WE CARE FOR THE FUTURE
Healthcare, Earthcare

COVER STORY

COVER STORY

Circular Economy

An overabundance of waste including various plastics as well as environmental issues have become so severe that they are no longer concerns of the distant future, but of the present. From three years ago, SK chemicals has concentrated its efforts on developing chemical recycling solutions, anticipating that global plastics regulations will be strengthened. We are currently developing and mass-producing ECOTRIA, a copolyester with enhanced resource circulation by incorporating recycled materials. SK chemicals will continue to lead the eco-friendly circular economy ecosystem as the first mover.

Learn more about the eco-friendly circular economy initiative of SK chemicals.

COVER

WE CARE FOR THE FUTURE

HEALTHCARE, EARTHCARE

HOW TO USE THIS REPORT

This report was published as an interactive PDF which allows navigation to related pages within the report and shortcuts to related web pages.

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ABOUT THIS REPORT

SK chemicals Co., Ltd. publishes the Sustainability Report every year to inform our stakeholders of our performance and activities to create economic and social values. Our 2021 Sustainability Report aims to share ESG issues and impacts affecting SK chemicals and discuss future values.

Scope of Report	The scope of this report encompasses the headquarters, R&D institute, and business sites in Ulsan and Cheongju (S HOUSE). SK bioscience (Andong L HOUSE) and SK multi utility (Ulsan), two major consolidated subsidiaries in Korea, are also included in the report. Other cases have been annotated.
Major Changes	Information on SK multi utility was reported as the energy business performance of SK chemicals until 2020; however, since it was spun off in December 2021, it is now reported as performance that can be classified independently from SK chemicals.
Period of Report	The primary reporting period is from January 1, 2021 to December 31, 2021, and a number of qualitative performances, including those from the first half of 2022, are included. In addition, this report contains data for the previous three years — 2019, 2020, and 2021 — in order to identify the current status of increase and decrease as well as recent trends.
Principle of Report	This report complies with the core option standards of the Global Reporting Initiative (GRI) Standards guideline, and consideration was given to the SDGs international code of conduct during the reporting process. Financial data in this report abides by K-IFRS.
Data Assurance	This report has been reviewed and verified by the Korean Foundation for Quality (KFQ), an independent third-party certification body.
Additional Information	SK chemicals' website (https://www.skchemicals.com/)

CONTENTS

CEO MESSAGE

SK chemicals CEO **Cheol Kim**

SK chemicals CEO **Gwang-hyeon Jeon**

CEO MESSAGE

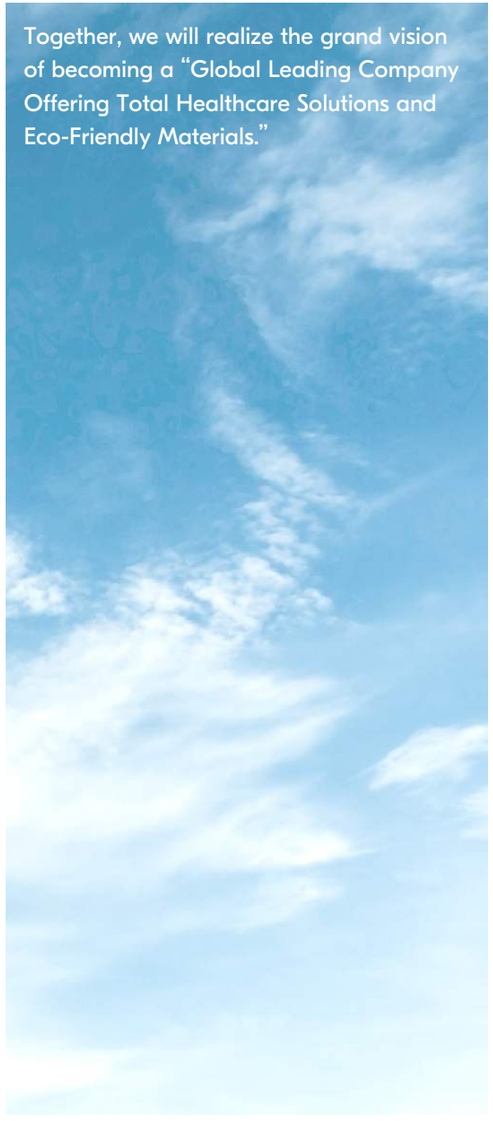
Dear respected stakeholders,

We would like to extend our deepest gratitude for your unwavering support and interest for SK chemicals even amid the unpredictable COVID-19 pandemic.

In 2021, numerous social issues, such as public health and economic crises, came to the fore, while the need to address climate change became more crucial than ever before. In the midst of the pandemic, people have come to consider health, safety, and the sustainability of life as the most important values, and the demand for corporate sustainability management is on the rise. SK chemicals, which has implemented ESG management since 2010, has long pondered the purpose of its business activities. We have developed a corporate mission and vision to "protect the environment and human health" and have been making unremitting efforts to pursue both economic and social values through the establishment and implementation of our corporate mission. As a result, our sustainability management performance has been recognized, as evidenced by our inclusion in the DJSI KOREA index in 2021 and the upgrading of domestic and international ESG evaluation grades, such as MSCI and KCGS.

The year 2021 also marked a significant turning point in our business portfolio. By selling the composite material and PPS businesses, we have established an environment in which we can concentrate more on our current core activities. Through equity investment in the recycling business, we have achieved commercial production of chemical recycling products for the first time in the world. The smooth construction progress of the PO3G facility is making a significant progress in the field of eco-friendly materials. At the same time, SK multi utility was established to achieve Carbon Net-Zero and promote our district electricity business, thereby taking a positive first step for local communities. In addition, the successful IPO of SK bioscience, our subsidiary, further materialized the company's goal for the future and bolstered its financial stability.

Based on this growth engine and stable financial structure, SK chemicals will make another leap forward in 2022. We intend to set the course of our future business with "Green Materials and Bio Business" and put our utmost effort into it. We will transform our Green Chemicals Business into a Green Materials Business utilizing our existing chemical recycling technology, biomaterials, and green energy business capabilities while simultaneously achieving Carbon Net-Zero. For Life Science Business, we will continue to strengthen our musculoskeletal and nervous system marketing strategy, which are our main area of expertise, and secure new pipelines using AI/DT technology. In addition, we will actively collaborate with external partners to strengthen our portfolio and expand our business into new areas, such as securing new technologies and developing biotherapeutics, based on our experience in the development of new drugs and market network capabilities.



Together with our stakeholders, SK chemicals is working to make the world a better place. By constructing an eco-friendly PET circular economy, we will not only meet our carbon emission reduction objectives, but also grow in tandem with local communities and social enterprises. We will do our utmost to secure sustainable competitiveness throughout the entire supply chain by assisting suppliers who are having trouble resolving ESG-related issues, such as those pertaining to the environment and human rights.

We endeavor to increase the transparency of the decision-making process and intensify our efforts to actively communicate with our stakeholders. The "ESG Committee" was established by the Board of Directors (BOD) in 2021 in order to discuss climate change response policies and implementation of the ESG management at the BOD level. In addition, by amending the Investment Deliberation Committee's regulations, the company prioritizes its environmental and social impact in the investment decision-making process.

SK chemicals is confident that our efforts to achieve our corporate mission and vision to "protect the environment and human health" contribute to practicing ESG management and the attainment of the United Nations Sustainable Development Goals (UN SDGs). We will continue to strive for a better future for the planet and humanity. We will continue to pursue growth while maintaining open communication with our stakeholders. We request your continued support and interest in the journey of SK chemicals.

Thank you.

COMPANY PROFILE

SK chemicals has driven the innovation in the domestic chemical and life science sectors since 1969 when we started our business as Sunkyung Synthetic Fiber. To stay true to the mission, "We promote human health and protect the environment," we are taking the leap forward to becoming a global leading player built on two pillars: "Green Chemicals Business" which aims to provide eco-friendly material solutions, and "Life Science Business" which provides total healthcare solutions.

As of December 31, 2021

Company Name	SK chemicals Co., Ltd.
Business	Development, production, and sales of eco-friendly resins and pharmaceuticals
Headquarters	310, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Website	www.skchemicals.com
Revenue	KRW 2,089.6 billion
Business Profits	KRW 555.2 billion
Net Profit During the Term	KRW 268.7 billion

※ Financial performance has been prepared on a consolidated basis.

Key Business Areas

By providing eco-friendly materials and total healthcare solutions, SK chemicals is at the forefront of protecting the global environment and promoting human health. With the world-class technology and facilities, we are continuously producing results through active investment and R&D activities.

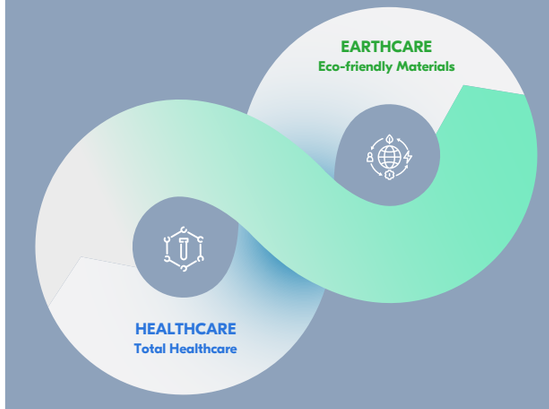
Green Chemicals business involves the development of eco-friendly materials, such as recycled plastics and bio-based plastics. We offer differentiated products including copolyester resins, engineering plastics, adhesives, and coatings according to customer requirements.

Life Science business entails providing comprehensive solutions for the diagnosis, prevention, and treatment of disease. By concentrating on R&D and investment in diverse fields such as synthetic new drugs, natural products, and biotechnology, we are achieving excellent results not only in Korea, but also in the most developed markets worldwide.

Details about SK chemicals are available on the SK chemicals website.

VISION

Providing eco-friendly materials and total healthcare solutions Global Leading Company



MISSION

We enhance human health and protect the Earth's environment

COMPANY PROFILE

Domestic Business Sites and Global Network

SK chemicals operates three plants including Green Chemicals Business Plant in Ulsan, SK bioscience Plant in Andong and Pharmaceutical Plant in Cheongju, with the Headquarters (ECO Lab) located in Pangyo, Seongnam, Gyeonggi-do Province. In addition, we boast our reinforced global capabilities and competitiveness built on our global network which includes the overseas subsidiaries in the U.S., Germany, and Shanghai, as well as offices in Japan and Guangzhou and business site in Suzhou and Yantai, China.

Status of Subsidiaries/Investors

Share Ratio

Subsidiary Companies

SK bioscience Co., Ltd. _Pharmaceutical manufacturing 68%	SK multi utility Co., Ltd. _Utility supplier 100%	SK chemicals-Daejung Co., Ltd. _Solvent manufacturing 50%	SK chemicals Suzhou Co., Ltd. _Resin manufacturing 100%
SK chemicals Yantai Co., Ltd. _Resin manufacturing 100%	SK chemicals Shanghai Co., Ltd. _Management consulting 100%	SK chemicals America _Wholesale 100%	SK chemicals GmbH _Wholesale 100%
SK chemicals Malaysia _Management consulting 100%			

Associates

JSI Co., Ltd. _Manufacturing 40%	HDC Polyol Co., Ltd._Manufacturing 20%

Major Affiliates

ENTIS Co., Ltd._Manufacturing 50%	ST Green Energy Pte, Ltd._Wholesale 50%

DBL, DOUBLE BOTTOM LINE

SK Group seeks to grow together with society by increasing both economic and social value in all business activities.

SK Group has been generating social value (SV) by contributing to the resolution of social issues and pursuing the happiness of its members. Recently, the definition of social value has been expanded to include the creation of corporate value for the satisfaction of all stakeholders. The simultaneous pursuit and management of economic and social values is referred to as the double bottom line (DBL). In order to provide visible indicators and reference points, social values are measured in terms of indirect economic contribution, environmental, and social performance.
Since 2018, SK chemicals has annually converted social value measurement results into monetary equivalents and disclosed them alongside economic values.

Green Chemicals Business

Sales (KRW 100 million)

10,371

Operating profit (KRW 100 million)

765

Life Science Business

Sales (KRW 100 million)

12,292

Operating profit (KRW 100 million)

5,202

Unit: KRW 100 million

Category	Details	2019		2020		2021	
		Sales	Operating profit	Sales	Operating profit	Sales	Operating profit
Green Chemical Business	Copolyester resin, DMT, copolyester adhesive	8,320	-133	88,592	674	10,371	765
Life Science Business	Pharmaceuticals (natural products, synthetic pharmaceuticals)	2,372	368	2,523	404	3,002	460
	Vaccines (flu, varicella, and herpes zoster vaccine)	1,832	221	2,375	496	9,290	4,742
Others	Internal trading (consolidated adjustments)	-1,394	-43	-1,502	-21	-1,766	-415
Total		11,129	412	11,988	1,554	20,896	5,552

※ PPS business gains and losses were excluded from 2020–2021, while bioenergy business gains and losses were excluded from 2019–2020.
※ The "Others" category includes internal trading sales, etc.

As one business scholar once stated, "If you can't measure it, you can't manage it, and if you can't manage it, you can't improve it," by measuring and managing social values, we are developing social values, enhancing the sustainability of SK chemicals, and increasing the happiness of our stakeholders.

Economic Value

In 2021, SK chemicals generated annual sales revenue of KRW 2,089.6 billion and an operating profit of KRW 555.2 billion, according to consolidated financial statements prepared in accordance with K-IFRS. In the past year, despite unfavorable business conditions due to COVID-19 and rising raw material prices and export freight rates, we achieved business performance that exceeded both the goals for achieving the company's vision and the management goals compared to the previous year. In addition, by selling the composite material business and the PPS business, we are creating the conditions to focus more on our existing core businesses. We are also making substantial progress in the eco-friendly materials area, which will be a future core business, through equity investment in the recycling business, the first commercial production of chemical recycling products, and the establishment of a PO3G production plant.

Social Value

SK chemicals is well aware that when businesses provide solutions to social issues, profits soon follow. Under the mission, "We promote human health and protect the environment," we have created social values by developing bio/eco-friendly products and distributing them to society in order to lessen the global environmental burden. As a result of such effort, the measurement of social value generation from products in 2021 produced more meaningful results. SK chemicals will continue to pursue the creation of social values for our various stakeholders.

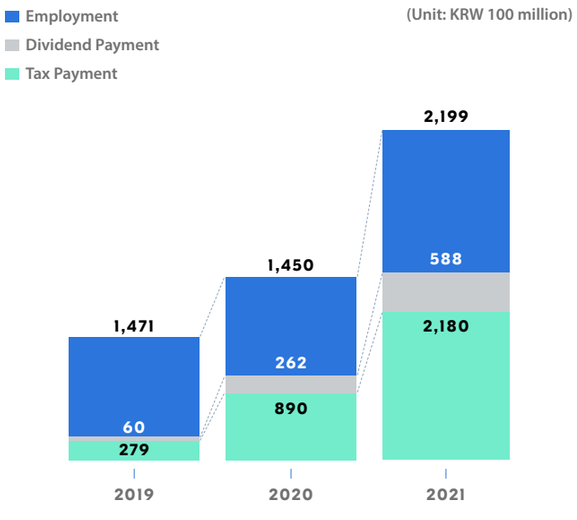
Indirect Economic Contribution Performance

Indirect economic contribution performance refers to a company's economic activities that indirectly benefit society. It consists of "employment," which is a labor cost paid to our employees; "dividend payment," which are dividends allocated and paid to shareholders; and "tax payment," which is a tax paid to society.

Employment | SK chemicals' performance in "employment" has been on the constant increase by increasing the number of employees hired and their wages.

Dividend Payment | The increment in net income we earned through our business activities in 2021 led to the growing amount of dividends paid to shareholders, which means enhanced "dividend" performance.

Tax Payment | Due to the sale of the existing shares following the initial public offering (IPO) of SK bioscience in 2021, the associated tax was paid, resulting in a temporary increase in "tax" performance.

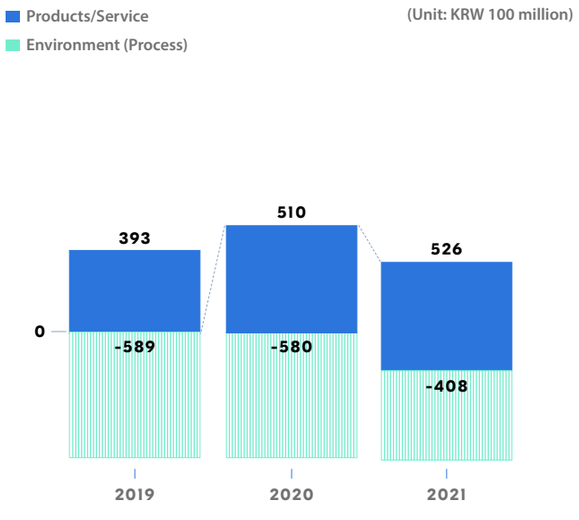


Environmental Performance

Environmental performance comprises the "product/service" and "environment (process)" areas, in which the level of direct impact a company's products and services have on the environment is measured, and the level of environmental pollution resulting from production is measured, respectively.

Products/Service | "Products/service" performance improved in 2021 due to the increased sales of products with social value, such as ECOZEN and ECOTRIA.

Environment (Process) | The measure of SV of the "Environment (process)" performance, which is calculated based on water consumption, GHG emissions, and air/water pollutant waste, increased due to the reduced emission of GHG as a result of the spin-off of SK multi utility.



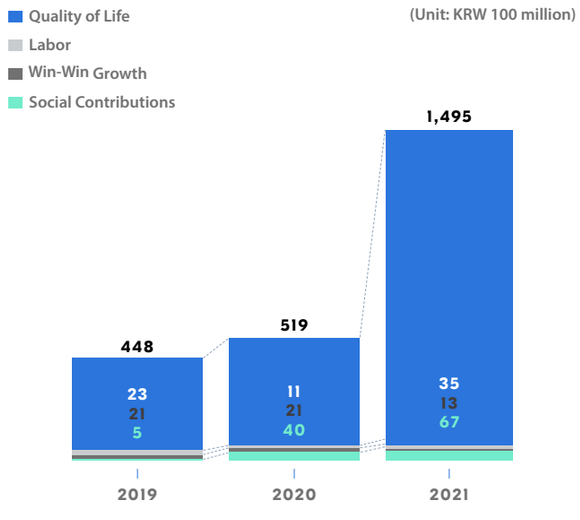
Social Performance

Social performance measures the social value created by enhancing the quality of life of purchasers or end-users, protecting consumers during the purchasing process, contributing to society through fair labor and Win-Win growth, and bolstering local communities.

Quality of Life | This refers to the social value of preventing spread of diseases in advance, reducing medical costs in the event of infection, and enhancing public health. By increasing sales of SK bioscience's vaccine products and monetizing the social value of COVID-19 vaccination, the social value of "quality of life" rose sharply in comparison to the previous year.

Labor, Win-Win Growth | We provide our employees with stable welfare, such as childcare leave, time off for vaccinations, and welfare benefits, and we prioritize consumer protection by purchasing goods from developing nations through fair trade.

Social Contributions | Due to COVID-19, our volunteer activity program has been expanded to include non-face-to-face activities, and we have launched the "Happy Green School," an environmental education program for the lower grades of elementary school, as well as the "Myanmar Cookstove" project, which aims to reduce carbon dioxide emissions while creating jobs in developing nations and reviving local economies. In 2021, donations to share SK chemicals' profits with society and the social value of "social contributions" increased. We will continue to share the company's profits with society in the future.



DBL COMMITMENT

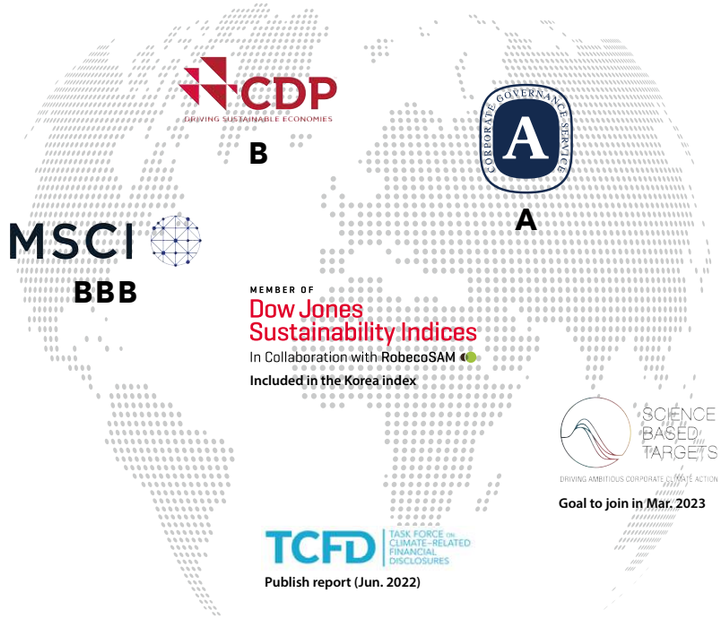
SK chemicals has contemplated the environment and the purpose of its business activities for a significant length of time. We set our company mission and vision statement to "protecting the environment and human health," and over the past decade, we have completed our green chemical and life science portfolio by conducting research and investing in the eco-friendly and biomaterials fields. The innovation strategy pursued by SK chemicals and our promise to generate economic and social value are consistent with the Sustainable Development Goals (SDGs).

From the raw material of copolyester to finished products, we will actively utilize the company's infrastructure, technology, and market network to transform into a green material business that connects customers and technology in order to become the world's No. 1 company in the copolyester business field. In addition, SK chemicals has the best musculoskeletal and nervous system capabilities in the country, as well as the technology and network capabilities to develop several first new drugs in Korea and the first cell-cultured quadrivalent influenza vaccine in the world. We will expand our new business into the global biopharmaceutical market, which is valued at KRW 600 trillion, and rise to the top of the Korean pharmaceutical industry with annual sales of KRW 1 trillion.

