Customer Personal Information Protection	PR8	Total number of substantiated complaints regarding breaches of customer privacy and loss of customer data	58-65	ESG Data

Independent Assurance Statement

Preface

KFQ was engaged by SK Chemicals to provide limited assurance on the 'SK Chemicals Report 2016' (further 'the Report'). Our responsibility is to perform a limited assurance engagement and to express a conclusion based on the work performed. KFQ conducted its assurance based on completeness of the data and information provided by SK Chemicals. SK Chemicals is responsible for all contents within the Report including the reporting principles and standards.

Independence

KFQ is not involved in the preparation of any part of the Report, other than providing an assurance opinion, and there has been no interest between SK Chemicals and KFQ. KFQ has no biased opinion on stakeholders of SK Chemicals.

Assurance Standards

KFQ has designed and implemented assurance according to the following standards.

- AA 1000 Assurance Standard 2008
- AA 1000 Accountability Principles Standard 2008
- GRI「Sustainability Reporting Guidelines G4.0 (GRI G4.0)」
- ISO 26000: Social Responsibility Standard

Assurance Scope

KFQ identified the followings as its scope:

- SK Chemicals' sustainable management activities and performances of the headquarter and all business establishment (domestic and overseas) described in the Report
- Compliance with the guidelines according to GRI G4.0 Core Option
- GRI G4.0 compliance assessment regarding contents of the Report and assurance principles of reporting quality
- Application of Type 1 assurance approach according to AA 1000 APS 2008 and AA 1000 AS 2008 to assess compliance with inclusiveness, materiality and responsiveness principles and reliability of sustainability performance information. The term 'Moderate Assurance' used in AA 1000 AS is designed to be consistent with 'Limited Assurance' as articulated in ISAE 3000.
- Core subjects in ISO 26000

Assurance Procedures

KFQ designed procedures to have reasonable assurance of the Report's critical errors or inappropriate information. KFQ verified the reliability of the contents, processes and systems of data generation and report preparation.

- **Document Review**
  We reviewed the reliability of non-financial data in respect of the 'Sustainability' by cross-checking with the Report and GRI G4.0, quantitative data of SK Chemicals, and media research information. We confirmed on whether the financial information presented in the Report was correctly derived from the audited financial statements. Any financial information from Financial Supervisory Service Dart System (http://dart.fss.or.kr) is not included in the scope of the Assurance.

- **On-site Verification**
  KFQ visited SK Chemicals headquarter and conducted on-site verification to confirm reliability of the sustainability activities and performance data contained in the Report and to evaluate the effectiveness of the reporting process. We performed verification in the accuracy aspect of the aggregated data from SK Chemicals. These procedures included the following:
  - Materiality assessment process, stakeholders inclusiveness, key issues, internal response procedures, and etc.
  - Assessment of data analysis and descriptions and sustainable management performance in the Report
  - Consistency between the financial data contained in the Report and the audited financial statements 2016
  - Interviews with relevant staff responsible for providing information in the Report

- **Resolution of Findings**
  KFQ confirmed that some errors, inappropriate information, and ambiguous expressions found during on-site visit were properly reflected in the final Report.

- **Limitations**
  The Report has been prepared solely for SK Chemicals in accordance with the terms of our engagement. We do not accept or assume responsibility to anyone other than SK Chemicals for our conclusions we have reached in the statement. Completeness and responsiveness of sustainability performance information presented in the Report have inherent limitation due to their nature and the methodology used for determining, calculating and estimating such data. Accordingly, we do not express a reasonable assurance conclusion.

Opinion

Based on the verification activity stated herein, KFQ confirmed that the Report meets the GRI G4.0 'Core Option'. According to the principles of AA 1000 APS 2008 and AA 1000 AS 2008, inclusiveness, materiality and responsiveness, sustainability performance information were assessed and KFQ could secure reasonable grounds to provide Type 1 level of assurance with the following confirmation:

1. (Stakeholders Inclusiveness) SK Chemicals subdivided stakeholders as five groups related to the major issues of sustainable management. To hear any concerns and opinions from them, SK Chemicals had a customized communication strategy for each stakeholder group and reflected their responses and opinions to its sustainable management activities.
2. (Sustainability Context) In terms of sustainability, SK Chemicals continues to actively respond to the economic, environmental and social effects that stakeholders requires based on the core issues. These sustainable management activities and performances were properly contained in the Report.
3. (Materiality) SK Chemicals established issue pools and reviewed by internal guidelines and external assessment criteria (GRI G4.0, DJSI, ISO 26000, media coverage, benchmark, and issue analysis) incompliance with the materiality assessment process. We are not aware of any material aspects concerning its sustainability performance which have been excluded from the Report.
4. (Completeness) SK Chemicals applied reporting scope, boundary and temporal criteria. We confirm that the Report is suitable for stakeholders to assess sustainability performance.