100 percent of the energy used by SK chemicals for product production will be green. By 2024, we plan to phase out coal-fired generation and switch to LNG. By 2030, we will have converted 100 percent of our existing products into recycle portfolios, establishing ourselves as a global leader in chemical recycling.

By transforming our product portfolios and business models, SK chemicals expects to reduce and offset 1.37 million tons of GHG emissions by the year 2040.

DBL ENGAGEMENT



Participation in Global Initiatives

SK chemicals practices ESG management in accordance with our mission and vision statement of "protecting the environment and human health." We are expanding the ESG disclosure in accordance with global standards such as SASB and TCFD to disclose ESG management objectives and performance in a transparent manner. In addition, by participating in the Carbon Disclosure Project (CDP), efforts to reduce carbon emissions and climate change response goals and strategies are disclosed, and by March 2023, we intend to join the Science Based Targets initiative (SBTi). In 2021, our MSCI ESG rating was upgraded from B to BBB, and our Korea Corporate Governance Service (KCGS) rating was also upgraded from B+ to A. In addition, we have received recognition for our excellence from global evaluation agencies, such as being included for the first time in the DJSI Korea Index.

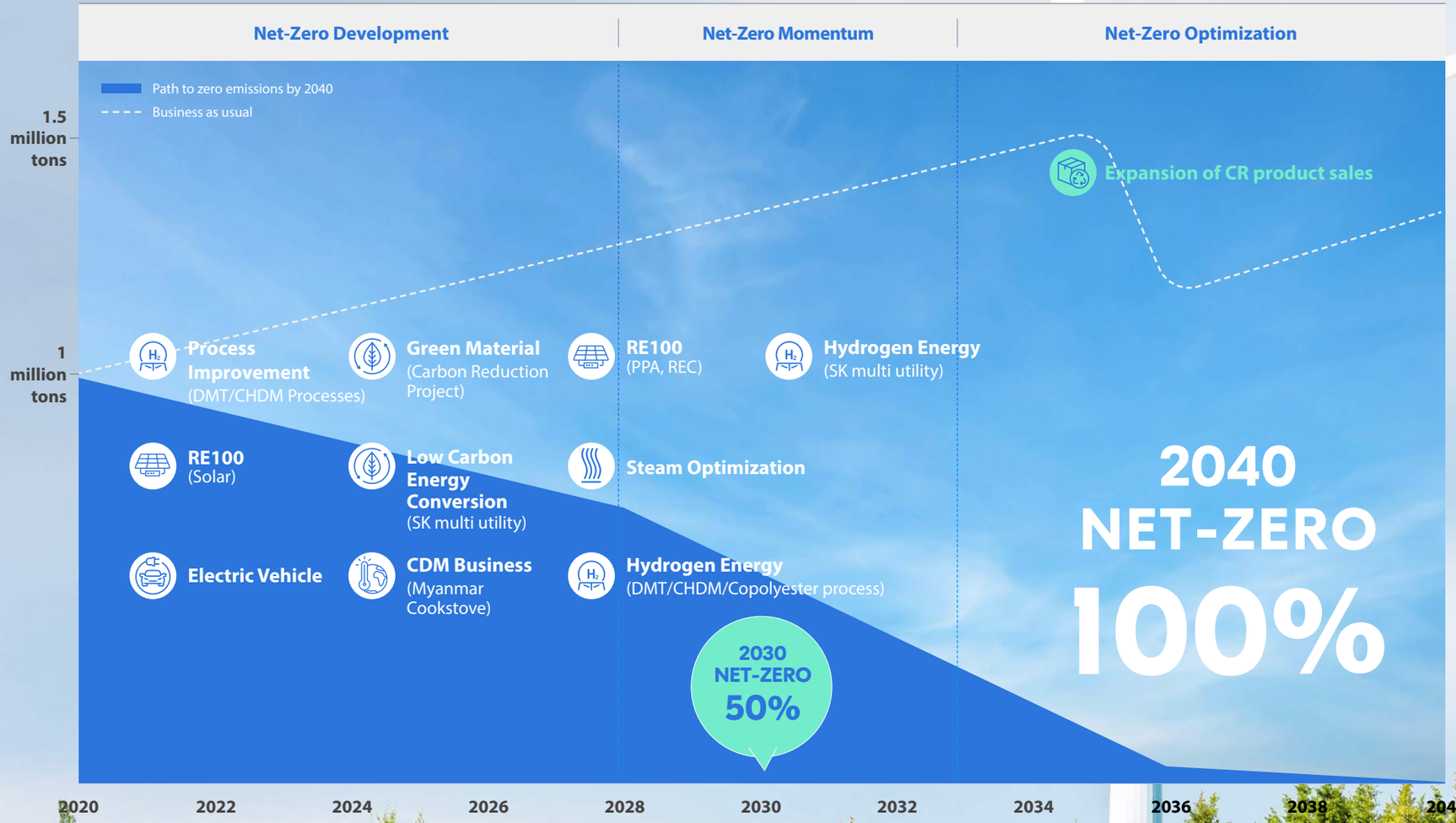
DBL STORY

2040 NET-ZERO ROAD-MAP

"The goal of SK chemicals is to convert all of the energy we consume into 100 percent renewable energy and ultimately shift to a hydrogen economy."

In 2018, following the publication of the special report by the United Nations Intergovernmental Panel on Climate Change (IPCC), governments around the nation, including Korea, announced the 2050 carbon neutrality goal. Our major investment groups and customers are also declaring their carbon neutrality goals and requesting participation from investment companies and suppliers to take part in the activity. SK chemicals acknowledges the climate change crisis and the need for countermeasures, and intends to contribute to the 2040 Net-Zero GHG reduction roadmap.

SK chemicals Net-Zero Roadmap

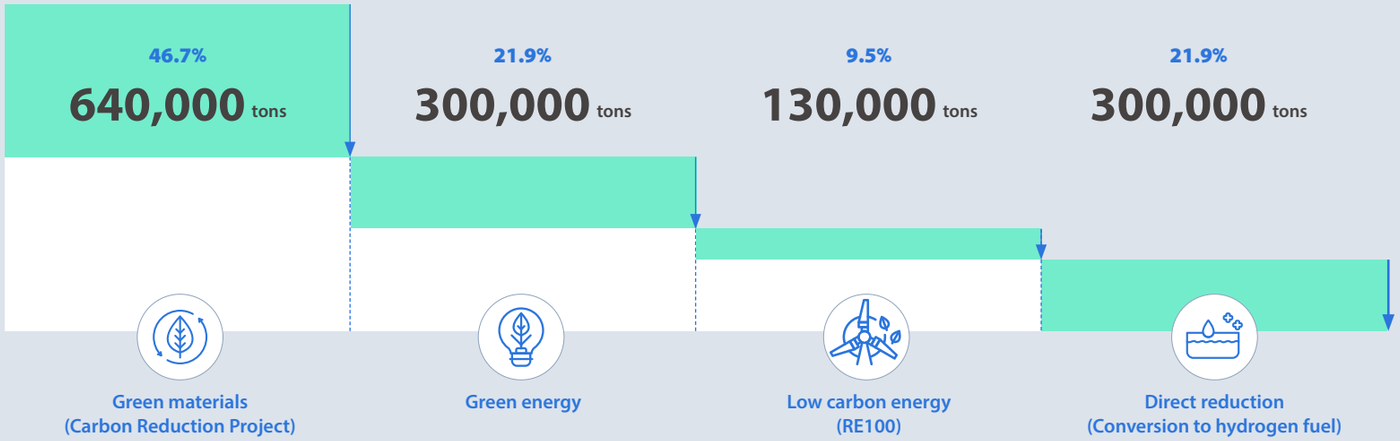


2040 NET-ZERO ROAD-MAP

SK chemicals aims to convert its product portfolio to low-carbon, eco-friendly materials and its business model to green energy. In order to expand and implement direct reduction measures, we are also attempting to find direct reduction measures based on SBTi and to accelerate the implementation of carbon reduction and investment plans. As the initial step in phasing out existing coal-fired power, the company intends to invest KRW 400 billion to completely convert to LNG by 2024. In order to accomplish this, SK multi utility, an energy subsidiary, was established.

Through these efforts, it is anticipated that a total of 1.37 million tons of GHG emissions will be reduced or offset by 2040. In addition to fulfilling the obligation to achieve Net-Zero, SK chemicals' innovative response to climate change will reduce the cost of purchasing emission permits and enhance business sustainability, thereby contributing to the global competitiveness of our green materials business.

	01	02	03
Economic value	Meeting investor and customer needs	Reduced cost of purchasing carbon credits	Enhanced global competitiveness of green materials business
Social value	Climate crisis response	Fulfillment Net-Zero obligation	Contribution to conversion to a hydrogen economy



Expected GHG emissions by 2040

1,370,000 tons

CO_2

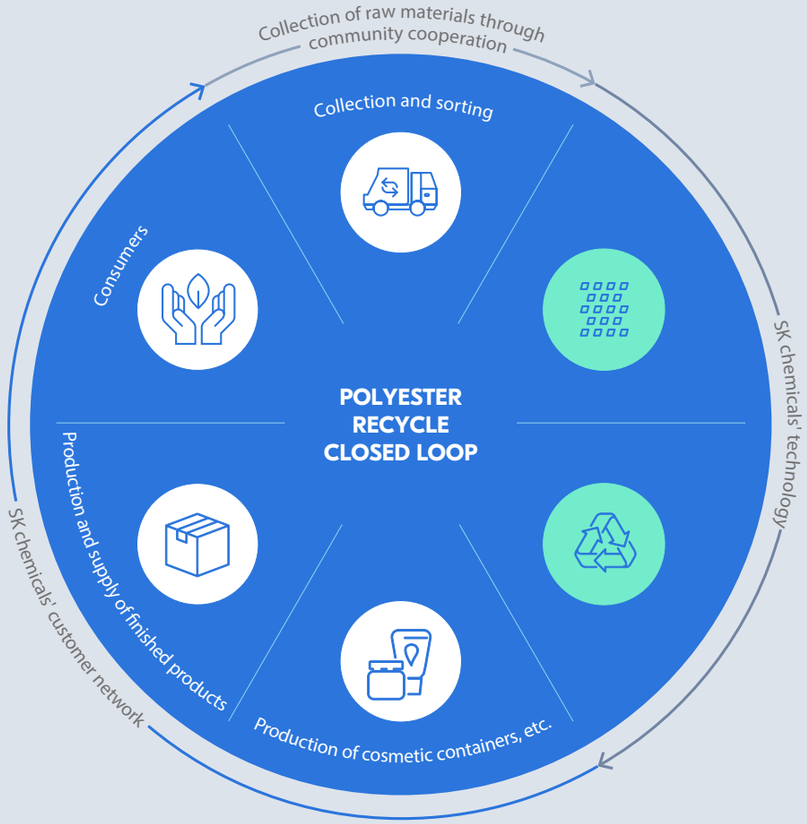
100%
Reduction or offset

ECO-FRIENDLY PET CIRCULAR ECONOMY

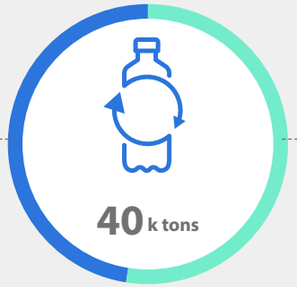
"By 2025, SKYPET chemically recycled (CR) business is expected to reach KRW 200 billion. Through this project, SK chemicals aims to create a 'bottle-to-bottle' circular economy and strengthen its ESG-based business system. "
- Jeong Jae-jun, Head of New Business Development Dept.

According to a report published by McKinsey, by 2050, the plastic recycling market is projected to grow gradually and account for 60% of the total plastics market. This indicates that a new market worth KRW 600 trillion will be created, and multinational corporations such as Nestlé, Coca-Cola, and Procter & Gamble (P&G) are planning to increase their use of recycled and environmentally-friendly plastics. Furthermore, the Korean government has mandated that plastic manufacturers use recycled raw materials from 2023, and in the case of PET, more than 30% of the raw materials used must be recycled products by 2030.

FIRST MOVER leading the eco-friendly circular economy ecosystem



First PET eco-friendly circular economy BM in Korea

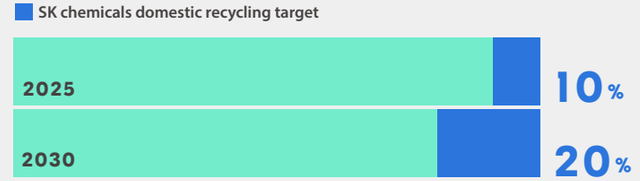


Total PET Bottle Waste

Building an eco-friendly circular economy
Collaboration with brand owners and local governments

Chemical recycling production infrastructure
Operation of the first chemical recycling commercial facility in Korea

20%
of PET bottle waste to be recycled by 2030



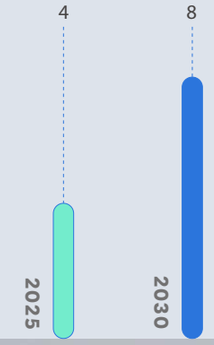
CHEMICALLY RECYCLED PET

"The polyester circular economy business model not only contributes to the resolution of social issues, but also strategically secures recyclable raw materials and sales outlets. It is characterized by a structure consisting of a virtuous cycle in which the development of the ecosystem is tied to the success of businesses."

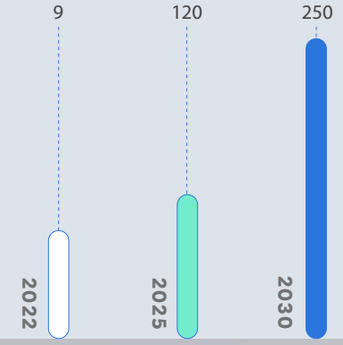
To construct an eco-friendly PET circular economy, the participation of various stakeholders is necessary. Through cooperation with brand owners, local governments, and global businesses, SK chemicals is promoting the establishment of a circular economy that can increase the domestic PET recycling rate. In Korea, MOUs for PET bottle recycling were signed with partners such as Gwangsan-gu, Gwangju Metropolitan City, and Jeju Province Development Corporation (Samdasoo). By investing in China's Shuye, the only producer of chemically recycled raw materials in the world, we secured the right to purchase 20,000 tons of chemically recycled raw materials and the exclusive right to sell chemically recycled PET (CR-PET) in the Korean market. In addition, we are constructing the infrastructure necessary to chemically decompose PET waste and produce CR-PET.

	01	02	03
Economic value	Discovering a business model based on a virtuous cycle for CR-PET production and sales	Profit generation through CR-PET production and sales	Establishment of CR-PET production infrastructure
Social value	Reduction of waste plastics and GHG	Creating jobs in local communities (collecting/ sorting waste plastics)	Establishment of PET eco-friendly circular economy

Goal to secure domestic feedstock
(Unit: 10,000 tons)



Chemically Recycled PET sales target
(Unit: 1,000 tons)



"Jeju Samdasoo is the most popular brand of domestic drinking bottled water. In collaboration with SK chemicals, PET bottles are reborn as new products. It was gratifying to be able to contribute to environmental friendliness not only as a company but also as an individual through this partnership."

- Lee Seong-yun, Team Manager

DBL STORY. 3

GOOD HEALTH & WELL-BEING

"I find it extremely rewarding to create effective medications that help patients. At SK chemicals, we are generating synergy with our coworkers by cooperatively performing tasks that we cannot accomplish alone. "
- Kim Jeong-hun, Head of SK chemicals R&D Center/

As a result of global population growth and the accelerated aging of the over-65 population, the healthcare industry is anticipated to experience an increase in demand. In order to capitalize on opportunities presented by market shifts in the pharmaceutical industry, it is necessary to maintain operational excellence. As the leading pharmaceutical company in Korea's musculoskeletal and nervous system markets, our Life Science Business has maintained consistent sales and profits. Based on these marketing capabilities, we will secure a new pharmaceutical pipeline with external partners leveraging AI and Digital Transformation (DT) technology, and by promoting new businesses based on this, we will advance as a leading Korean pharmaceutical company with sales exceeding KRW 1 trillion.

Promotion of new drug development partnerships with domestic/international partners

AI-powered new drug development companies

- DR.NOAH BIOTECH — **3 Tasks** | Composite drug development for nonalcoholic steatohepatitis and pulmonary fibrosis
- DEARGEN — **4 Tasks** | Innovative new drug development for nonalcoholic steatohepatitis and pulmonary fibrosis
- SK C&C — **1 Task** | AI drug development platform construction
- Standigm — **2 Tasks** | New drug development for nonalcoholic steatohepatitis utilizing new drug design platform

Next-gen new drug development companies

- J2H BIOTECH — Development of innovative new drugs using target proteolysis technology, purchase of shares (0.9%) (KRW 1.5 billion)

2020

- Standigm — Construction of in-house synthetic lab, purchase of Standigm shares (1.5%) (KRW 3 billion)

2021

- ONCOBIX — Investment in Oncobix, a domestic synthetic new drug bio-venture company
- CIMPLRX — Agreement with Cimplrx, a domestic AI-based bio-venture company, for joint research

2022~

- ONCOBIX — Agreement with Oncobix, a domestic synthetic new drug bio-venture company, for joint research
- inCerebro — Agreement with inCerebro, a domestic AI-based bio-venture company, for joint research
- A — Overseas drug development leveraging AI (investment, joint research under discussion)

Utilizing open innovation and AI to secure new pipelines with an R&D platform based on open innovation

New drug development through open innovation

Reduction of development costs, time and uncertainty / Promotion of L/O from 2023

Building a new drug discovery platform leveraging AI

Minimization of failure costs and development of new pipelines
Obtaining analysis capabilities comparable to those of existing AI firms

Investment of venture capital and introduction of external tasks

Securing promising venture investments and pipelines, exploring new business areas
Introduction of new pipeline and return on investment

GOOD HEALTH & WELL-BEING

SK chemicals intends to secure a new pipeline with an open innovation and AI-powered R&D platform. Currently, we are in discussion with companies that develop new drugs based on AI and promising drugs of the next generation, as well as conducting joint research on new drug development with a number of bio ventures. In addition, we are expanding our domestic and international partnerships while constantly assessing our future business endeavors. We are pioneering new areas, including new biotherapeutics, while keeping all options and connections with existing business items open.

Economic value

01 Securing new pipelines and identifying new business items

02 Expanding partnerships with high-tech companies

Social value

01 Enhancing quality of life through the creation of new drugs for rare incurable diseases

02 Offering high-quality pharmaceuticals at competitive prices

AI tech + Partnerships = New drug development

SK chemicals is collaborating with external partners with AI expertise to discover new drug candidates. The core of AI technology is analyzing vast amounts of data and presenting new drug candidates through machine learning using big data. It can save time in the discovery phase by automating human-performed tasks while the practical clinical and toxicity safety aspects that occur after the discovery phase remain identical to the current methods.

APPROACH TO SUSTAINABILITY

BOARD OF DIRECTORS

"The Board of Directors must assess whether new business aligns with the mission of SK chemicals, which is to 'promote human health and protect the environment.' The procedure for determining this is reflected in the decision-making process of the Board of Directors." SK chemicals enacted Corporate Governance Charter in March 2021. The charter defines and details shareholders, the board of directors (BOD), an audit organization, the protection of stakeholders' rights and the policies for business operation monitored by the market. Especially in the section of the board of directors, BOD independence, BOD diversity, and the expertise of directors are clearly stipulated, which lays the foundation for our transparent management principles.

Transparent Management

Strengthening transparent governance centered on the BOD and communicating with the market

Enhancing transparency/independence	Strengthening of expertise/roles	Investor communication
Preparation of independent director pool Plan for the promotion of Independent Director Nomination Committee	Establishment of an external advisory group of experts Securing BOD diversity Introduction of risk management processes within the BOD Delegation of Audit Committee/reinforcement of regulations Linkage of ESG issues with management performance	Shareholder returns IR for institutional investors / e-voting system Sustainability report/ ESG information disclosure Communication through media platforms

Composition and Independence of the BOD

The BOD consists of two internal directors and four outside directors as of March 2021. With the aim of empowering the board to implement more powerful checks and balances, the BOD makes it mandatory that the chairman of the board is elected among outside directors and the ratio of outside directors occupies the majority. Directors cannot assume two or more jobs at the same time in accordance with the Commercial Act, and they are restricted from getting a job at a company that conflicts with SK chemicals in terms of interest. Decisions are made on whether to reappoint a director or not at the termination of his or her term after the performance evaluation as director.

Name	Committee	Field of Expertise
CEO		
Kim Cheol	Personnel Committee	Management
Jeon Kwang-hyeon	ESG Committee	Management
Independent Director		
Moon Sung-hwan	Audit Committee/Personnel Committee	Management
Ahn Yang-ho	Audit Committee/Independent Director Nomination Committee/ESG Committee	Administration/ Finance
Cho Hong-hee	Audit Committee/Independent Director Nomination Committee/Personnel Committee	Accounting/ Finance
Park Jeong-soo	Audit Committee/Independent Director Nomination Committee/ESG Committee	Economics

The purpose of BOD meetings is to reach and actively reflect the opinions of our shareholders and stakeholders in our business management as well as to review and decide on key issues across a wide range of areas encompassing society, environment and economy SK chemicals informs directors of contents concerning the convocation of the meeting through the secretariat at least five days before the meeting along with information on the date, location, agendas and things to be reported of meeting. SK chemicals convened a total of 17 board meetings in 2021, reviewed and made decisions on agendas taking into account home and abroad market conditions.

Expertise and Diversity

Career and expertise comes first when we recommend candidates for directors. We publicly disclose the qualifications, appointment backgrounds and requirements for independence of all directors. Outside directors, composed of experts in various fields of industry and economy, allow the BOD to make reasonable decisions by reviewing the areas of their expertise and providing opinions. For the sake of improved professionalism of the BOD, we put in place four sub-committees under the umbrella of the board. In addition, to ensure the diversity of the BOD, we intend to appoint a female independent director taking ESG expertise in consideration in March 2023. (For more details, see Corporate Governance Charter enacted in March 2021)

Performance Evaluation and Compensation

The remuneration of directors should go through the approval process of the general shareholders' meeting to be implemented, and the amount of remuneration paid is determined within the bounds of total directors' remuneration. The value of roles and responsibilities determines the remuneration for internal directors while the remuneration for outside directors is set and evenly paid in accordance with the directors' payment procedure. As for performance incentive, both metrics and non-metrics are comprehensively evaluated for the calculation of incentive. Metrics include sales, operating income, and pre-tax profits while non-metrics encompass leadership, expertise, and other contributions. In 2021, the amount of remuneration approved was KRW 5 billion with a total of KRW 2.86 billion paid to two registered directors and four auditors including one outside director newly elected in the shareholders' meeting in March 2021. An average amount of wage per capita stands at KRW 477 million. In compliance with relevant laws, we report the cases in which the amount of remuneration for an individual director or auditor surpasses KRW 500 million through our semi-annual and business reports.

BOARD OF DIRECTORS SHAREHOLDER STATUS

Committees Within the BOD

To increase the efficiency and expertise of the BOD, various committees have been established and are operated under the board. When evaluating new business, agenda review takes into account whether or not the business aligns with SK chemicals' mission of "promoting human health and protecting the environment." Contributing to the improvement of quality of life, contributing to the protection of the global environment, and contributing to the reduction of environmental load indicate whether the mission is being accomplished. If the mission is not accomplished, the agenda will not be considered for discussion by the Investment Deliberation Committee or the BOD. In addition, the ESG Committee discusses and decides on agendas related to new business/investment to ensure that responsible decisions are made regarding new business/investment.

In consideration of environmental management and social responsibility management policies, the ESG Committee establishes objectives for ESG-related activities and reviews in-depth action plans. Through the risk management framework, it also identifies risks and opportunities in the company's business areas and reviews strategies for responding to financial and non-financial risks and opportunities. With an aim to facilitate ESG Committee, the ESG Master Plan and ESG Key Index were reported in the third quarter of 2021, and it was decided to spin off a utility corporation (SK multi utility) as part of the 2040 Net Zero initiative. In March 2022, the materiality assessment results were reported to the ESG Committee in order to discuss material business-wide issues. In April of the same year, the ESG Committee regulations were revised in order to improve the effectiveness of ESG management and to concretize the committee's activities. By amending the Investment Deliberation Committee's regulations in 2022, the procedure for reviewing the "ESG Review Result Report" has been added to the deliberation of investment items. ESG risk must be evaluated during investment deliberation, and regulations should mandate follow-up monitoring for environmental/social risk reduction measures based on the ESG review report in order to minimize the investment project's negative impact on the environment and society. For the first time since the revision, the ESG risk of the CHDM #5 investment was evaluated.
Personnel Committee aims to approve and monitor the reflection of sustainability management or ESG strategies and goals into the BOD reward policy, and the Personnel Committee's assessment/ remuneration, deliberation and resolution processes adhere to its own regulations.

Transparent Disclosure

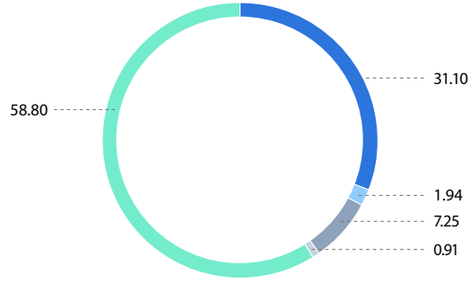
SK chemicals convenes general shareholders' meetings every year to share the current status of our management as well as to reflect their opinions in our future direction and operation, thereby protecting and serving the rights and interests of our shareholders. Key decisions on business operation made by the BOD are publicly and instantly disclosed to give our stakeholders including shareholders access to such information. Especially data and information closely related to investors' interests are open to public through the SK chemicals' website, the Financial Supervisory Service's electronic disclosure system, and the Korea Exchange.

Shareholder-Friendly environment

Since the 2017 spin-off, SK chemicals has been gradually increasing shareholder dividends in line with the company's rising profits. The company announced a mid-term dividend policy in October 2021 to materialize the shareholder return policy and increase the predictability of the shareholder return for investors. 30% will be used for paying out dividends based on separate net income, and the company also announced the implementation of an interim dividend plan beginning in 2022. To increase predictability for investors, we have set the policy duration to three years, will review this policy after the said period, and will strive to create a shareholder-friendly environment.

Shareholder Status

(Base date: Dec. 31, 2021)



Shareholder name	No. of shares owned (shares)	Share ratio (%)
SK discovery Co., Ltd.	6,137,781	31.10
Chey Chang-won and other related persons	383,273	1.94
National Pension Service	1,430,519	7.25
Treasury stocks	178,990	0.91
Others	11,605,646	58.80
Total	19,736,209	100.00

* No. of shares owned: Based on the 2021 Business Report in DART (common stock + preferred stock)
* Share ratio: Total number of issued stocks (common stock + preferred stock)

Category	Share	2019	2020	2021
Dividend per share	Common stock	450	2,000	3,000
(KRW/share)	Preferred stock	500	2,050	3,050
No. of stock dividend	Common stock	11,730	11,729	17,590
(thousand/share)	Preferred stock	1,457	1,314	1,967
Ratio of dividend to	Common stock	0.7	0.5	2.0
stock price (%)	Preferred stock	1.8	1.2	3.3

RISK MANAGEMENT

We aim to minimize the negative impact of risks by defining and managing risks through the establishment of a company-wide integrated risk management system. Under the direction of the head of the Management Support Division, SK chemicals reviews and manages the risks associated with corporate management, such as finance, compliance/ethics, environment, and human rights. The responsible department establishes internal regulations and guidelines for each risk type, continuously monitors risks, and, depending on the situation, reports monitoring results and countermeasures to the BOD.

Strategies for Responding to Financial and Non-Financial Risks

Risks are broadly divided into financial and non-financial categories. Financial risks include factors associated with domestic and international markets and the flow and value of capital, such as the economy/finance, credit, liquidity, and taxation. Non-financial risks include ethics/compliance, environment/water, and human rights.

Classification	Risk Type	Details	Risk Management Organization	Internal Regulations	Response Strategy
Financial Risks	Economic/Financial Risks	· Risk of loss resulting from fluctuations in financial markets, such as interest rates and exchange rates, raw material prices, oil prices, and trade disputes	Financial Support Division	· Capital Management Regulations · Purchasing Management Regulations	· Financial market monitoring and hedging against currency risk · Monitoring and reporting international oil prices and raw material trends on a regular basis · Diversification of supply and demand for raw materials
	Credit Risks	· Changes in the counterparty's creditworthiness that may result in losses	Financial Support Division - Finance Team Management Support Division (Life Science Business)	·Account receivable Management Regulations	· Collateralization such as providing different credit limits for each customer and apply for bond insurance
	Liquidity Risks	· Insufficient operating fund and risk of loss in the financing process	Financial Support Division	· Capital Management Regulations	· Monitoring and reporting cash flow and liquidity status on a regular basis
	Tax Risks	· Tax-related risks that could arise from all business activities	Financial Support Division		· Complying with domestic and national laws and regulations regarding tax obligations · Compliance with OECD transfer pricing guidelines, BEPS reports, and the transfer pricing reports to manage the status of implementation
Non-Financial Risks	Environmental Risks	· Due to the trend toward strengthening eco-friendly policies and related laws, risk of damage to the corporate image in the event of noncompliance with laws and regulations · In the event of exceeding GHG emission quotas, increased costs due to the need to purchase additional emission permits · Risk of company decisions having a negative impact on the environment	Safety Environment Team ESG Progress Team	· Environmental Management Regulations · Investment Regulations	· Establishment of a company-wide environmental management system (environmental audit, reporting, evaluation, support system) · Establishment/implementation of GHG reduction and management objectives for each business site · Considering the impact of significant business decisions on the environment as a top priority
	Water Risks	· Concerns regarding water scarcity, water availability, and water quality	Safety Environment Team ESG Progress Team		· Establishment/implementation of water waste reduction and management objectives for each business site
	Human Rights Risks	· Labor issues, such as workplace harassment and discrimination, and gender issues, such as gender discrimination, resulting in legal issues and damaged corporate reputation	Compliance Team	· Guidelines for Code of Ethics	· Establishment of a reporting channel for ethical management · Human rights management policy and a human rights impact assessment to be implemented
	Ethics and Compliance Risks	· Risk of loss resulting from inadequacy of internal processes, personnel, or systems	Legal Division Financial Support Division Management Support Department	· General Operational Regulations · Compliance Control Standards · Fair Trade Compliance Program Operation Regulations · Internal Accounting Management Regulations · Guidelines for Code of Ethics · Security Management Regulations	· Appointment of compliance officer to monitor compliance with compliance control standards and report findings to the BOD · Enhancing ethical awareness among employees through adherence to ethical management practice guidelines · Operation of internal accounting management system

RISK MANAGEMENT

Risks and Opportunities

SK chemicals identifies potential risk factors that could have a significant impact on the business environment, analyzes them in depth, responds strategically, and seeks to identify new opportunities.

Risk & Opportunities	Context & Market outlook	Strategic Direction
 **Climate Change Response**	· **Changes in public perception of the environment resulting from recent abnormal climate, etc.** - Recognition of climate change as a threat to financial stability by governments, central banks, and financial regulators* * (2015) Establishment of Task Force on Climate-Related Financial Disclosures (TCFD) * (2017) Establishment of Network for Greening the Financial System (NGFS) - Companies are exposed to risks that affect the value of their assets, such as products and services, and they strive to manage climate risk and improve corporate transparency by enhancing social responsibility such as reducing GHG emissions	· **Considering the directivity of the government's GHG reduction policy, application of GHG reduction technology to existing businesses to improve processes, adjust business portfolio, convert fuel, and increase energy efficiency at business sites** · **Implementation of GHG reduction policy with a 50% reduction in carbon emissions by 2030**
 **Recycling waste and minimizing environmental damage**	· **Despite the global economic downturn, it is anticipated that the global community will continue to raise eco-friendly issues such as GHG reduction and recycling in an effort to solve environmental issues** - Particularly, it is anticipated that the demand for lightweight materials will continue to rise as a result of stricter government regulations, such as the mandated use of recycled plastics in Europe and the rise in use of EV/HEV vehicles	· **Expanding the market for new uses based on eco-friendly materials, such as replacing conventional plastics by utilizing the features and strengths of products and developing eco-friendly products, are required** - Increasing price competitiveness by identifying new application markets and optimizing utilization and operations - Creating the framework for transitioning into an eco-friendly materials company
 **Emergence of infectious diseases and development of R&D capacities**	· **Due to the emergence of infectious diseases, social risks such as a crisis regarding the livelihood of the vulnerable groups and a deterioration of social cohesion are expected to worsen, while economic risks associated with an economic recession are expected to increase** → Although the pharmaceutical market's growth rate is anticipated to slow in the near future, the development of digital platforms is expected to present opportunities in the medium to long term · **Increasing importance of stable vaccine supply as a social safety network** - The demand for high-growth, high-value-added premium vaccines is expected to rise as the economy grows and the population ages - According to the government's plan to achieve vaccine self-sufficiency and expand national vaccination support projects, both the domestic vaccine market and the international vaccine market, which is centered on developing nations, are expected to grow	· **Preemptive response to market shifts by establishing an organization with enhanced expertise and productivity in each area of the pharmaceutical and vaccine industries** - Pharmaceutical Business: Reinforcement of R&D capabilities, including the expansion of product portfolio and investment in open innovation, in order to secure new drug development candidates - Vaccine Business (SK bioscience): Creating business outcomes based on the capabilities of technology and production platforms · **Securing domestic market dominance in all pharmaceutical activities, including marketing, production, and R&D**

ETHICAL MANAGEMENT

SK chemicals promotes ethical management by setting SK Group's Code of Ethics and SKMS as the foundation for corporate management and by closely adhering to the detailed Code of Ethics. Through sustainable management, we create value for a variety of stakeholders, including customers, employees, shareholders, and society, and play a crucial role in social/economic development. In addition, we aim for corporate management that contributes to the happiness of all people.

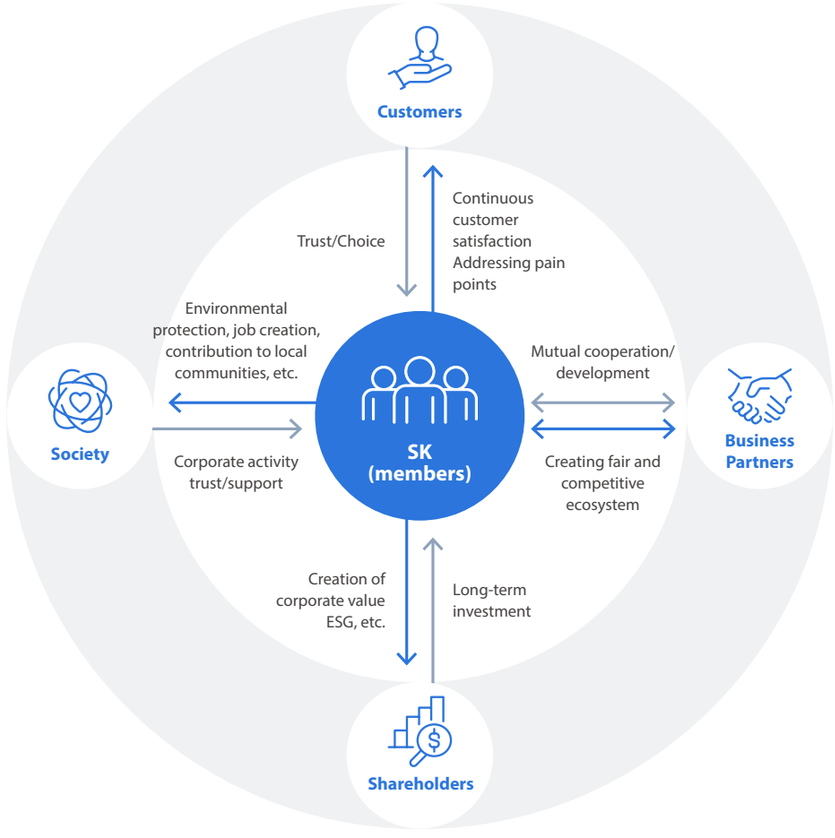
Code of Ethics

SK chemicals has in place the Code of Ethics embracing the basic management ideology of SK Management System (SKMS), which underlies our management philosophy and principles for behavior. In addition, as part of endeavors to provide guidelines on right behavior as well as to establish a transparent system for ethical management and the corresponding culture, various systems are put in place such as SKMS, code of practice, code of ethics, and guidelines for code of ethics.

SKMS | SK Managment System
- SK's highest value system, being a foundation of Code of Ethics
- The SKMS basic philosophy consists of corporate vision, value, and management principle

Code of Ethics | Code of Ethics, Guidelines for Code of Ethics
- Concrete elaboration of practices for SKMS, stipulating the responsibilities of members for stakeholders
- Detailed code of conduct for the compliance of the Code of Ethics, presenting the standard of ethical decision-making and behaviors

Guidelines for Code of Ethics



SK chemicals Code of Ethics

- The company must obtain trust from the customer by continuously satisfying the customer, and ultimately develop with the customer.
- The company shall create an environment for its members to work voluntarily and enthusiastically, and the members shall contribute to the development of the company and value creation of interested parties.
- The company shall enhance the value of its business so that shareholders' value can be generated, and to this end, it shall enhance transparency and manage efficiently.
- The company shall pursue joint development with a partner company and compete with its competitors in a fair manner.
- The company shall contribute to society through social and cultural activities along with its contribution to economic development, and manage according to social norms and ethical standards.

ETHICAL MANAGEMENT

Anti-Corruption

Ethical Management System

SK chemicals established the Compliance Team specializing in the Green Chemicals Business and the Life Science Business in January 2016 for systematic ethical management of employees.
The code of ethics and the guidelines for code of ethics have been revised to practice fair and transparent management and prepare the standard of decision-making and actions. Based on these codes and guidelines, we are implementing ethical management policies through prevention, detection, and response.

Activities to Promote Ethical Culture

SK chemicals reinforced the commitment to further advance ethical management through the proclamation ceremony of ethical management in 2017. The ethical management survey (ethical practice survey) is conducted on all employees annually to identify the current status and the weak points of ethical management. Its results are reported to the management and the Audit Committee.
In addition, we conduct online training and workshop for leadership-oriented ethics practice for all of our employees, including contract employees, as well as ethics training every year to increase the level of ethical management practice and reinforce the practice of ethical management. Online training and workshop on ethical management practice were held twice in 2021. All employees received online training on ethical management covering cases of private use, prohibition of outside work, and abuse of authority. The ethical practice workshop provides internal members with the opportunity to discuss various anti-corruption cases, including the prohibition of private gain, solicitation/bribery, misuse of internal information, and prevention of abuse of authority. In the 2021 workshop on ethical management practice, employees were provided with the training videos on the topics of "negligence" and "prohibition of outside work" and discussed "work immersion" under the guidance of the leaders (executives). The participation rate of each organization in the workshop is maintained at 100%. In an effort to spread the culture of ethical management, a letter is sent to our business partners every year that informs the ethical management policy of SK chemicals, and e-newsletters regarding cases of ethical management are sent to all of our employees.

Fair Trade Compliance Program

SK chemicals is keenly cognizant that autonomous compliance with competition order and fair competition regulations are integral parts of sustainable management. Accordingly, we have operated "Fair Trade Compliance Program" dating back to 2006. Under the leadership of the manager appointed of the team, employees in charge at the working level of each department frequently carry out inspections through checklists. And an internal monitoring system has also been running, through which cases with high possibilities of breaching laws and regulations are reviewed with professional departments in advance.

Spreading a Culture of Fair Trade

SK chemicals released a manual for fair trade compliance that encompasses domestic related legislations including the Fair Trade Act and overseas anti-corruption laws such as the U.S. Foreign Corrupt Practices Act (FCPA) and the U.K. Bribery Act. Along with this, we provide the code of conduct for fair trade to ensure our executives and employees better understand the legal and ethical criteria they should follow. In addition, we conduct annual training on the related laws and regulations on the Fair Trade Act and Chemical Substances Control Act to encourage employees to comply voluntarily and to assist them in understanding the revisions to related laws and regulations. There were no violation of our code of conduct for fair trade in transaction with external stakeholders

Reporting System

To raise transparency and establish an ethical corporate culture, SK chemicals is receiving reports about ethical management through various channels. Depending on the case, Compliance team is in charge of the investigation on Green Chemicals Business and CP team is responsible for the investigation on Life Science Business. In case of HR issues, HR department conducts investigations. In 2021, eight reports required investigation, and three reports were identified as violations and resulted in discipline actions. We gave appropriate actions to online reports we received. Sexual harassment, acquisition of personal benefits, violation of fair-trade regulations and retaliation against an informant can be subject to disciplinary actions more severe than suspension.

Reporting Channels

SK ethical management website	https://ethics.sk.co.kr
SK chemicals website	www.skchemicals.com
SK chemicals intranet	www.mykm.co.kr
Group toktok (mobile)	toktok.sk.com
e-mail	skchemicals.ethics@sk.com
Tel	+82-2-2008-2486
Mail	Ethical Management Manager, SK chemicals Compliance Team, 310 Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

Reportable Matters

Stakeholders of SK chemicals may report on labor and human rights, environment, anti-corruption, information protection, and sustainable supply chain issues using either their real name or anonymously.

Corruption and abuse of power of business partners (BP)
Acceptance of bribes/hospitality, privately request, equity investment, unfair instruction, verbal abuse/assault, etc.

Conflicts of interest at work
Sideline, excessive private business, member-loaned funds, investments based on confidential information, transactions with related parties, etc.

Damage to social values
Noncompliance with environmental, safety, health, and quality regulations, ignoring the socially disadvantaged, leaking customer information, and providing erroneous information to customers

Lack of respect for individuals among members
Abuse, assault, sexual harassment, bullying, occupational exclusion, request to perform private work, etc.

Inappropriate business practices
False reporting, manipulated performance, expedited sales, improper use of assets and expenses, information leakage, etc.

ETHICAL MANAGEMENT

Report Process Results Informant Protection Policy

Report Handling Procedures and Protection of Informant

SK chemicals operates an online reporting system for fair and transparent processing of reports. The informant can easily and conveniently report using the online reporting system and view the "report handling process and results" within the system. In addition, the informant's identity is also safeguarded so that he or she is not subject to any disadvantage or discrimination as a result of reporting. If an informant experiences disadvantage as a result of reporting, he or she can request corrective and protective measures from the ethical management department. Any person who commits an act that disadvantages an informant will be liable to heavy punishment.

Internal Audit

The internal audit consists of regular audits, performance audits, a self-correction system, and report investigation to systematically ensure corporate ethics. Regular audit and performance audit are conducted every year by classifying the risks of each organization/function and a self-correction system is established to regularly manage and inspect major risk areas. We conduct investigations on reports that are accepted at all times within the set period. In this process, the informant's anonymity is protected, and the investigation and handling of received reports are conducted in a transparent and fair manner, thereby enhancing the trust of internal members in the internal audit.