Recommendation for Improvement

For further advanced sustainable management, SK Chemical needs to review the sustainable management vision, strategy and execution of the sustainable management in a long-term perspective, and the result should be reflected on its management activities. In addition, KFQ recommends to set up continuous management improvement measure in order that SK Chemicals' sustainable management activities(complementation of key issues selected through materiality assessment, development of systematic monitoring plans for performance data, data analysis, and so forth) can be executed comprehensively with its internal system.

kfq Korean Foundation for Quality

AA1000
Licensed Assurance Provider
000-80

June 2017
Seoul, Korea

CEO **Nam Dae Hyun**
Korean Foundation for Quality (KFQ)

Sustainability Report Summary

This 6th sustainability report published by SK Chemicals addresses four core aspects of Sustainability Management by examining the list of issues identified, based on analysis of internal management conditions and external business conditions and input from stakeholders. The report explains the rationale behind the selection of core aspects, risks, and opportunities associated with major issues, key policies, activities, and achievements. More details are available in the relevant sections of the report.

Reporting Period & Cycle

The reporting period is from January 1 to December 31, 2016, and data for 2014 and 2015 were also provided in some cases for time-series comparison. SK Chemicals has been reporting activities and achievements of Sustainability Management since 2012, with the report last updated in June 2017.

Reporting Scope

The scope of the report includes SK Chemicals' domestic operations including head office, research institutes, and plants in Osan (SK Plasma), Ulsan, Andong (L HOUSE), and Cheongju (S HOUSE). It is indicated when the reporting scope is different.

Reporting Principles

The report has been prepared according to the GRI G4 Guidelines-In accordance with 'Core' Option, and a materiality test was conducted to determine the content to be included in the report. Financial data in this report were prepared in accordance with K-IRFS, and issues discussed and included in the context of the 10 principles of the UN Global Compact can be viewed on page 70.

Verification of the Report

The report has been verified by Korean Foundation for Quality, a third-party assurance provider, in order to enhance accuracy of the content and data included in the report and to ensure that the content is presented in a balanced manner. Details including verification standards and scope and evaluator's opinions are available in the Independent Assurance Statement on pages 68-69 of this report.

Inquiries on the Report

Sustainability Report and Environmental Report

SK Chemicals website	www.skchemicals.com
Website for environmental management	www.skecoweb.com
Inquiries on sustainability management	SK Chemicals IR Team

UNGC Compliance Report (Communication on Progress)

SK Chemicals joined UNGC in February 2011. It upholds the ten principles on human rights, labor, environment, and anti-corruption. SK Chemicals' voluntary efforts and activities that follow the ten principles are reported as follows.

Major themes	Principle	Report
Human Rights	1. Businesses should support and respect the protection of internationally proclaimed human rights.	Compliance
	2. Make sure that they are not complicit in human rights abuses.	
Labor	3. Uphold the freedom of association and the effective recognition of the right to collective bargaining.	page 44-47
	4. Eliminate all forms of forced and compulsory labor.	
	5. Abolish child labor effectively.	
	6. Eliminate discrimination in respect of employment and occupation.	
Environment	7. Support a precautionary approach to environmental challenges.	page 38-39
	8. Undertake initiatives to promote greater environmental responsibility.	
	9. Encourage the development and diffusion of environmentally friendly technologies.	
Anti-Corruption	10. Work against corruption in all its forms, including extortion and bribery.	page 26-27

Sustainability Report TF

Overview	Company Overview		IR Team
	2016 SK Chemicals Highlights		PR Team, LS Strategy & Planning Team, VAX External Affairs & Strategy Team
	CEO Message		CEO Kim Cheol, CEO Park Manhn Hoon
Business Performance	Financial Performance		IR Team
	Green Chemicals Biz.		Business Analysis Team, Bioenergy Team, Business Development Team
	Life Science Biz.		LS Strategy & Planning Team, VAX External Affairs & Strategy Team, Administration Team(SK Plasma)
Operational Excellence	SK Chemicals System Overview		IR Team
	Establishment of Corporate Governance		Legal Affairs Team
	Compliance		Legal Affairs Team, Compliance Team
	Expansion of Investment in R&D		R&D Planning Team, LS Strategy & Planning Team
	Products: Material and Quality Management		Safety Environment Team (Ulsan), Compliance Team, Bio Team 2, Clinical Research Team, Clinical Quality Management Team, QA Team (Cheongju)
	Business Sites: Safety and Green Management		Safety Environment Team (Ulsan), Operational Support Team (Andong), Operational Support Team (SK Plasma), Compliance Team
Sustainable Contribution	Stakeholder Value Distribution and Materiality Test		IR Team
	Employees: Establishment of Corporate Culture and Talent Development		Design Team, Competency Team
	Social Contribution: Harmony with Local Communities		PR Team
	Pursuit of Customer Satisfaction and Win-Win Growth		EA & MI Team, Procurement Team, Marketing Support Team
Appendix	Accounting Data		IR Team
	ESG Data	General Standard Disclosures	Business Analysis Team, LS Strategy & Planning Team, Accounting Team, Design Team, Procurement Team, IR Team
		Specific Standard Disclosures — Economy	Design Team, Accounting Team
		Specific Standard Disclosures — Environment	Operational Support Team (SK Plasma), Safety Environment Team (Ulsan), Operational Support Team (Andong), Engineering Support & Maintenance Team(Cheongju), Customer Team, Project Group, Compliance Team, R&D Planning Team
		Specific Standard Disclosures — Labor	Competency Team, Design Team, Compliance Team, Customer Team
		Specific Standard Disclosures — Society & Product	PR Team, Legal Affairs Team, Marketing Support Team

The cover and paper inside the report acquired the FSC™(Forest Stewardship Council®) mark to qualify as eco-friendly paper.

SK chemicals

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