Cases of Internal Audit Violations and Actions Taken

SK chemicals investigates received reports as well as regular audit and compliance audit. We investigate and determine whether any violations have occurred, as well as handle them in a transparent and equitable manner. 8 of the internal reports received in 2021 were investigated, and three reports of workplace harassment, negligence, and pursuit of personal interests were confirmed, resulting in internal disciplinary action and personnel measures. The regular audit revealed no ethical violations, and when there are recommendations for improvement, a follow-up audit is conducted six months later to verify its implementation.

Results of monitoring and inspection

SK chemicals conducts a self-inspection of the correction system to promptly respond to changing domestic and international laws and social demands. In accordance with the internal Inspection Guide, we conduct self-correction system in the following six areas: cost management, purchasing/BP, HR, sales/receivables, investment, and special risk management (RM). It was confirmed that the four improvement recommendations from the 2020 inspection were implemented, and it was recommended that the two improvement recommendations from the 2021 inspection also be implemented.

As a result of continuous training on fair trade, there has not been a single instance of anti-competitive behavior, unfair trade practices such as monopolization, violation of other laws and regulations, non-monetary sanctions or lawsuits (confirmed lost suits). We will continue to practice active ethical management and conduct transparent and fair ethical audits in order to disseminate an ethical culture jointly created by all internal and external members.

Report Investigation	· Investigation of received reports requiring investigation
Self-Correction System	· Self-inspection according to the Inspection Guide
Regular Audit	· Regular inspection of risks by organization/function (semiannually)
Performance Audits	· Performance inspection of audit improvement recommendations (semiannually)

STEP 1 Receiving reports	STEP 2 Classifying cases	STEP 3 Conducting investigation	STEP 4 Reporting results	STEP 5 Follow-up measures
Website/phone/e-mail/mail/ interview	Deciding on investigators based on the rank of the subject and gravity of the case	Engaging related teams if necessary	Reviewing investigation results, reporting/approving opinions for measures, carrying out supplementary investigation if the result is not sufficient	Giving feedback of results (if requested), asking disciplinary actions if grounds are sufficient

ETHICAL MANAGEMENT

Information Protection

SK chemicals secures competitiveness through the protection of internal information, aims to provide high-quality service through the protection of customer information, and pursues the profit maximization of each subsidiary. SK chemicals is doing its utmost to protect and manage the valuable information assets of customers and businesses such as replacing outdated database encryption, database access control, and server access control systems. By revising the information protection policy on a periodic basis, we are establishing a systemic response system to effectively protect corporate information assets (SK chemicals Security Management Regulations).

Information Security Management Organization

Article 7 concerning the composition of security organization in the Chapter 3, Security Organization of SK chemicals Security Management Regulations stipulates that CEO assumes the role of information security officer, and has authority to appoint the Head of Management Support as well as duties to administer security organization regarding its budget and manpower By doing so, we put efforts into refining the system for information safeguard on a yearly basis in order to prevent any related accident from occurring.

Information Security Training

To increase awareness of information security among partners and employees, we provide regular training on the protection and security of personal information. By establishing an online consent and training system, we are increasing accessibility for more employees to participate. We provide personal information training, employee security training, and new employee security training for our staff, as well as security training for our partners. Due to the COVID-19 pandemic, starting in 2020, security training for employees and partners is conducted via the distribution of educational materials.

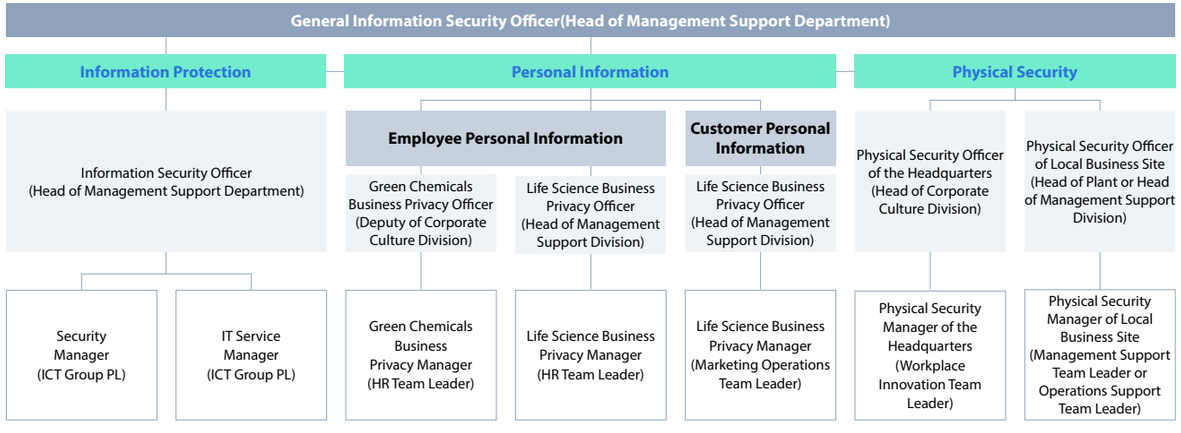
Protocol for Security Incident Response

In 2018, we developed a protocol for responding to security incidents as part of an initiative to develop protocols for preventing, responding to, and recovering from information security incidents. We have prepared and implemented security incident response and post-processing procedures based on the principle of reporting and follow-up action in the event of a security incident.

Protocol for Security Incident Response

- **STEP 1** Pre-accident preparation
- **STEP 2** Accident detection
- **STEP 3** Initial response
- **STEP 4** Systematization of response strategy
- **STEP 5** Accident investigation
- **STEP 6** Preparation of report
- **STEP 7** Resolution

Information Security Management Organization



Security Inspection Activities and Results of Inspection

SK chemicals is strengthening the security review process applied when introducing new business solutions and establishing a sustainable and secure business system through regular vulnerability analysis and management to increase the safety of business solutions. Based on our customer information policy, the number of cases of data theft or loss involving the personal information of customers has been zero to date. We will continue to maintain a security violation rate of zero by enhancing the system's firewall, monitoring the frequency and reasons for security release, periodically enhancing security checks, and replacing outdated systems. As part of an initiative to increase security awareness and assess internal information security in 2021, we conducted two simulated training sessions for malicious emails and held a "Security Day" to review the implementation status of practices and inspection items in accordance with internal standards.

STAKEHOLDER ENGAGEMENT

SK chemicals identifies its key stakeholders as customers, shareholders, investors, financial institutions, employees, government and associations, business partners, and local communities, and in 2020, we reflected in our articles of incorporation our emphasis on the pursuit of happiness for each stakeholder. Through BOD approval in March 2021, we established the Corporate Governance Charter and expressed our clear intent for stakeholder management. SK chemicals plays a crucial role in social and economic development by creating value for various stakeholders through sustainable management using SKMS as the foundation of corporate management. We strive for corporate management that contributes to the happiness of humanity. To achieve this, we communicate in a variety of ways to collect the opinions of our stakeholders, identify the most pressing issues, and reflect them into our management practices. Stakeholders are encouraged to share their opinions regarding the company's overall business activities, cases of damage and violations of social responsibility, etc., and the company intends to work with them to resolve related issues.

MATERIALITY ASSESSMENT

Based on the International Organization for Standardization's (ISO) Corporate Social Responsibility (ISO26000) framework, SK chemicals evaluates the direction and compatibility of ESG management and selects a pool of major issues. The results are added to the BOD's agenda, where they are thoroughly evaluated for its validity and practically reflected in internal decision-making.

Material Issue Selection Process

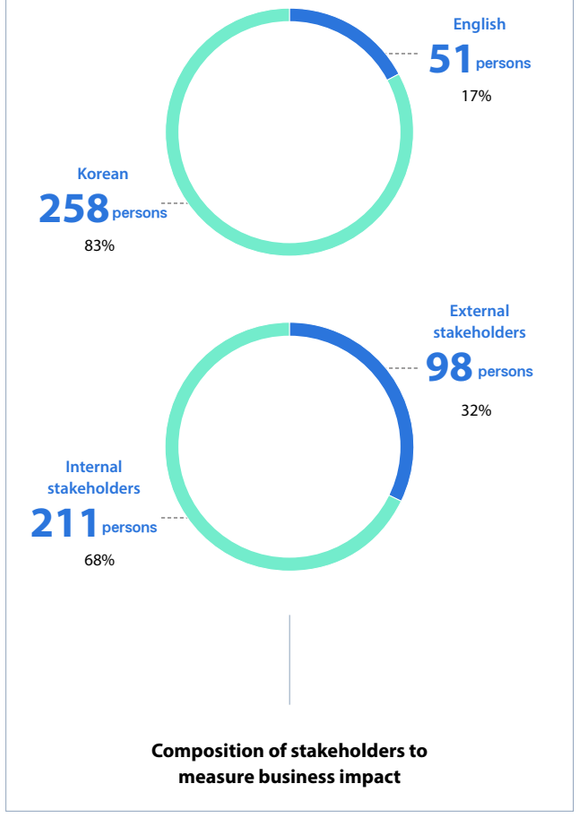
We rank material issues according to the level of international community interest and the business impact on stakeholders. The social impact was measured in consideration of global sustainability goals, the frequency of media exposure, benchmark companies, and domestic and international standard issues, whereas the business impact reflected meaningful survey results from 309 major internal and external stakeholders. We conducted a survey in English for the first time in order to expand the channels for collecting opinions from various stakeholders.

Social impact → SK chemicals ← **Business impact**

Material issue pool
30 detailed issues

- 01 Sustainable Development Goals (SDGs)
- 02 Frequency of media exposure
- 03 Benchmark corporate ESG material issues
- 04 Domestic and foreign standards (GRI, UNGC, SASB)

- Strategic connectivity
- Financial impact
- Reputation
- Risks and opportunities
- Urgency



Composition of stakeholders to measure business impact

MATERIALITY ASSESSMENT

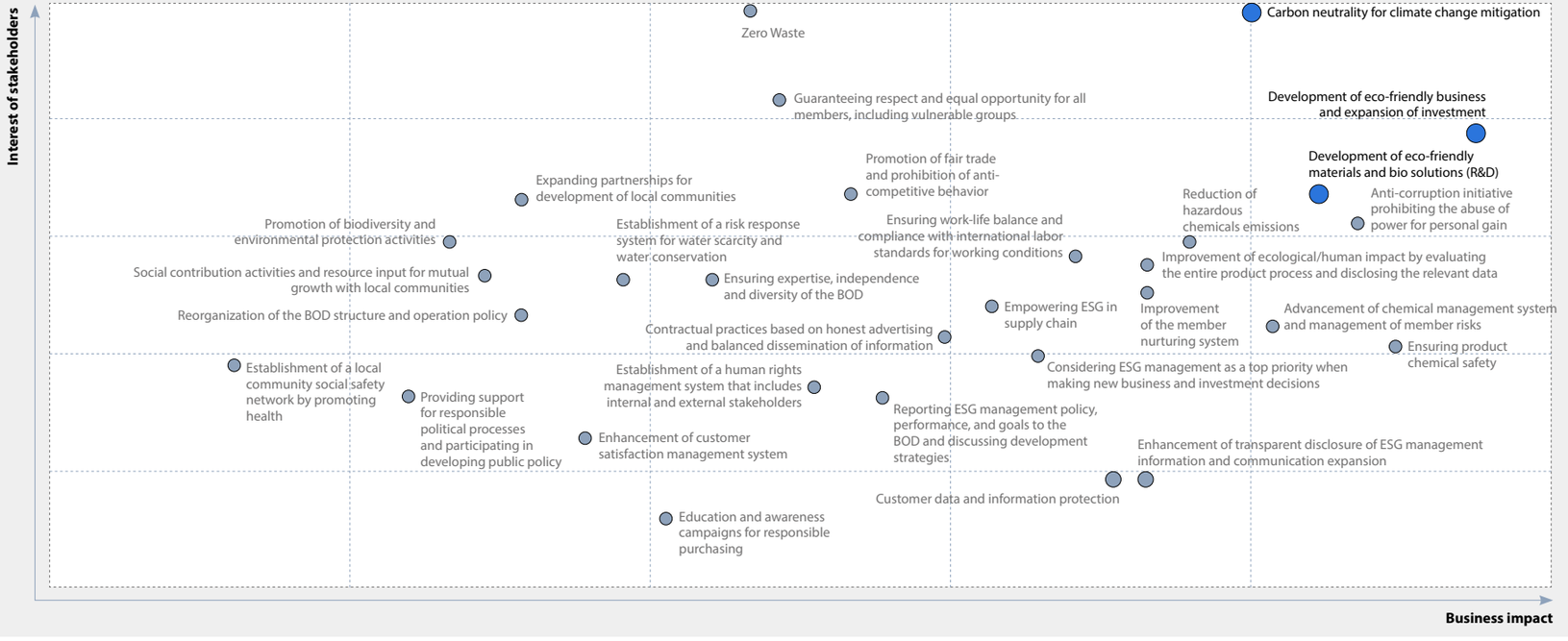
Results of Material Issue Selection

SK chemicals has identified the top three ESG management issues. The majority of the selected issues are associated with "environmental management" and "product responsibility for customers." "Carbon neutrality for climate change mitigation" has been selected as the top priority. The majority of the selected issues of the sustainability management are associated with the environment. The performance data of SK multi utility (reported as data of the energy business division in the previous year) can be viewed in the DBL Book. SK chemicals reported the data separately to secure the reliability of environmental performance data related to material issues and discover improvements.

SK chemicals Material Issues

Rank	Material issue	Stakeholder Groups Related	Impact	GRI Standard	Report page
1	Carbon neutrality for climate change mitigation	Local communities, government and associations, customers, shareholders · investors · financial institutions, employees, and business partners	Environment, economy, society	305-1, 2, 3, 7	13~15, 54~55, 82, 87
2	Development of eco-friendly business and expansion of investment		Environment, economy, society	302-1, 2, 3, 4	16~18, 35, 40, 50, 57~60, 87
3	Development of eco-friendly materials and bio solutions (R&D)		Economy, environment, society	301-2	16~18, 35, 40, 57~60, 81~82

Materiality Assessment Results Matrix



ECONOMIC VALUE IMPACT

Green Chemicals Business

Life Science Business

GREEN CHEMICALS BUSINESS

The global chemical industry is transitioning from traditional price competition to competition of eco-friendly and recycling technologies, based on the paradigms of "sustainability" and "circular economy." In Europe, where mandates the use of recycled plastics, a new plastic tax of EUR 0.8 per 1 kg of discarded plastic is being considered, and a plan for its implementation is expected to be announced in 2022. The United States is also in the process of legalizing recycled plastics, and by 2030, the state of California will require at least 30% of plastics used to be recycled materials (PCR). In Korea and Asia, specific legislation regarding the composition of recycled plastic has not yet been enacted, but recycling products for export to Europe and the United States are being developed proactively. We are focusing on supplying eco-friendly and recycled materials in accordance with market demands, as well as developing and securing related technologies.

Sales (KRW 100 million)

2019	8,320
2020	8,592
2021	**10,371**

Operating profit (KRW 100 million)

2019	-133
2020	674
2021	**765**

GREEN CHEMICALS BUSINESS - PRODUCT OVERVIEW

Copolyester

ECOTRIA, a PCR (post-consumer recycled: a raw material recycled by sorting, collecting, and recycling plastic products discarded after use by the end consumer) product, is being commercialized for the first time in Korea by SK chemicals. As Chinese companies enter the copolyester (PETG) market, competition is expected to intensify, but we will maintain our lead over latecomers by converting our portfolio to high-value applications and developing eco-friendly and recycling technologies

Product Overview

ECOZEN

ECOZEN is the world's first copolyester resin made of combined raw materials sourced from natural substances. This product is designed to remedy petroleum-based plastics' shortcomings, thereby reducing dependency on petroleum-based base materials and mitigating GHGs emitted.

SKYGREEN

SKYGREEN is a bisphenol A (BPA) free and eco-friendly material, which boasts outstanding transparency and chemical resistance. These properties make the product a good substitute for existing materials such as PC and acrylic. Its excellent mechanical strength and processability make it possible to be used as a transparent material for personal preventive equipment, such as face shields or transparent shields, in the prolonged COVID-19 situation.

ECOZEN Claro

This product is a semi-crystalline material which maintains copolyester's outstanding features: transparency and chemical resistance. ECOZEN Claro is a recycled product designed to respond to the emerging trend of plastic recycling.

ECOTRIA

ECOTRIA, which contains post-consumer recycled materials (PCR) made of pet bottles collected, is a material allowing better resource circulation. We begin mass production of ECOTRIA-CR products using chemical recycling technology in 2021.

SKYDMT

SKYDMT is used in diverse sectors as a material for film, fiber, engineering plastic or adhesive. Since the launch of the product in 1989, we have maintained the comparable management to the global top tier level on the strength of 30 years of experience, which allows us to be recognized for its outstanding quality by customers at home and abroad.

SKYCHDM

SKYCHDM is a monomer utilized for polyester polymer resin, polyurethane resin or resin for paints. This product can replace aromatic and aliphatic base materials, or can be combined with them for use. We design the product to accommodate existing raw materials' advantages as much as possible, and at the same time, to supplement the shortcomings of them. One of the strengths it has is to enhance various properties of resin.

GREEN CHEMICALS BUSINESS - PRODUCT OVERVIEW

SK chemicals provides functional value to customers through products with outstanding durability, heat resistance, and chemical resistance. We are also continuing to promote the development of eco-friendly products using recycled and bio-based raw materials.

Functional Materials

Product Overview

SKYTRA

As a compounding grade of PET and PCT, it is a polyester-based compound material that possesses excellent heat resistance, chemical resistance, and mechanical strength.

SKYPURA

It is the brand name of Poly-Cyclohexylene dimethylene Terephthalate (PCT) manufactured by SK chemicals. It is a super engineering plastic material that can be used in industrial fields requiring high heat resistance, light resistance, and excellent electrical properties.

SKYPEL

SKYPEL is a polyester-based thermoplastic elastomer that has properties of both rubber and engineering plastic and is used in multiple applications such as electrical/electronic components, automotive, films/fibers.

SK chemicals intends to contribute to a sustainable society by offering viable alternatives to biomass-based and biodegradable materials that can replace non-recyclable materials and by promoting eco-friendly activities through its recycled material business.

Bio Materials

Product Overview

ECOTRION (oxytrimethylene) glycol, PO3G

PO3G is a new material that completely replaces polyol, which is made from petroleum-based raw materials, with biomaterials. Polyol is one of the essential raw materials for polyurethane materials, which are widely used in the production of synthetic leather, clothing, coating and adhesive materials, and spandex. It is softer than existing products, yet has enhanced elasticity and abrasion resistance, making it more comfortable to wear and less susceptible to deformation. Moreover, it is possible to enhance the environmental impact of products with a low carbon footprint.

GREEN CHEMICALS BUSINESS - R&D

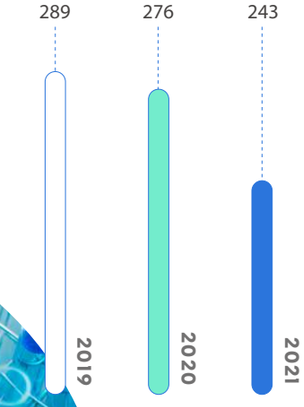
R&D

Departing from existing petrochemical-based research, SK chemicals Chemical R&D Institute is focusing on securing core competencies for sustainable business by emphasizing plastic recycling and new biomaterials. Based on polyester technology with a more than 50-year history and new polymer development capabilities, the SK chemicals Chemical R&D Institute, which has R&D capabilities that enable omni-directional solutions, developed next-generation materials and products that have been successfully commercialized, such as the manufacture of new recycling monomers, bio-based polyols made from bio-alcohol, and plastics for biodegradable packaging materials.

The world's largest plant to mass-produce bio-based polyol (poly (oxytrimethylene) glycol, PO3G) products from bio-alcohol was constructed in 2021, and production commenced in April 2022. From 11% of total research expenditures in 2020 to 22% in 2021 and 34% in 2022, investment in recycling and biomaterials is increasing steadily. Particularly, we are focusing on R&D for the development of waste plastic recycling products, a clean technology, and have set the goal of 50% in 2025 and 100% in 2030 for the ratio of eco-friendly materials sales to the total sales of our Green Chemicals Business. In addition to internal R&D, we aim to find external core technology partners, upgrade leading technologies, discover technology-based partnerships through the development of new business models, and bolster research capabilities through strategic collaboration with domestic and international specialized research institutes.

" Chemical R&D Institute focused on plastic recycling technology and new biomaterial technology development strategy, and in October 2021, it was able to mass-produce the world's first chemically recycled copolyester 'Ecotria CR' from waste plastic. "

Research expenses for Chemical R&D Institute (Unit: KRW 100 million)



GREEN CHEMICALS BUSINESS - QUALITY MANAGEMENT & CUSTOMER SATISFACTION

Quality Management

In October of 2018, SK chemicals newly formed a QA team to enhance the quality management capabilities and establish related process and system comprehensively through QA and toll processing in the entire plant. Since 2019, under the direction of the QA Team, the quality management process of the Ulsan Plant has been systematically reorganized and operated, and the quality management system (ISO 9001, certified in 1994 and renewed in 2021) has been maintained. In the case of our new compound plant, we obtained a certificate of conformity with the Automotive Quality Management System (IATF 16949) and established a quality management system that is compliant with international standards. In addition, we are minimizing customer complaints by using the barcode system and the automatic shipping system to track and manage products and control quality. The goal of Ulsan Plant's quality control is to make zero claim and complaint from our clients.

Customer Satisfaction

Quality management and improvement directions for customer satisfaction are derived, implemented, and enhanced via regular quality evaluation sessions with customers. We practice quality management by streamlining the process of producing and delivering products and services through digital transformation (DT), and by analyzing customer satisfaction with products and services by type using regular customer satisfaction surveys, we strive to improve and develop products and create new customer value. In April 2022, KMAC, a specialized survey organization, conducted a customer satisfaction survey on Green Chemicals Business customers in the top 70% in sales. We plan to enhance customer satisfaction through pragmatic activities to increase product quality and service.

LIFE SCIENCE BUSINESS

The domestic pharmaceutical industry is ramping up its level of response to policies regarding medical insurance and drug pricing driven by the government, relevant regulations, and ethical compliance. Although the growth rate of the pharmaceutical and healthcare markets is expected to slow in the short term due to the direct or indirect effects of the COVID-19 crisis, the development of digital platforms is expected to be a medium- to long-term opportunity. In response, domestic drug makers are working on the establishment of infrastructure for multi-channel marketing, such as non-face-to-face marketing activities, thereby diversifying their marketing activities to go beyond limited environment. Efforts are also being made, including enlargement of product portfolio and expansion into overseas markets. As a result, it is expected that the number of mergers and acquisitions will increase alongside the continued investment in R&D and the strengthening of internal operational efficiency to increase profitability.

LIFE SCIENCE BUSINESS - PRODUCT OVERVIEW

Pharmaceuticals

As the leading pharmaceutical company in Korea's musculoskeletal and nervous system markets, our Life Science Business has maintained consistent sales and profits. Based on these marketing capabilities and current R&D performance, we will secure a pipeline through active cooperation with external partners and cultivate new businesses to become a leading domestic pharmaceutical company with annual sales of KRW 1 trillion. SK chemicals is conducting joint research with a number of bio ventures on the development of new drugs and is continuously evaluating future business opportunities. In addition to linking with existing business items, we are promoting new areas and exploring all possibilities, such as new biotherapeutics. We are collaborating with external bioventures to explore various opportunities for developing new drugs based on AI and next-generation new drugs via open innovation, and we are implementing AI-based drug discovery capabilities internally. We will gradually expand our domestic and international partnerships.

Product Overview

Joins tab.

Through clinical trials, Joins tab, a natural medicine for arthritis, is evaluated as a drug that fundamentally treats arthritis by demonstrating an anti-inflammatory/analgesic effect equivalent to that of existing anti-inflammatory analgesics, low side effects, and cartilage-protective effects. Since its launch in 2002, cumulative sales have exceeded 9.8 million tablets as of 2021 and KRW 500 billion as of February 2022.

Wondron Patch (Rivastigmine)

The patch-type dementia treatment rivastigmine patch (domestic product name: Wondron) developed by SK chemicals for the first time in Korea was approved for sale as the first generic drug sold in Europe in 2013. SK chemicals has demonstrated its technological superiority in Europe by maintaining the largest market share in the European market of generic drugs with the same ingredient. After receiving FDA approval in Australia and Colombia in 2016, in Mexico and Jordan in 2017, in Canada in 2018, and in the United States in 2019, we obtained FDA approval in Brazil in 2021 and continue to expand internationally.

Ginexin-F cap.

Ginexin-F, one of our representative brands, is a blood circulation enhancer with the largest market share. We capitalized on our own patented technology (extracting active constituents from ginkgo leaves) to develop this product which has the effects of blood viscosity reduction and blood vessel expansion. In addition, we launched "Renexin" (Ginexin F + thrombolytic ingredient cilostazol combination) in 2010 as an anticoagulant with reduced side effects and enhanced dosing compliance and convenience, followed by "Renexin CR Tab" in 2020, thereby consolidating our market position.

Trast Patch

Trast has been a beloved patch formulation for arthritis since its launch in 1996. The patch is applied directly to the joint, maximizing treatment effect of arthritis while minimizing adverse effects coming from the existing medicine. With the technology of the Trans-dermal Drug Delivery System (TDDS)*, the patch delivers piroxicam, a nonsteroidal anti-inflammatory drug to inflamed area, maintaining its effective concentration so that its effect can last up to 48 hours.

* Trans dermal drug delivery system (TDDS): A system that allows drugs to be delivered directly into the body through the skin

LIFE SCIENCE BUSINESS - PRODUCT OVERVIEW

Vaccines

SK bioscience aims to concentrate on addressing endemics and pandemics, establishing a global production base, securing platform technology, bolstering R&D/production infrastructure, and entering the cell/gene therapy (GCT) market. In addition, we intend to continuously enhance our business competitiveness in the domestic and international bio industry, even after the COVID-19 pandemic, by improving the supporting infrastructure.

Product Overview

SKY Cellflu

In 2015, SK chemicals succeeded in commercializing SKYCellflu, a cell-cultured* influenza vaccine, for the first time for adults in Korea, and for the first time for children in the world. In the following year, SK chemicals launched "SKY Cellflu Quadrivalent" to the market, created through the world's first cell-culture technology, thereby preventing four types of human influenza viruses.

Sky Zoster

SKY Zoster, the second vaccione of its kind to be developed in the world, is a live-attenuated zoster vaccine for adults over the age of 50. The product is verified in the safety of toxicity, the effectiveness and safety targeting adults aged 50 or above, and the non-inferiority. SKY Zoster has been well received in the market since its release, reaching one million doses of domestic sales in two years as of 2019 with a 46% market share.

Sky Varicella

Sky Varicella, the second vaccine of its kind to be released in Korea, has demonstrated high immunogenicity and safety, as 19 domestic clinical institutions have conducted phase 3 clinical trials. In 2019, SKY Varicella obtained WHO's pre-qualification (PQ) certification as a varicella vaccine for the second time in the world. In 2019, SKY Varicella obtained WHO's pre-qualification (PQ) certification as a varicella vaccine for the second time in the world. It was released in Central and South America in the first half of 2022 through Pan American Health Organization (PAHO), the world's largest international procurement market.

* Cell culture: Due to the use of animal cells, the production period can be reduced to two to three months, and production stability is assured regardless of the availability of fertilized eggs.

LIFE SCIENCE BUSINESS - R&D

R&D Policy for Animal Protection

Pharmaceuticals

Minimal experimentation in the candidate validation and non-clinical stage | To evaluate the efficacy of candidate substances prior to clinical trials, SK chemicals conducts ethical animal testing, such as minimizing animal suffering and avoiding the use of animals, through regular training and compliance with related laws and regulations. The Open Innovation team introduced the in silico screening method utilizing AI into the new drug development process and increased the accuracy of candidate substance selection by making the drug efficacy, toxicity, and pharmacokinetic information of new drug candidates predictable through the AI program. On this basis, it is possible to anticipate a reduction in animal testing compared to the conventional method of drug development.

Vaccines

Process | SK bioscience is conducting animal testing for non-clinical/clinical research, including the COVID-19 vaccine, and to verify the safety/efficacy of commercial products. For commercial products, the safety/efficacy is verified via animal testing. An animal experimentation ethics committee was established and operated in accordance with the Animal Protection Act and the Laboratory Animal Act, per the standard operating procedures of the committee (IACUC) at SK bioscience.

Ethics System | In order to ensure the dignity of animal life, the IACUC committee reviews animal experiment plans from an ethical standpoint, such as by conducting review based on the "3 Rs" (Replacement, Reduction, and Refinement) principle and giving priority to alternative methods. In addition, through post-approval monitoring (PAM), the IACUC committee works with researchers to improve animal welfare and to ensure the reliability and transparency of experimental results.

Training and Culture | All individuals responsible for animal testing receive legal training on the proper care and ethical treatment of laboratory animals.

LIFE SCIENCE BUSINESS - R&D

R&D Efforts and Achievements

Pharmaceuticals

R&D Efforts | The R&D Center, which is the R&D organization of our Pharmaceuticals Business, established an Open R&D Task Force in 2019 and renamed it to the Open Innovation Team in 2022. Dedicated personnel are working for the three areas of new drug development, AI, and investment/partnering. The New Drug Development Division is responsible for joint research and pipeline development, while the AI Division is responsible for constructing its own AI platform. The Investment/Partnering Division is responsible for the introduction of early-stage pipelines and venture investment, and is structured to strengthen SK chemicals' overall R&D capabilities and create mutual synergy by establishing organic links between each division. Through collaborative research with a global expert in AI, it is possible to discover new drug candidates based on AI technology and to efficiently screen compounds for drug efficacy and toxicity, thereby reducing the development time for existing new drugs. We are currently conducting non-clinical research projects to develop treatments for incurable diseases such as nonalcoholic steatohepatitis, pulmonary fibrosis, and rheumatoid arthritis by deriving a number of candidate compounds.

R&D Performance | As part of its investment in R&D in 2021, the Open Innovation Team, formerly known as the Open R&D Task Force, made three investments in new drug development venture companies. In addition, we are promoting new joint research projects with AI-based new drug development companies and companies with advanced synthesis capabilities. (10 projects in 2021; 3 projects underway in 2022). The team discovered candidate substances for the treatment of nonalcoholic steatohepatitis and rheumatoid arthritis with Standigm, with whom we signed an agreement in 2019, and filed a patent application in January 2022.

Vaccines

R&D Efforts | With the paradigm shift in healthcare services and the outbreak of infectious diseases that pose a threat to humanity, vaccine development has become a priority for all nations. Vaccines are the most effective, efficient, and convenient means of preventing and treating infectious diseases, which are emerging as the most important measure in the establishment of public health policy and responding to global security concerns due to the outbreak of infectious diseases that cross national borders. SK bioscience continues to invest in vaccine research, which will become the driving force behind our future life science business. We will secure R&D technology and expand our product portfolio in order to lead initiatives for the prevention and treatment of infectious diseases.

R&D Performance | SK bioscience is conducting R&D activities on the SARS-CoV-2 virus (COVID-19), which emerged in 2020 and poses a global threat to humanity. We were selected as a priority negotiator for the project on the "Development of Candidate Substances for Synthetic Antigen-Based COVID-19 Subunit Vaccine" by the Korea Disease Control and Prevention Agency in March 2020, and the phase 1 clinical trial was approved by the Ministry of Food and Drug Safety (MFDS) in November 2020. The Investigational New Drug Application (IND) for a phase 3 clinical trial of the COVID-19 vaccine candidate (GBP510), for which we are collaborating with BMGF/CEPI, has been approved by the MFDS in August 2021. The application for domestic approval has been submitted in 2022 after a successful phase 3 clinical trials in numerous countries including Korea, Europe, and Southeast Asia. Our next-generation 21-valent pneumococcal vaccine, which is being co-developed with global pharmaceutical company Sanofi Pasteur, was introduced in 2014 and received US FDA approval in December 2018, resulting in the initiation of global phase 1 clinical trials. We intend to enter into phase 3 clinical trial in 2023, following the phase 2 clinical trial that is currently underway in the United States.

In addition, in 2013, we co-developed a typhoid vaccine with the International Vaccine Institute (IVI) and the Bill & Melinda Gates Foundation (BMGF), and in 2017, we signed a joint development contract with the Program for Appropriate Technology in Health (PATH) and the Bill & Melinda Gates Foundation for a next-generation pediatric enteritis vaccine, for which development is currently underway. In the case of pediatric enteritis, the rotavirus is the leading cause, and infection-related deaths are concentrated in developing nations such as Africa where vaccination is difficult. SK bioscience seeks to contribute to the international community and protect the health and lives of countless children by focusing on supplying the injection-type, next-generation pediatric enteritis vaccine in lower middle-income countries (LMIC), which is undergoing global phase 3 clinical trials. Based on its successful development and commercialization of vaccine products, SK bioscience is also focusing on the development of vaccine formulations that have the potential to lead the vaccine industry in the future.

LIFE SCIENCE BUSINESS - QUALITY MANAGEMENT & CUSTOMER SATISFACTION

Quality Management

S HOUSE (Cheongju Plant) has been complying with Good Manufacturing Practice (GMP) since 2015 as the MFDS joined the Pharmaceutical Inspection Convention and Pharmaceutical Inspection Co-operation Scheme (PIC/S) in July 2014. By establishing a quality management system to enable quality improvement in consideration of the product life cycle based on risk analysis, we meet GMP requirements and manage the entire manufacturing process via internal and external audits, non-conformity management, periodic product review, and out-of-specification management, as well as respond to customer complaints and conduct non-compliance management. We established the Safety Information Reporting System (SIRS) in June 2021 to collect all safety information on related regulations and products and report to regulatory authorities and partners. In September 2014, following the completion of the L HOUSE vaccine plant in Andong, Gyeongbuk, SK bioscience received GMP qualification approval from the MFDS, and our continuously maintained ISO 45001 and KOSHA 18001 systems were certified in 2016. We obtained EU-GMP certification in 2021, laying the groundwork for our entry into the European market.

" As pharmaceutical products are directly related to the lives of people, they should not be subject to quality-related accidents. At SK chemicals, all employees are collaborating with a single mind to achieve zero accidents."

SK bioscience Vaccine Plant L HOUSE

SK chemicals Cheongju Pharmaceutical Plant S HOUSE

Customer Satisfaction

The Life Science Business of SK chemicals, which responds to customers of our pharmaceutical products, aims to transform customer complaints into quality enhancements and actual development. By operating the "Voice of Customer (VOC)" centered on the customer service center, reasonable handling and resolution are derived, from receiving consumer complaints regarding difficulties in use and anomalies of pharmaceuticals to resolution in accordance with SK chemicals' complaint handling regulations. By doing so, we hope to earn the trust of our customers. The complaint database records and manages all receipts/processes, and the details of customer consultation and customer complaint resolution are reported monthly to the heads of marketing, production, research, and quality control, as well as the CEO through the monthly consultation statistics reporting system, and are actively reflected in quality enhancements such as formulation improvement and packaging changes. SK bioscience solicits feedback on vaccines, one of its primary businesses, through open and prompt channels of communication. Every year, we participate in various domestic and international associations and conferences to provide information on our business and collect customer requests and complaints in order to find solutions. This has resulted in the long-term accumulation of trust with a variety of customers, including domestic and international government agencies, businesses, and hospitals. Recently, in-person meetings have become impossible due to the COVID-19 pandemic, and the proportion of non-face-to-face meetings has increased dramatically.

SOCIAL VALUE IMPACT

Environment

Product Stewardship

Labor & Human Right

Win-Win Growth

CONTEXT

As the climate crisis becomes a reality, "eco-friendliness" is emerging as a paradigm demanded by the times, as well as corporate environmental responsibility.
In line with such demand, SK chemicals reduce the environmental impact of products through the development of low-impact products and minimize the energy, GHG emissions and pollution at each business site. SK chemicals will adopt a policy to reduce the environmental impact of its business sites and build a sustainable environment through R&D of eco-friendly products and technology.

Scope of relevant reporting business sites: SK chemicals - Headquarters (ECO Lab), Ulsan site, Cheongju site (S HOUSE); SK multi utility - Ulsan site; SK bioscience - Andong site (L HOUSE)

APPROACH

SK chemicals makes strenuous efforts to achieve a balance between business activities and environmental management, thereby reducing environmental impact. We assess whether the product conforms with environmental policies throughout investment decision-making and product R&D process to improve the competitiveness and execution capability of environmental-related business activities (during gate examination).
In addition, environmental management indicators and goals are set for systematic management.

2021 ACHIEVEMENTS

Reduction of energy cost **KRW 26.9 billion**

GHG emission compared to 2021 goal **18,740 tCO_2eq**

Waste recycling rate of Ulsan Plant (in recent 6 months) **Over 90%**

Founded SK multi utility

TARGETS

- Acquisition of ISO 14001 in 2022 (Cheongju Plant)
- Establishment of the Tele-Monitoring System for monitoring the air pollutants (TMS)
- Acquisition of the Zero Waste to Landfill (ZWTL) certificate
- 2% YoY energy reduction by improving the process each year

1 ENVIRONMENTAL MANAGEMENT SYSTEM

We select and implement core tasks to reinforce related competitive advantage and execution power by putting environmental management as one of the top management tasks. We are pursuing a balanced growth in business activity and environmental management through system advancement.

Environmental Management Strategy and Goal

SK chemicals is committed to continuous innovation to provide eco-friendly products and services for our stakeholders. We are practicing energy conservation, GHG reduction, and water resource reduction, as well as making further efforts to improve environmental performance by rationalizing management in all areas, including the production process area. We built a system to minimize air and water pollutants and raise recycling rate of waste. We are collaborating with recycling business to develop recycling technologies that can increase the recycling rate of waste. Along with these waste recycling policies, we plan to acquire waste recycling certificates. We are fulfilling corporate responsibility to sustainable environment by setting environment-related indicators and goals and operating chemicals management system for raw materials, end products and processes.

Environmental Policy

- SK chemicals shall comply with relevant laws and establish and operate environment-related regulations.
- SK chemicals shall pursue sustainable innovation throughout its business activities to provide eco-friendly products and services.
- SK chemicals shall create a safe and pleasant working environment and solidify a corporate culture that adheres to regulations.
- SK chemicals shall fulfill its corporate responsibility by building and operating a management system for raw materials, end products and wastes.
- SK chemicals shall strive to reduce GHG emissions by rationalizing management in areas like production process.

Subdivisions

- Environmental Management System: Energy & GHG, waste resources, wastes
- SHE Management System
- Chemicals Management System
- Green Procurement Policy

Core Tasks

- GHG reduction (50% reduction by 2030 compared to 2020)
- Increase of sales proportion of eco-friendly products
- Strengthening chemicals management in products and raw materials
- Increase of recycling rate of wastes for resource circulation
- Minimization of workplace accidents

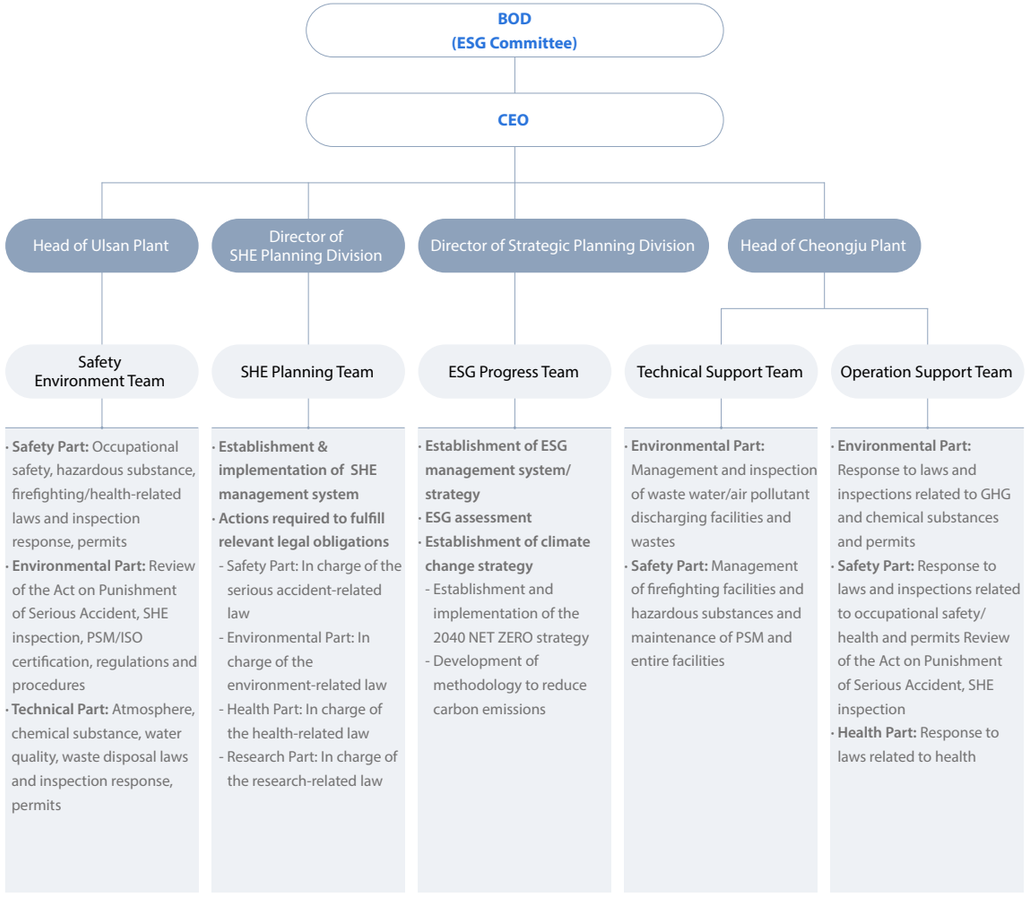
Environmental Management Governance

The ESG Progress Team is reforming and systematizing the environmental management organizational system, and ESG Committee is operating under the BOD. SK chemicals ESG Progress Team is responsible for establishing and managing environmental strategies and goals based on environmental information collected from each business site and reporting such data to the executives and the CEOs. SK chemicals' environmental management plan, strategy, implementation, and performance are thoroughly scrutinized by the ESG Committee within the BOD. Eco-friendly factors are examined from the construction stage of each business site and eco-friendly goals are created based on the company-wide eco-friendly policy.

Establishment of Environmental Management System and Acquisition of ISO 14001

SK chemicals built the "Environmental Information Integrated Management System," a company-wide management system that systematically collects all environmental data, including raw and subsidiary materials, air pollutants, water pollutants, energy, greenhouse gas, safety, health, and eco-friendly purchasing. Since the acquisition of ISO 14001, the International Organization for Standardization's (ISO) environmental management system certification, in 2005, the SK chemicals' Ulsan Plant has undertaken an annual follow-up audit and a renewal audit every three years. In addition, Cheongju Plant is developing a system with the goal of acquiring ISO 14001 throughout its business site by 2022.

Environmental Management Organization



Establishment of Eco-Friendly Business Sites

During the establishment of the headquarters (ECO Lab) and Andong vaccine center (L HOUSE), SK chemicals used environmentally friendly construction techniques from the design stage and obtained green building certificates. Both buildings received green building certifications in Korea and overseas, and L HOUSE was the first pharmaceutical plant in the world to earn the LEED Gold certificate in compliance with the Good Manufacturing Practice (GMP), a stringent certification standard applicable to food, pharmaceutical, and cosmetics manufacturing. With a Reverse Osmosis System that reuses ordinary wastewater, the Ulsan Plant has built an eco-friendly workplace. For the past three years, no significant fines nor non-monetary sanctions have been enforced for the violation of environmental management at any of SK chemicals' business sites.

Environmental Investments

The Ulsan Plant of SK chemicals identifies and implements energy-saving projects in order to optimize energy utilization and save expenses. Upon establishing a business plan every year, a goal to reduce energy expenses by 2% YoY is set and reflected in the KPI of the production executives and promoted as a task for the entire plant.

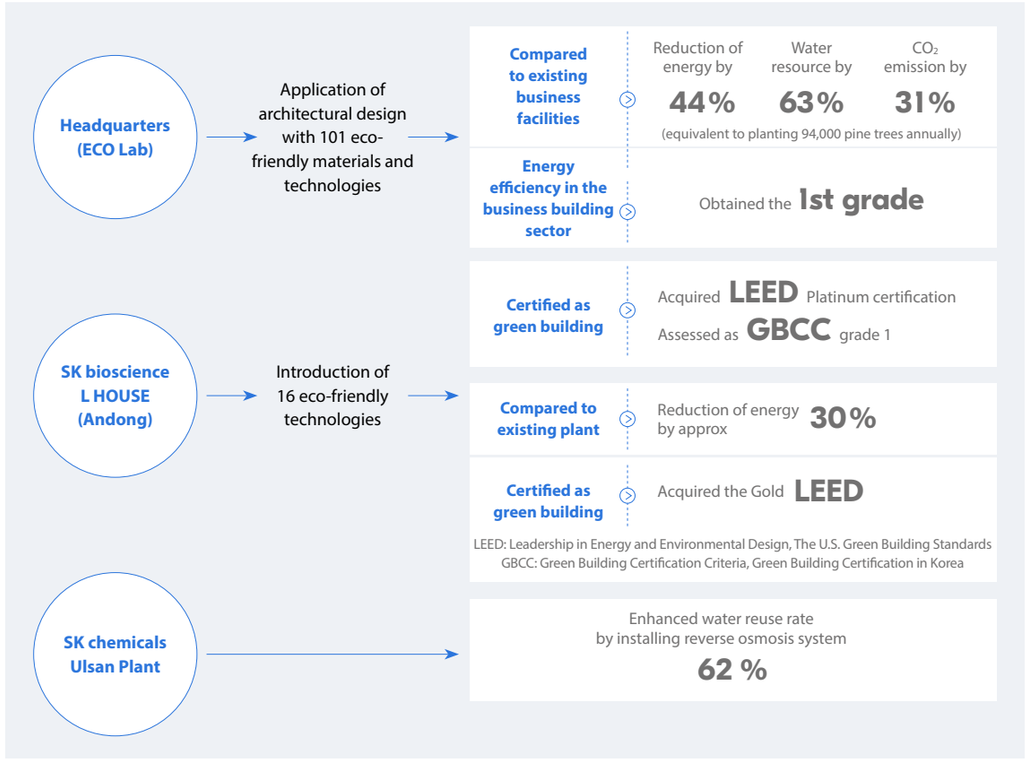
Ulsan Plant's Energy Reduction Task

10 tasks were completed in 2021, saving KRW 2.69 billion in energy costs compared to the business plan.

(Unit: KRW 100 million)

Process	Energy reduction task in processes	Reduction Effect
Resin	· Increased production and fuel cost reduction activities (maximizing the use of biogas)	5.3
	· Reduced the generation of crude EG (reduced refining costs)	0.4
CHDM	· P-910 power saving	0.7
IHC	· Minimized downtime (UT reduction)	0.4
Petro-chemical	· Decreased process load by reducing DMT unresponsive materials and improved fuel intensity	5.5
	· Improved steam intensity by expanding APC and improving heat insulation	10.5
	· Air Comp. Improved electricity intensity by improving operation	0.9
Power	· Minimized surplus pressurized air at nighttime	0.7
	· Applied EGB IDF magna coupling	1.6
ENTIS	· Reduced ENTIS LNG	1.02
Total		**26.9**

Eco-Friendly Working Environment



Environmental Investment Status

Category	Unit	2019	2020	2021
Environmental capital investment (A)	KRW 100 million	42.7	39.0	65.1
Environmental operating expense (B)	KRW 100 million	49.6	51.7	58.7
Total environmental investment (C=A+B)	KRW 100 million	92.3	90.7	123.7
Value from environmental investment (D)	KRW 100 million	67.1	43.4	60.8
Environmental ROI (D/C)	%	73	48	49

2 ENVIRONMENTAL EFFICIENCY

Generated Wastewater Before & After Facility Improvement (Unit: ton/day)

Risk Response and Saving Water Resources

The SK chemicals' Ulsan Plant sources raw water of Nakdonggang River from Korea Water Resources Corporation. Water resources are critical for product development and business operations, and at the same time, they are highly linked to natural disasters such as drought and flood. We are constantly discovering and implementing strategies to reuse and recycle water resources in order to respond to natural calamities. SK chemicals endeavors to reduce water consumption by reusing some of the wastewater after being used in the manufacturing process. Effluent is processed through the optimized wastewater treatment system before being discharged so that it does not affect the water ecosystem. We comply with legal standards in terms of discharging wastewater.

Water Withdrawal and Consumption From Underground Water

We are constantly discovering new ways to reuse and recycle water so that we can respond to natural disasters related to water including droughts and floods. In addition, some of the water discarded after use in the manufacturing process was reused as a strategy to save water resources. As a result, the amount of groundwater developed and used in-house in 2021 was estimated to be 3,417 tons, up 28.7% over 2020. Recognizing the value of water resources, SK chemicals will continue to work to reduce water consumption.

Recycling Concentrated Water

The concentrated water generated by the Reverse Osmosis (RO) Membrane has been discharged into general drainage system. However, since the discharged drainage contains no pollutants other than electrical conductivity, it can be used as cooling or fire-fighting water. The volume of recycled fire-fighting water is projected to be around 720 tons per day, and we aim to install a flow meter to accurately quantify the volume to use more recyclable effluent in the future.

Reusing Waste Water

Reusing Filter Backwash Supernatant | A filter is a type of water treatment equipment that filters suspended solids in raw water and removes polluted suspended materials inside the filter through daily backwashing. The wastewater sludge produced in this procedure was kept in the tank to separate the layers, and the supernatant was returned to the filter to reduce the amount of wastewater produced. The estimated amount of supernatant recovered per day is 375 tons, and we plan to look for ways to boost recovery by installing a flow meter that can correctly monitor it.

Collecting and Reusing Methanol in Wastewater | To avoid the discharge of harmful chemicals into local water systems, 392 tons of methanol* flowing into wastewater from the cyclohexanedimethanol (CHDM) manufacturing process is recovered and reused. In 2019, SK chemicals built a new heat exchanger in the CHDM production process to recover methanol from wastewater via condensation. The recovered methanol is utilized as DMT fuel, thereby saving KRW 324 billion in 2020 and reducing methanol treatment costs.

* Methanol is a hazardous substance that the Water Environment Conservation Act classifies as a water pollutant. If methanol is not treated in wastewater, it has a negative impact on the neighboring water system and increases wastewater treatment expenses.

Reduction of Wastewater

58% of Wastewater Generated From Pure Water Manufacturing Process | The load on the ion exchange facility is reduced by adding a reverse osmosis (RO) facility to the pretreatment (removal of electrical conductivity) process of the pure water manufacturing equipment, enabling the facility's regeneration cycle to be extended and the amount of wastewater generated during the regeneration process to be reduced. We recently invested in Micro Filter (MF) and RO facilities to establish pretreatment facilities in August 2019 (investment cost of KRW 680 million, partially utilizing unused facilities). As a result, the water quality provided to the pure water manufacturing equipment was enhanced, and the number of regenerations was reduced, resulting in a 520 ton/day reduction in wastewater generation.

Water withdrawal and consumption from underground water

Scope	Unit	2019	2020	2021	Fluctuation
SK chemicals Headquarters (ECO Lab)	ton	3,633	2,654	3,417	28.7%

Minimizing Generation of Air Pollutants

To construct a Green Chemicals Biz structure and accomplish "global environmental protection," the SK chemicals' Ulsan Plant is working on developing a variety of new eco-friendly materials based on world-class technology, expertise, and independently-developed manufacturing facilities. By regulating the emission concentrations (ppm) and emissions of nitrogen oxides (NOx), sulfur oxides (SOx), and dust generated throughout the manufacturing activities, we exceeded the goal to reduce air pollutants for both 2020 and 2021.

Conversion to Eco-Friendly LNG Combined Cycle Power

ZERO sulfur oxide (SOx) emissions and gradually reducing dust and nitrogen oxide (NOx) emissions

Reduction of Air Pollutants

Since 2019, SK chemicals has been working toward a gradual reduction of 100 ppm (standard 130 ppm) to 65 ppm by converting general burners in the heat medium heating facilities to low-NOx burners. The business divisions, which include coal boilers and waste energy recovery boilers, were reorganized at the end of 2021 (SK multi utility spin-off), with the goal of converting to LNG combined cycle power plants by the end of 2024. We also plan to achieve zero sulfur oxide (SOx) emissions and gradually reduce the emission of dust and nitrogen oxides (NOx). By the end of 2022, a tele-monitoring system (TMS) for the transparent management of NOx in the heat medium heating facilities will be established.

Zero Waste

Waste Policy

The "emission intensity compared to production" refers to indicator that inhibits the source of waste at business sites while indicating continual waste reduction performance. SK chemicals is attempting to raise the recycling rate by classifying recyclable waste and working with additional recycling companies as part of a recycling promotion plan to maximize the actual recycling rate of waste. In addition, we are encouraging the shift from coal and waste wood to LNG fuel as a response to the aging coal boilers in the utility supply division of the Ulsan Plant and the necessity for carbon-neutral construction. Coal and waste wood boilers will be decommissioned by August 2024, which is expected to result in a reduction of approx. 17,000 tons of waste such as coal ash.

Waste Management System

Allbaro, the government's legal waste disposal system, manages the amount of waste generated and processed by type. Waste created at the worksite is processed according to the Wastes Control Act by contracting with a professional waste disposal company and using legal methods such as incineration, landfill, and recycling. In addition, we are working to increase recycling rates in order to reduce landfilling and incineration in each process and achieve Zero Waste to Landfill (ZWTL) certification.

Product and Waste Recycling

SK chemicals developed and released ECOTRIA, a product made by combining recycled raw materials with existing products, and ECOZEN Claro, which can be recycled, in order to contribute to resource circulation through product recycling. A recycling facility that can convert methyl 4-formylbenzoate (MFB), a byproduct that was previously fully discarded in the DMT production process, and DMT mixture into DMT was also introduced in 2019 to contribute to resource circulation by recycling waste in the production process. Annually, 687 tons of raw materials are saved by using this MFB recycling operation, and waste emissions are decreased by 962 tons.

"ECOTRIA CR" is distinguished by its ability to achieve the inherent transparency, appearance, and chemical resistance of copolyester using 50% of the raw material decomposed with chemical recycling technology.

Raw Materials Annually Saved Using MFB Recycling Facility

687 tons

Waste Recycling Certification

We plan to raise the recycling rate by continuing to discuss recycling measures with waste collection businesses so that waste generated at our business sites can be recycled rather than discarded. Due to the nature of the business, the waste recycling rate at Ulsan Plant showed a decline after increasing from 70% to 80%, then 80% to 85%. SK chemicals continued to seek ways to improve waste recycling rates in consideration of the Ulsan Plant's business characteristics, and beginning in July 2021, we found additional recycling companies for flooring materials of waste wood boilers and made efforts to minimize the amount of waste landfilled. As a result, the Ulsan Plant's waste recycling rate has increased to over 90% in the last six months. In addition, the SK chemicals' Ulsan Plant is undertaking third-party verification of ZWTL to objectively evaluate waste recycling rates. We plan to complete certification in October 2022, with the goal of achieving the ZWTL Silver grade, which is equivalent to a 90 percent or higher recycling rate.

3 CLIMATE STRATEGY

Although green energy is coming to the fore, dependence on fossil fuel is still high. In such circumstance, SK chemicals is cutting energy usage by using thermal energy generated from waste materials such as biomass. We also manage sales-linked intensity index and contribute to energy conservation by recycling resources and developing lightweight and high-functional materials.

2040 Net-Zero

Target to reduce or offset all estimated GHG emissions of 1.37 million tons (based on Scopes 1, 2, and 3) by 2040

Climate Change Risks and Opportunities

Classification	Item	Climate Change Risk Factors	Short/mid/long-term	Risk	Opportunity
Transitional risk	Policy and legal risk	GHG trading system	Mid-term	· Increased cost of acquiring carbon credit and demand for investment in emission reduction facilities	· Achieving carbon neutrality through reduction activities
		Regulating the use of plastics	Mid-term	· Demand for R&D and investment in production facilities to develop recycled products	· Leading the recycled plastic market by developing recycled products
		Expanding transition to renewable energy	Mid-term	· Increased energy costs and facility investments	· Reducing emissions through clean energy alternatives
		Introduction of clean technologies	Mid-term	· Demand for GHG reduction facility and high energy efficiency facility investments	· Reducing GHG emissions and energy costs in business sites
	Market risk	Expansion of eco-friendly materials market	Mid-term	· Customers' demand for the supply of eco-friendly products	· Meeting market requirements by developing eco-friendly (recycled or bio) materials
Physical risk	Natural disasters	Abnormal climate such as typhoons, flood, and torrential rain	Short-term	· Increased costs to recover in the event of a disaster and loss in business opportunity	· Improving operational environment through preventive measures (introducing automated logistics warehouse, product bar code management system, etc.)
		Yellow dust, temperature rise	Long-term	· Increased operational costs in business sites due to increased use of cooling/heating facilities	

GHG Reduction Goal: Net Zero by 2040

Climate change became a high priority for survival, and a shared target of "Net Zero by 2050" was set. SK Group declared its commitment to reduce carbon emissions by 200 million tons by 2030, which is nearly 1% of the global target of 21 billion tons. SK chemicals plans to achieve zero in net carbon emission by 2040, a decade ahead of the global goal of 2050. We will implement the "2040 Net Zero Roadmap" in accordance with the SBTi guidelines, with the goal of decreasing or offsetting all estimated GHG emissions of 1.37 million tons (based on Scopes 1, 2, and 3) by 2040. On December 1, 2021, SK chemicals founded SK multi utility by splitting off the Ulsan Plant's utility supply business division. SK multi utility aims to reduce the environmental load through the conversion of eco-friendly fuels when the need for energy generation and conversion to improve the atmosphere and reduce GHG emissions has never been greater due to the replacement of facilities following the aging of coal power plants and the strengthening of various environmental regulations. GHG emissions are to be reduced by promoting the collective energy supply business that supplies electricity in time for full conversion to LNG fuel in 2024 (emission factor for electricity made from 100% LNG is lower than the national electricity emission factor). Ultimately, we intend to achieve carbon-zero status through conversion to hydrogen.

Goal and Performance on GHG Emissions

SK chemicals measures and regulates the entire company's GHG emissions with the goal of becoming Net Zero by 2040. GHG emissions by SK chemicals and SK multi utility for the last three years have consistently increased. 313,517 tCO_2eq of GHG was emitted in 2021, a reduction of 18,740 tCO_2eq compared to the GHG emissions goal of 332,257 tons, through the DMT process improvement and utility optimization. (Based on Scope 1 and 2)

GHG Reduction Activities

Fuel Conversion for Production Process in Ulsan Plant | By converting fuels utilized in the production process, Ulsan Plant is actively promoting GHG reduction. By eventually replacing existing LNG fuel with hydrogen, the goal is to achieve zero GHG emissions in the future.

Utilizing CHDM Off-Gas | We've confirmed that the off-gas produced and discharged during the CHDM reaction process contains a significant amount of hydrogen. We are working to improve the facility's ability to burn it by combining it with fuel during boiler combustion. It will be phased into the four processes, beginning with one in the first quarter of 2022.

Replacement of Aged Facilities | Due to the nature of business, the Green Chemicals Business uses a lot of heat in the manufacturing process. The need to shut down existing facilities has recently been highlighted due to the decrease in thermal efficiency as a result of their age. This has been reflected in the restructuring of a new business and investment portfolio. We received BOD approval in March 2020 for the construction of two new facilities in China — SKYBON and SKYPEL. As a result, the effect of self-reduction of GHG emissions is predicted to show starting in 2022.

DMT Process Improvement | By converting 100% of the PX oxidation process, which releases a considerable amount of GHG emissions, to QTA, it is expected to minimize GHG emissions by 37,200 tons annually. The process was improved to 70% QTA in 2021, and the conversion to 100% QTA is planned to be completed in the second half of 2022.

Conversion of Business Vehicles to Hybrid/Electric Cars | From 2022 onwards, SK chemicals will promote an eco-friendly vehicle purchasing goal system in which more than 22% of new or leased vehicles are to be eco-friendly (hybrid, electric/hydrogen vehicles). We plan to install electric vehicle chargers in our company for the convenience of the members as well as our customers.

Solar Power Generation (RE100) | To reduce GHG emissions and save energy costs, we are building solar power generation facilities in Ulsan and Cheongju Plants. Cheongju Plant has 1,000 kW and Ulsan Plant has 2,400 kW in power generation capacity, and it is expected to reduce approximately 2,000 tons of GHG emissions annually. After 2028, we plan to reassess the acquisition of the third-party PPA (investment in renewable energy power plants) and REC (certificate) in accordance with the 2040 Net Zero Roadmap.

Offsetting GHG

SK Group has conducted a cookstove supply project in coalition with Climate Change Center, an NGO, and Myanmar's Ministry of Agriculture, Livestock and Irrigation, and SK chemicals has also joined this project. Cookstove is a stove-looking cooking device made of cement. This device is designed to mitigate GHG emissions, the amount of firewood used, and the amount of cooking time with better heat efficiency.

By distributing cooking utensils (cookstoves) with low heat loss to ordinary households in Myanmar, it is possible to reduce the amount of wood consumed as fuel.

PRODUCT STEWARDSHIP

CONTEXT

In the process of pursuing sustainable management of a company, product stewardship refers to not just consumer safety by decreasing the use of various hazardous substances, but efforts made throughout the product life cycle to reduce environmental impact from product development and manufacturing to distribution, usage, and disposal. The management activities and eco-friendly green portfolio of SK chemicals are presented in this report, which not only create and produce high-quality products, but also fulfill corporate environmental responsibility based on product stewardship.

Scope of relevant reporting business sites: SK chemicals - Headquarters (ECO Lab), Ulsan site, Cheongju site (S HOUSE); SK multi utility - Ulsan site; SK bioscience - Andong site (L HOUSE)

APPROACH

SK chemicals is diversifying its green portfolio by developing a recycling ecosystem to reduce waste plastics and commercializing bio-based polyol PO3G, an environmentally friendly polymer made from corn.
In addition, we have reinforced the chemical management system and designed and implemented a plan to replace hazardous chemicals in order to minimize the use of hazardous chemicals and their impact.
In particular, in 2021, a life cycle assessment (LCA) of all SK chemicals copolyester products was conducted to determine the product's environmental impact and an LCA Roadmap was formed by ensuring product stability. We plan to expand the scope of LCA to all products by 2025.

2021 ACHIEVEMENTS

- **Signed several MOUs to build an ecosystem for waste plastics**
- Developed **bio-based polyol PO3G, 100%** made from corns
- Secured stability of **copolyester based on an LCA**
- Planned to fully replace hazardous chemicals and **solvents contained in SKYBON products**

TARGETS

- To recycle 20% of PET wastes collected in Korea by 2030
- To convert 100% of existing products to recycle portfolio by 2030
- To obtain the UL EPD certificate for major copolyester products and an environmental product declaration for copolyester SKYGREEN (PETG) product in 2022
- To expand the scope of LCA to all products of SK chemicals by 2025
- To replace all hazardous chemicals contained in SKYBON products by 2024 and to cut down the use of solvent by 100% by 2025

1 GREEN PORTFOLIO

Chemical Recycle Solution

Globally, social demand is growing to reduce the use of single-use plastics, expand recycling, strengthen producer liability, and reduce GHG emissions in compliance with the Paris Agreement on Climate Change. Through the Chemical Recycle business, SK chemicals accomplishes a “bottle to bottle” eco-friendly circular economy, creates a PET recycling ecosystem, and promotes the production and marketing of chemically recycled PET (CR-PET) and CR-copolyester to reinforce a business system based on ESG management.

Goal of Recycling 20% of Waste Plastics
SK chemicals intends to create a circular economy based on ongoing collaboration with local communities and stakeholders, with the goal of recycling 20% of PET waste collected in Korea by 2030. In addition, by developing the technology for mechanical recycling (MR) and chemical recycling (CR) of waste PET, as well as securing additional domestic CR-PET production infrastructure, we expect to reach our goal of 100% eco-friendly material sales by 2030.

Waste Plastic Reduction Efforts
As part of the efforts to minimize waste plastics, SK chemicals is collaborating with brand owners and local governments to create a domestic PET recycling ecosystem, as well as a circular economy that may gradually boost PET recycling through the sale of recycled PET.
In 2021, we have concluded an MOUs with Gwangsan-gu, Gwangju Metropolitan City, and Jeju Province Development Corporation (Samdasoo) to develop an eco-friendly resource circulation system. By investing in overseas equities in related businesses, we began the product's commercialization after securing CR raw materials and CR-PET products in advance.

Development of Eco-Friendly, Bio Materials

In addition to recycled materials, biomass-based sustainable materials are in the limelight as potential solution to the near-term depletion of fossil resources and emerging environmental issues, which are fast expanding as a promising future business sector. Due to the growing global interest in the environment, strengthening of relevant regulations, and declaration of ESG management, demand for eco-friendly materials is increasing fast in all industries, including the global sports and fashion industries. To meet these demands, SK chemicals is expanding its operations by building a mass manufacturing system for 100% bio-based polyol PO3G in 2022.

Product Directions of PO3G, PLA, etc.
PO3G, which is applied to elastic materials such as polyurethane and spandex, reduces the product's GHG emissions, thereby improving environmental impact and enabling improved performance over alternative materials. SK chemicals has established small-scale production facilities and collaborates with partners in numerous industries as a result of long-term R&D. Global brands, including fashion and IT, are adopting and releasing relevant products, and we will extend cooperation with global partners to meet market demands starting in 2022, when a 5,000-ton annual manufacturing system is constructed.

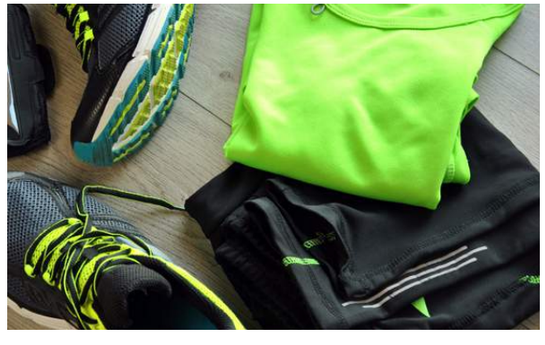
Development Achievements of Eco-Friendly Materials
The Life Cycle Assessment (LCA), which analyzes actual environmental burdens such as greenhouse gases generated throughout the process from raw materials through production and disposal, is quickly becoming a key indicator for business sustainability. PO3G from SK chemicals is made entirely of corn and has received 100% bio-material certification[1]. Furthermore, it was confirmed that by analyzing the LCA of PO3G in accordance with the international standard PEFCR (Product environmental footprint category rules, European Commission) Guidance, 20–30% of GHG generated in the entire manufacturing process can be reduced when compared to the same amount of existing polyol. We will continue to work with raw material suppliers and customers to increase the scope of LCA and reduce environmental effect in the future.

1) Source: USDA (United States Department of Agriculture) BioPerferred Label and Trans Universal Biobased Certification (TUC) in Europe

Commercialization of Bio-Based Polyol PO3G
The bio-based polyol PO3G developed by SK chemicals is the first of its kind in Korea and the second in the world to be commercialized. Through commercial manufacturing, we expect to extend to other uses in 2022 in line with market needs. Through the biodegradable PLA business, SK chemicals will strengthen the competitiveness in the field of eco-friendly materials in the future, allowing it to respond proactively to environmental changes in the global eco-friendly material market, such as plastic regulations, and contribute to the resolution of environmental problems.

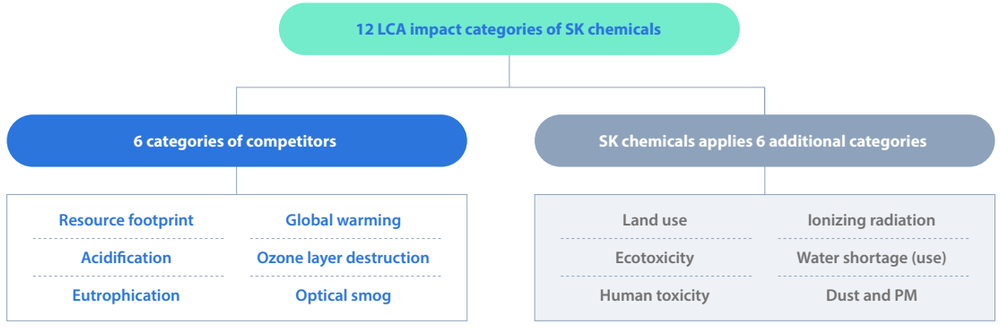
It is comprised of 100% biomaterial, which is softer than existing products but has enhanced elasticity recovery and abrasion resistance, making it comfortable to wear and resistant to deformation.

PO3G



2 LCA-BASED PRODUCT ROADMAP

12 LCA impact categories of SK chemicals



In the production of plastic materials, SK chemicals follows the cradle-to-gate approach by defining the scope of execution from raw material collection to product production, followed by LCA. This will be utilized by the stakeholders, including clients, for communication materials they can refer to.

Managing Product Impact Through Life Cycle Assessment (LCA)

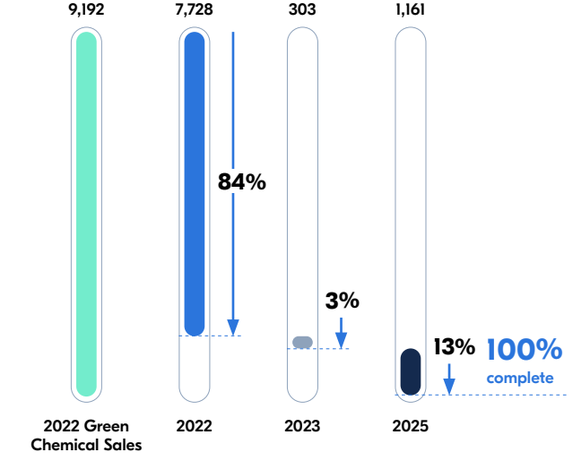
In 2021, SK chemicals completed an LCA of all copolyester products (copolyester and chemically recycled copolyester, CR-PET, and physically recycled PET). Among copolyester products, ECOZEN enhanced the applicable content of bio-derived raw materials, and it was confirmed that the carbon emission reduction effect per kilogram was improved. It has also been proven that there is a reduction in carbon emissions per kilogram of product by replacing conventional products that uses petrochemical-based ingredients with ECOTRIA, which is a chemically recycled product.

In addition, we have completed the LCA of one engineering plastic product line (SKYPURA-PCT) as well as SKYDMT and SKYCHDM, which are used as raw materials for other polymer resins. This means that LCA is being performed on 84% of green chemical sales and 61% of total sales including pharmaceuticals. We select specific items from among those that have completed LCA and are in the process of obtaining environmental product declaration and UL EPD certification. SK chemicals' LCA is conducted in 12 impact categories.

LCA Roadmap for All Products

SK chemicals has set a three-year "LCA roadmap for all products" with a 2025 goal. By 2022, we plan to obtain the UL EPD certificate for major copolyester products and an environmental product declaration for copolyester SKYGREEN (PETG) product. In addition, by creating a new biomaterial PO3G mass-production plant in 2024, we expect to secure LCA for mass-produced items, and by 2025, we plan to broaden LCA to include functional materials — SKYBON and SKYPEL products.

LCA ROADMAP (Unit: KRW 100 million)



- Copolyester: Complete calculation of 19 products including DMT and CHDM
- PO3G: All ECOPROL, 2 products
- Advanced Polymer: Complete selection of products (42 types)
  Engineering Plastic: Complete selection of products (4 types)

3 MINIMIZING HAZARDOUS SUBSTANCES

Product safety is a critical matter in leading sustainable management and gaining consumer trust. SK chemicals will do its best to prevent any unwanted consequences from hazardous chemicals. We will transparently disclose all hazardous chemical substances used by the company and gradually phase out the substances of concern. In addition, we will ensure that the implementation is effective in relation to our employees' performance KPIs.

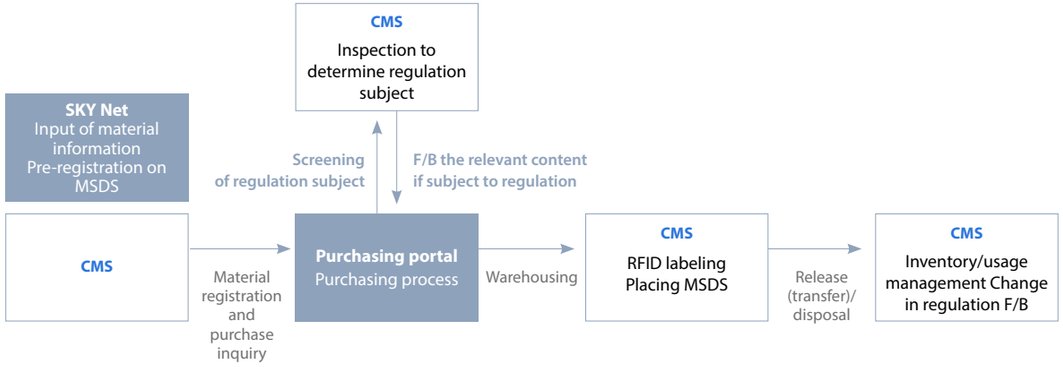
Strengthening the Chemical Substance Management System

SK chemicals is building a chemical substance safe management system and monitoring system in compliance with relevant regulations. We strictly adhere to domestic laws and regulations regarding chemical substances, such as the Act on Registration and Evaluation of Chemicals and the Chemical Substances Control Act, as well as international standards such as REACH, and monitor all chemical substances used in the workplace to ensure that they are handled safely and appropriately. In 2021, an online chemical management system (CMS) was built to systematically manage all chemicals utilized in company activities in order to prevent accidents and issues caused by human error during chemical management. We control the usage of chemical substances throughout the entire process, from procuring raw materials to producing and disposing of products, using CMS, in order to avoid any potential dangers.

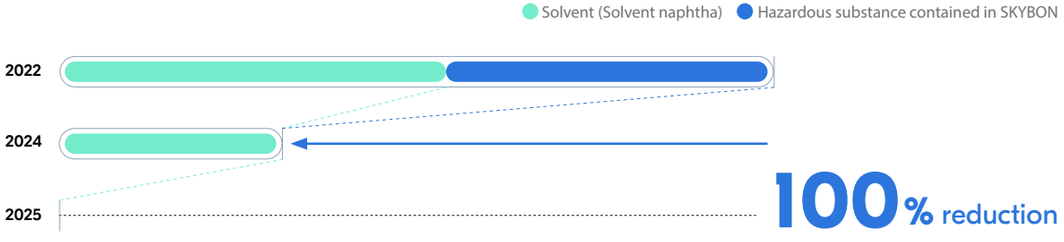
Alternatives to Hazardous Chemical Substances

SK chemicals has established and implemented a phase-out for all hazardous and concerned substances in use to solve issues caused by their use. If hazardous chemicals are discovered, the organization will develop and implement a mid- to long-term replacement strategy after being assessed by all the relevant departments, including R&D, purchasing, production, and quality control. To preserve the safety and health of our stakeholders and to reduce the influence on the global environment and ecosystem, we will eliminate and replace all hazardous substances in the long run. SK chemicals has formed a mid- to long-term strategy to change and develop substances used in SKYBON products into substances that are free of hazardous concerns by 2024, and by 2025, the use of solvent naphtha will be completely eliminated. In addition, we will present a roadmap for achieving this for each year, as well as incorporate the degree of achievement and progress of the replacement plan in the executive performance indicators so as to meet the goal of replacing hazardous chemicals.

SK chemicals' chemical substance management system



GOAL OF REPLACING HAZARDOUS CHEMICALS



Building Capacity for Chemicals Management

SK chemicals is conducting legal and specialized training for all its members, including those of business partners, in order to enhance employee understanding of product responsibility and chemical safety, as well as to strengthen the capability to manage hazardous substances in all company activities. We also undertake regular inspections and assessments based on preventive systems such as emergency management plans and process safety management (PSM), as well as training to promptly respond to emergency circumstances.

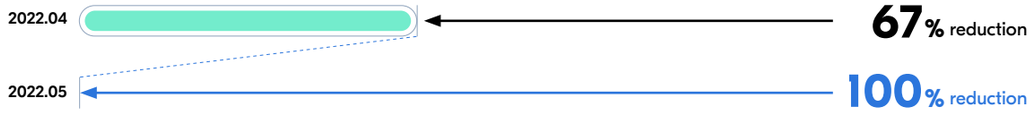
Achievements in Chemicals Management and Phase-Out

To boost the chemicals management capacity, SK chemicals is introducing CMS in the Ulsan Plant in the first half of 2022, following the Chemical R&D Institute in 2021. We have considerably reduced the amount of PX utilized in manufacturing facilities through the optimization of DMT raw materials as part of our efforts to replace hazardous chemical substances in continuous use, and succeeded in phasing out completely in May 2022. Furthermore, beginning in 2022, we are leading the market as a trusted chemical company by publishing not only the MSDS for each product but also the amount of all compounds of concern in use on our website, which is being updated on a regular basis. Last year, as a result of these efforts, there were zero cases of chemical substance-related environmental and safety accidents and zero cases of chemical substance-related laws and regulations violations.

Transparent Disclosure of Chemical Substances

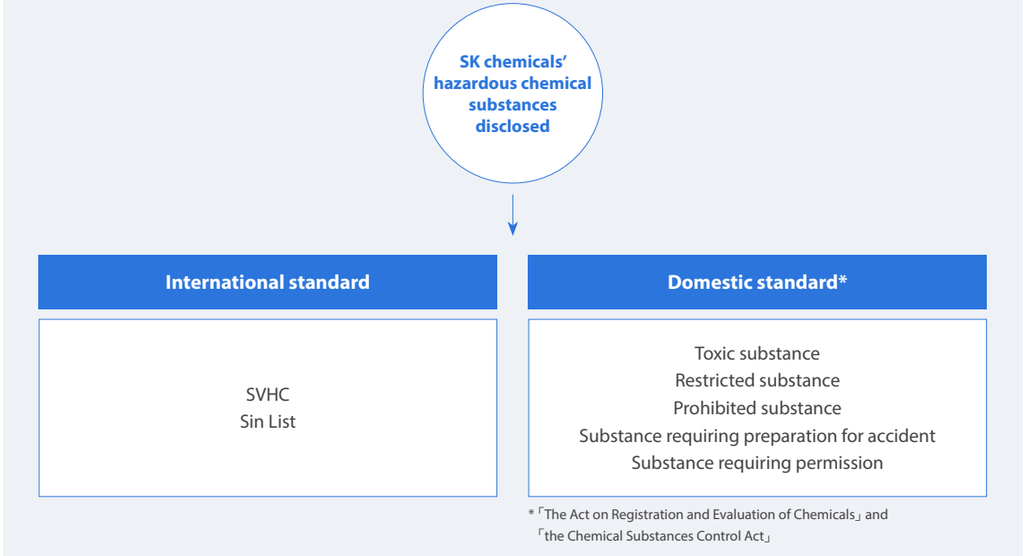
To build stakeholder trust, we are sharing our efforts to manage hazardous substances in a transparent manner. All hazardous chemicals, including toxic and prohibited substances subject to the SVHC and Sin List, which are international hazardous chemical standards, as well as the Act on Registration and Evaluation of Chemicals and the Chemical Substances Control Act of Korea, were identified and their specific content and total amount were disclosed on the website.

Anticipated Effects of PX Replacement Compared to Dec. 2020



Category	Unit	2019	2020	2021
Chemical exposure accident	Cases	0	0	0
Chemical exposure accident of employee above standard level	Cases	0	0	0
Chemical substance-related law violation	Cases	0	0	0

Transparent Disclosure of Chemical Substances



CONTEXT

To prevent various disasters and accidents, companies must provide a safe and enjoyable workplace for employees to work in. We must promote a healthy work-family balance through education and nurturing, as well as pursue our members' satisfaction. SK chemicals' attempts to provide a safe and healthy workplace where employees are happy are detailed in this report.

Scope of relevant reporting business sites: SK chemicals - Headquarters (ECO Lab), Ulsan site, Cheongju site (S HOUSE); SK multi utility - Ulsan site; SK bioscience - Andong site (L HOUSE)

APPROACH

SK chemicals acknowledges and systematically handles SHE management as the most basic part of the "human-centered management principle." Employees prevent various accidents by voluntarily practicing SHE by adopting the 8 SHE Code of Conduct. Meetings and workshops are arranged with safety and environment managers as well as working-level staff to share best practices and explore methods to improve the safety environment. In addition, to preserve our employees' health, we implemented a policy of working hours and leave to encourage health-promoting activities while also supporting work-life balance and autonomy. SK chemicals pursues "warm and professional" talent and implements numerous training programs and award systems.

2021 ACHIEVEMENTS

Integration of networks inside SHE situation room

Implementing new work hour policy and leave management system

No. of work-related diseases and deaths: **ZERO**

Participation rate of employees in the Culture Survey **74%**
(increased by 11% YoY)

TARGETS

- Aiming for "zero" SHE accidents (Safety/fire/explosion/leakage/environmental accident/law violation)
- Establishing an ESG-related online education program as a KPI task for employees to increase employee participation in sustainability management
- Running a certificate training course to see if the conditions are met for a transfer of job in 2022

1 SHE MANAGEMENT

SHE Management System

SK chemicals recognized that SHE management is the most essential aspect of its business under the "human-centered management principle," and designed the SHE management system as three elements: value, management principle, and SHE policy. We've established relevant missions and goals and we're constantly upgrading the SHE management system based on the results.

Safety Diagnosis and Environmental Accident Prevention

SK chemicals established 6 SHE Upgrade tasks (response to regulatory changes, reestablishment of internal SHE system, improvement of SHE capabilities, management of construction and process risk factors, securing soundness of facilities, and establishment of emergency response system) to prevent SHE-related accidents, and sub-tasks were identified for each business site and practical improvements were made accordingly. In addition, the "SHE situation room" was created in Eco Lab and Ulsan Plant to enable real-time response in the event of an emergency and to manage comprehensive information on the safety and health environment and facilities. We also give legal and specialized training to employees of SK chemicals and partners, as well as regular inspections and assessments based on preventive systems such as emergency situation management plans and process safety management (PSM), as well as quick emergency response training.

Safety and Environmental Risk Diagnosis
A company-wide SHE management system is built, and a diagnosis plan for each business site to check the degree of implementation is carried out semiannually to diagnose whether the relevant legal duties are being carried out.

SHE Management System

SHE Mission

We recognize people and the environment as the core values and strive to maintain a safe and clean environment.

· The company shall actively preserve and practice safety, health, and the environment through SHE management, and practice sustainable management by meeting the demands of various stakeholders.

Target

· The comapny shall achieve "zero" SHE accidents. (Safety/fire/explosion/leakage/environmental accident/law violation)
· The company shall strictly adhere to SHE-related legislation, and undertake SHE management above the legal level.
· The company shall build a global top tier SHE management system.
· To ensure eco-friendly management, the company shall continuously pursue GHG and environmental pollutant reduction activities.

8 SHE Code of Conduct

1. Members consider safety as the top priority in their work and must comply with SHE regulations/procedures
2. Members have a sense of ownership in all unsafe conditions and actions on site and take action on their own
3. Taking the initiative and set an example in regard of SHE, leaders give education for members and supervise on-site management
4. During construction/work, thoroughly carrying out safety measures such as risk assessment, installation of protective devices, equipment inspection, and wearing of protective gears
5. Protecting accidents in advance through continuous/repetitive on-site monitoring (DCS monitoring/on-site patrol)
6. Reporting accidents and SHE issues immediately, disclosing them in an extremely transparent manner, and taking appropriate follow-up actions
7. Complying with regulations/procedures, providing safety training, and supervising on-site management to enhance the SHE management of partner companies
8. Suggesting SHE-related improvements in the field at any time, followed by immediate action by the company

Diagnosis

SHE management system	· Level of management system, appropriateness, diagnosis of operational standard - Review of whether the Severe Accident Punishment Act is being met, utilizing checklists, identifying safety level of business site: great difference expected
SHE personnel tasks/training	· Diagnosis of appropriateness of allocating professional personnel, monitoring of work performance, management status of legal education - Review of whether the Severe Accident Punishment Act is being met, review of measures to strengthen SHE manpower management (supports to acquire certification, etc.)
Risk assessment	· Inspection of whether risk assessment has been conducted · Identifying risk factors and diagnosing improvement level
Employee/ business partner	· On-site inspection of the Occupational Safety and Health Committee (listen to employees' opinion and suggestions) · Inspection of safety and health management standard of business partners

Regular diagnosis

SHE diagnosis	· A monthly diagnosis on a selected department, led by the personnel in charge of safety, health, and environment
Theme inspection	· An inspection that sets and carries out a social safety and environment topic by considering the legislation amendment and other companies' accident cases
Inspection of the situation room	· Form and operate an inspection team of three employees in preparation for safety risks during holidays
Daily patrol	· An inspection of the management system, processes, facilities, and work processes mainly in construction sites every morning and afternoon

Securing Safety and Health of Members

Through meetings and discussions between personnel in charge of safety and environment at the Ulsan Plant, seminars for Process Safety Management (PSM) managers, and workshops for plant managers, SK chemicals analyzes methods to improve the safety environment and exchanges best practices among business sites.
A workshop for operators in charge of on-site process and safety plays a crucial role in ensuring process safety by reviewing best practices and departmental improvement requirements. Improved safety shoes, suffocation prevention throughout the process, installation of anti-skid plates on stairwells, process CCTV monitoring improvement, and wastewater identification/management improvement are some of the examples of improvements that were made through the workshops. In addition, we are providing company-wide training for newcomers so that they can grasp a better understanding of our SHE management system. We also include office workers in SHE training as they might have a lack of SHE awareness unlike workers in production or research departments where SHE activities directly affect their work, and inform them on how to cope with pandemic diseases and natural disasters.

The Ulsan Plant is adopting "Protecting the Safety of Colleagues" (training practice) system to improve risky behaviors through mutual safety observation of employees as one of the interdependent safety culture practice programs to achieve zero safety accidents.

Work-Related Injuries
We are enhancing accident prevention and minimizing damage in the event of an emergency by changing the internal accident standards reported to the CEO to include "Class D" or higher accidents. SK chemicals is dedicated to preventing a variety of safety issues in order to maintain a safe and enjoyable workplace. There were no work-related diseases or deaths due to disasters reported by members between 2019 and 2021. Regular safety inspections are undertaken with the purpose of preventing workplace accidents by detecting numerous risk factors in advance. As a result of these efforts, the Lost Time Incident Rate (LTIR) in 2021 was 0.23, down 60.6 percent from the previous year.

On-Site Safety and Health Program

Safety Inspection	Daily inspections on construction sites and dangerous production processes for the prevention of safety accidents.
Safety Audit	InteZrnal audits on ISO and PSM
SHE Performance Evaluation	Clarifying company-wide KPI guidelines to evaluate SHE performance at plants and carrying out process assessment based on objectified data
Occupational Safety and Health Committee	Holding a meeting of the Occupational Safety and Health Committee every quarter 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	To prevent safety incidents, all employees must follow 7 safety regulations 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
Protecting the Safety of Colleagues	To accomplish Zero Safety Accidents, the Ulsan Plant introduced the "Protecting the Safety of Colleagues" system to improve risky behavior through mutual safety observation of employees.

Health Management of Employees

SK chemicals runs various health promotion policies to ensure that all of its employees are healthy in a safe work site. In addition to providing health check-up to all employees and running the health management center within the company, we provide health-enhancing program as well as mental health enhancing program such as stress prevention and happy laughter treatment, which is participated by many employees. We planned to promote a more active member health enhancing program in 2021, but due to the proliferation of COVID-19, we are assisting in ensuring the health of our employees by replacing health improvement activities with providing measures to prevent infection.

Health Enhancing Programs
SK chemicals provides its employees with a number of health enhancing programs to assist them in taking care of their personal health. In addition to the anti-smoking program that helps the members to quit smoking, we provide daily walking programs with the goal of 10,000 steps daily, and obesity prevention programs to help members improve their physical fitness and prevent diseases. Participation by the employees of SK chemicals has been continuously increasing each year since 2019.

Employees' Health check-ups
SK chemicals regularly conducts health checkups on all of its employees, including contract workers, to ensure their health. Special health checkups are performed on laboratory members who handle hazardous chemicals in accordance with legal standards, and safety procedures are in place to avoid potential safety accidents and illnesses associated with chemical handling. In addition, the company runs a health management center in each business site to assure workplace hygiene, health, and safety, including musculoskeletal diseases, stress management, and hazardous chemical control. Individual interviews are conducted for employees who are at higher risk of health problems such as diabetes and high blood pressure, and follow-up management is carried out for them on a regular basis. In some cases, job relocation takes place to ensure a healthy life of SK chemicals' employees.

2 IMPROVING MEMBER SATISFACTION

Respect of Human Rights

Taking precautions against direct or indirect human rights contravention in the workplace and human rights infringement derived from business relations, we set up a number of HR rules, SHE regulations, code of ethics, code of conduct for business partners and strictly comply with them in our management activities. To this end, solution channels for grievance at the workplace are operated in corporate culture department while education, counseling, and handling process regarding harassment at work are put in place as well. After clearly identifying the number and cause of grievance-handling reports that occur in the workplace, we share them with all employees. Every year, the number of grievances decreases, and we endeavor to build a positive work environment with the goal of zero reports of grave negligence (abuse of power, sexual harassment, violation of laws).

Sexual Harassment Prevention
We provide education on sexual harassment prevention for our employees in order to prevent sexual harassment at the workplace and raise gender-related human rights awareness. The online education on sexual harassment prevention is conducted once a year for all members and the new and experienced employees are subject to education every year as well. If any internal incident related to sexual harassment is reported through an ethics management reporting channel, HR team and compliance team initiate an investigation, rigidly responding to those issues occurred internally by imposing dismissal, demotion, cutting wage, suspension, or relocation of department toward a perpetrator whose inappropriate deed is proved.

Fair Evaluation and Reward System
Since 2001, SK chemicals has operated an IT-based Performance Evaluation & Coaching System (PECS). We conduct quarterly assessment and give feedback to assist our employees in attaining their goals while furnishing coaching from the perspective of talent nurturing through absolute evaluation. In addition, we have been equipped with a systematic reward system by achievement of each employee, offering monetary reward such as base pay, bonus pay, performance-related pay on top of non-monetary reward such as pride, sense of accomplishment, and acknowledgment.

Performance Evaluation
Through fair and appropriate performance reviews, SK chemicals aspires to grow with its employees. Every year, we conduct periodic performance evaluations for full-time employees, and in 2021, 96.4% of full-time employees received periodic performance assessments, a modest increase year-on-year.

Equal Pay Ratio for Both Genders
SK chemicals recognizes the importance of gender equality and strives to eliminate gender discrimination by paying male and female employees equally. In 2021, it was discovered that the pay difference of female employees compared to male employees was 1.34 times in managerial jobs and 1.28 times in non-managerial jobs.

Childcare Leave
SK chemicals provides childcare leave to promote work-family balance as well as address the low birth rate issue, which is one of the main social issues. This has led to an increase in childcare leaves among male members as well as female members.

SK Chemicals Company Culture Survey
SK Chemicals conducts Culture Survey for its employees every year. Through the results of the Culture Survey, we examine the level of organizational culture, identify and implement tasks for improvements in order to set the organizational culture direction for the happiness of our employees.

	2019	2020	2021
Participation rate of employees in the Culture Survey	64%	63%	74%

Work-Life Balance

On July 1, 2021, a new work-hour policy and leave system were introduced to promote members' efficient and independent work settings, as well as work-life balance. By considering various aspects of the system and ensuring that members are immersed in their job, we are committed to improving work schedules and ensuring that relevant refreshes are provided at the same time.

Encouraging the Use of Leaves
SK chemicals has been promoting a system that allows members to jointly and freely take leaves for their work-life balance. As a result, the utilization rate of leaves more than doubled from 24% in 2010 to around 55%. However, as the long-term use of refresh vacation is still low, the existing system has been supplemented in 2021 with the new system being used to encourage members to take their leaves.

Long-Term Vacation Policy | We organized a "long-term vacation policy TF" in 2020 to develop the long-term vacation policy in response to the different voices of the members. To date, 17 members have taken use of the long-term vacation policy since its introduction.

Promoting the Use of Leaves | To ensure individuals to immerse in work, we offer joint leaves, half-day leaves and quarter-day leaves, and unused annual leaves are compensated for work-life balance. Since 2021, we have implemented self-approval of leaves and a monthly obligatory leave for leaders.

Employee Welfare
SK chemicals is implementing a variety of welfare systems making our employees happier at work and more comfortable in life. Since 2021, we've operated an Employer Assistance Program (EAP) to conduct a psychosocial program that aims to increase member wellbeing by lowering the psychological stress during the COVID-19 crisis.

Work & Life Balance

Multiple support systems are in place to enhance job satisfaction among employees and promote work-family balance

Welfare System

Financial Support	Supporting transportation fee, welfare points
Health Management	Providing regular health checkups, medical fee (including fees for spouses), and organic food, operating a health care center, a corporate dental clinic, and psychological counseling program "Todak Todak"
Residential Support	Offering loans for lease or purchasing a house and residential expenses for regional workers
Family and Childcare Support	Discretionary payments and holidays for family events, maternity leave, childcare leave, day care center, tuition of children
Hobby and Leisure Support	Supporting condominiums, fitness center, internal club activities
Others	Rewards for long-service

Expanding Work Flexibility
Improved Work-Hour Management System | SK chemicals has implemented the PC alarm system in 2019 to track working hours and avoid unnecessary overtime in accordance with the 52-hour work week policy. For more accurate time tracking and analysis, the system has been installed and administered on all members' PCs since 2021.

Selective Working Hours | SK chemicals strongly recommends selective working hours to promote members' autonomy in scheduling and balance the concentration of working hours. If a member's working hours in a certain week exceeds 52 hours, they can adjust the working hours of a different week.

Family-Friendly Activity Support
We have a number of policies in place to help members establish a culture where work and family can coexist. For pregnant employees and those with infants, a one-year reduced working hours system, up to one-year childcare leave, and 10-day spouse's maternity leave are all guaranteed. We also run a workplace daycare center to prevent career discontinuity among members. In addition, we offer support for housing funds, child tuition fees, and child school entrance congratulatory money to ease the burden of child rearing and create economic stability in each household. Condominium voucher is also offered to our employees so that they can spend their leisure time with their family members.

Guaranteed Benefit Plan for Retirees
SK chemicals runs a retirement pension (DB, defined benefit) policy for its retirees. As of 2021, 1,078 retirees are subscribed, with the total operating funds of KRW 118.2 billion (separate standard by SK chemicals).

3 EDUCATION AND CAPACITY BUILDING

SK chemicals pursues "warm and professional" talent and strives to foster warm-hearted individuals with expertise. We implement numerous training and reward systems and foster sound company culture under the direction of the Corporate Culture Office.

Talents

Recruitment Method
We are recruiting those with excellent job expertise through job-oriented hiring in order to adapt to rapidly changing business environment. Based on job descriptions for each role, a systematic evaluation procedure and criteria are defined, and requirements and competencies are objectively verified. After employing talented individual, we support education programs to assist our members become "warm professionals" in an environment where performance and competence are fully recognized through a reasonable and fair evaluation reward system.

Diversity Policy
SK chemicals does not discriminate against employees based on their gender, religion, social status, nationality, or disability without justification. We aspire to foster an organizational culture that values diversity. (Covered by the Constitution of the Republic of Korea, and Labor Standards Act) The annual sustainable management report includes information on the employment situation of employees of all ages, women, and persons with disabilities.

Member Fostering Roadmap

With the purpose of developing "warm professionals," SK chemicals encourages capacity, performance, and segment-based member growth. We create and run a job-based development system to help people enhance their professional skills in line with their career goals.

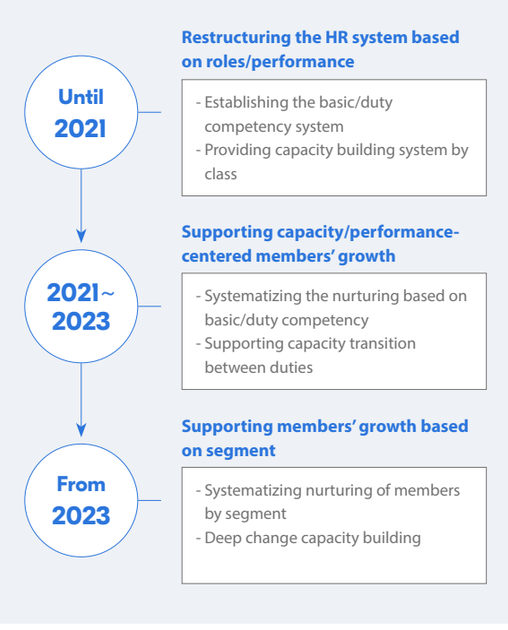
Fostering Excellent Talent
Every member at SK chemicals is provided numerous opportunity to improve their knowledge and skills in order to fulfill their responsibilities. The selected members as excellent talent through fair procedures and in-depth discussions will receive high-quality training opportunities to develop their work skills at domestic and international schools and professional institutions, as well as financial assistance to focus on their studies during their education.

Support for Degree and Certificate Acquisition
We provide support for members to obtain degree and certification to help them improve their professional skills. For members to grow as respected professionals in the market, we support tuition fees to obtain degrees or certifications related to their duties through a selection procedure.

Talents

Warm	Professional
1 Sense of pride: Demonstrates a clear understanding and pride in the meaning and values of work, believing that it benefits human health and protects the environment. 2 Sense of community: Emotionally connects with other members and organization and pursues value across the organization. 3 Mutual respect: Based on profound trust and constant interest in one another, promotes mutual development by supporting and appreciating others.	1 Understanding my job: Continuously gains and understands expertise about our clients, technology, and markets, as well as knows what to do and how to accomplish it. 2 Setting challenging goals: Sets ambitious goals and strives to outperform expectations on a regular basis. 3 Thorough and enjoyable execution: Performs with a sense of ownership and meticulous planning, but also with a passion for work and enjoyment. 4 Knowledge transfer: Explicitly organizes and delivers experiences and knowledge from work within the organization to improve self and colleagues' abilities.

Member Fostering Roadmap



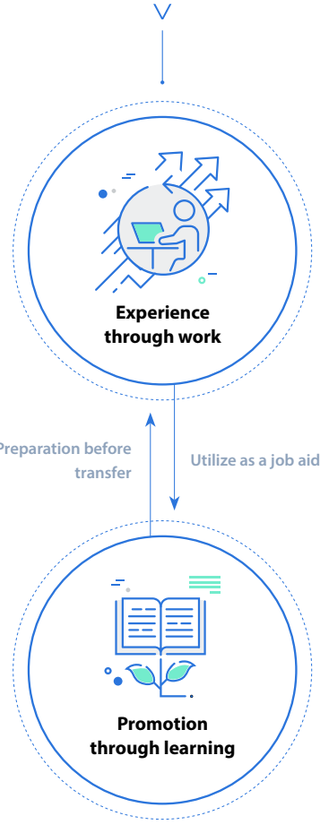
Individual Development Program (IDP)

Members at SK chemicals can create and manage their own individual development programs (IDP) and advance their careers through career development program (CDP). In order to support the development of the competency system, we operate the SK chemicals Capacity Development Program, which is divided into 51 duties (7 in marketing, 13 in manufacturing, 10 in R&D, and 21 in management support). We're working on member-led training so that employees can create their own learning routes based on these skills. This allows them to rotate through each of these long-term duties and provide learning as a supplement to their professional development and advancement.

Education Support Policy by Class and Career Development Program (CDP)

SK chemicals delivers soft landing training and supplementary training for each target class that requires skill adjustments, such as new team leader, promoted leader, dispatched employee, and job transition, in addition to work capabilities. If members desire to transfer or improve their expertise, we also have a Career Development Program (CDP) to help them select and execute their own job and common job capabilities from the job-related competency development program. When it comes to job postings for those who want to transfer, one of the criteria used to establish whether they are suitable for a different work is training. Beginning in 2022, the certificate course will be utilized to determine whether the applicants who wish to transfer are eligible.

Individual Development Program (IDP)



Education Hours and Investment

We offer a variety of courses to help members grow and unlock their job-related competencies and talents. We curtailed member training and participated in infection prevention as the COVID-19 situation became more critical between 2020, when the first case of COVID-19 was recorded, and 2021. In 2021, SK chemicals' average yearly training expenditure per capita was KRW 1,785,803, with an average training time of 47 hours a year, a slight decrease year-on-year due to COVID-19.

Zoom In

We are increasing our members' participation in environmental management by completing ESG-related training (environmental literacy, hydrogen energy, etc.) through MySuni, the SK Group's online training platform. Completion of ESG-related online training programs is a KPI task for members to raise environmental consciousness.
It has been set as a KPI for team leader levels to acquire three badges after completing the training, and 5% performance weight is given.

CONTEXT

SK chemicals is actively following the "pursuit of happiness for each stakeholder," the company's main belief, in order to grow together with its stakeholders. The initiatives of SK chemicals to foster coexistence with its partners, as well as community and social value-seeking efforts to establish a mutually beneficial environment, are described in this report.

Scope of relevant reporting business sites: SK chemicals - Headquarters (ECO Lab), Ulsan site, Cheongju site (S HOUSE); SK multi utility - Ulsan site; SK bioscience - Andong site (L HOUSE)

APPROACH

To support consistent growth of its partners, SK chemicals is sponsoring and managing the SK Win-Win Growth Fund. In addition, we are implementing a number of cooperative projects, including fund stabilization through cash-based payments and making payments in the shortest period. By defining a mid-to-long-term roadmap for supply chain and ESG operational reinforcement, we are working with our partners to strengthen ESG competitiveness in our supply chain. In addition, we carried out environmentally responsible social contribution activities to the vulnerable in an effort to add social value within the community. SK chemicals volunteer group provided non-face-to-face service amid the COVID-19 in 2021. We also achieve our corporate mission of promoting human health and protecting the environment by conducting Project Labs to help create a social entrepreneurship ecosystem.

2021 ACHIEVEMENTS

Contributed and operated a total of **KRW 2.1 billion** worth of SK Win-Win Growth Fund to **7 business partners**

Conducted ESG evaluation among **83 business partners** and **selected 40 companies** for primary intensive management

Provided a comprehensive solution to **21 social companies** participating in the Project Lab

Why Dots, a social enterprise company that helps with dementia prevention and rehabilitation, won an award for mass producing **"Pio" - a dementia-prevention AI robot** - using environmentally friendly materials.

TARGETS

- Use 3% of annual operating profits in social contribution
- Establish management indicators and conduct diagnostic evaluation for ESG management of business partners in 2022
- Expand Project Lab supporting companies by 10% each year by 2025

1 WIN - WIN GROWTH

To achieve shared growth with the partners and to develop the culture of fair trade, SK chemicals is following the SK core principle of "pursuing happiness for each stakeholder" and making decisions based on the corporate culture of fair trade, safety, and ethical management. We contribute to our partners' competitiveness by delivering tangible benefits such as technical assistance, financial assistance, and human resource assistance. We hope to grow with our partners and expand our fair trade culture as a result of this. We select exceptional partners each year based on the results of transactions and evaluations and provide support programs.

Programs for Mutual Growth With Partner Companies

SK Win-Win Growth Fund
Since 2013, we have raised and continuously managed SK Win-Win Growth Fund to help our partners and suppliers run their businesses in a smooth and stable manner. SK Win-Win Growth Fund allows our suppliers to secure funds required for their operation and facilities at a lower interest rate than that in the market. In 2021, about KRW 2.1 billion went to a total of 7 partner companies to assist them.

Subcontract Payment
For the convenience of our suppliers, we implement the policies to pay out cash for subcontract payment and make payments in the shortest period. We pay out cash within 10 days after issuance of the tax invoice so that our suppliers can practice stable business activities through smooth fund management.

Ulsan Steam Highway supplies surplus steam between companies as part of the "Eco-Industrial Park Construction Project"

SK Win-Win Growth Fund

KRW 2.1 billion

Approx. KRW 2.1 billion provided to a total of 7 companies in 2021

Through Advance and Interim Payment
We operate a policy of advance and interim payment for suppliers to manage their cash flows. Partners supplying equipment materials or construction can apply for advance or interim payments and they can receive in cash so that they have no difficulty in supplying or proceeding with their work.

Building an Win-Win Environment with SMEs

We have provided steam for SMEs adjacent to the Ulsan Plant since 2004. SMEs had a financial burden for steam as it takes a certain scale of steam generators for securing steam by themselves as well as extensive human and material resources for steam maintenance. Under the circumstances, we resolved the SMEs' concerns over investment cost and fixed expenses by providing steam for those in the vicinity of the Ulsan Plant. In return, we can reduce our fixed expenses by selling surplus steam. This steam supply and demand is a case in point for Win-Win growth having mutual benefits. (The SK multi utility was established in December 2021 by splitting off the utility business operated by SK chemicals.)

2 EMPOWERING ESG IN SUPPLY CHAIN

As the EU Supply Chain Due Diligence Act passed in 2021, there is a growing demand for public notification and examination of supply chains both at home and abroad. SK chemicals is collaborating with its partners to adopt ESG by developing a mid- to long-term strategy for improving the capabilities of the ESG supply chain. In 2022, we established management indicators for supply chain ESG management to prepare for the review, and we set the partner ESG assessment target for transactions of KRW 500 million or higher.

2022 1st Year Theme	Establishing supply chain ESG policies and promotion methods
2023 2nd Year Theme	Expanding and improving supply chain ESG evaluation
2024 3rd Year Theme	Verifying supply chain ESG policy achievements

Eco-Friendly Supply Chain Management

Through the cooperation and trust with its partners, SK chemicals is improving its green competitiveness throughout its supply chain. We conduct the fundamental design after determining the scope of application, management system, and support scale, and purchasing contracts are carried out by evaluating the environmental feasibility during the procurement of raw materials.

It has not only improved product competitiveness by purchasing and sourcing raw materials from quality and service-enhancing suppliers through supplier evaluation since 2021, but has also improved product green competitiveness by actively pursuing green purchasing activities and green partnerships. We have been assessing the present status of ESG management of our partners since 2021, and no partner has been determined to strengthen environmental factor management.

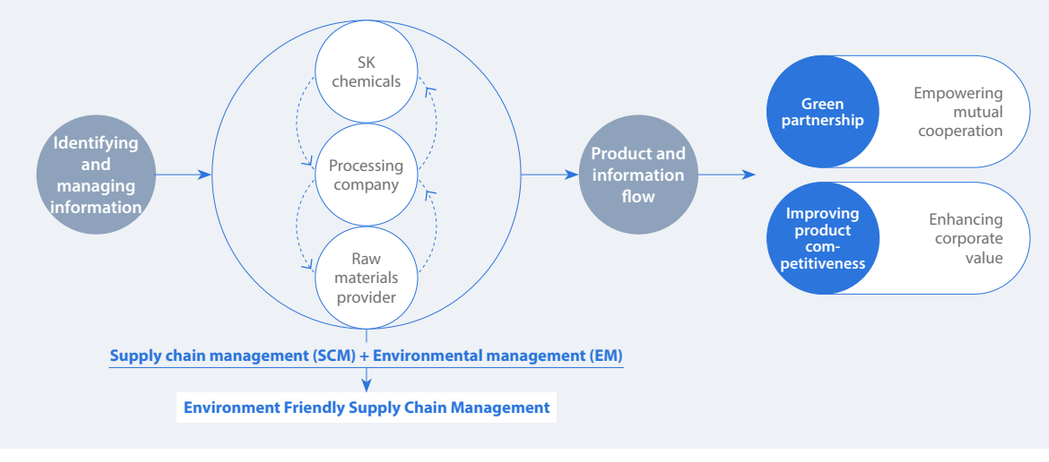
ESG Diagnosis and Evaluation

In 2021, an external firm was commissioned to conduct an ESG evaluation to examine the condition of the business partners' ESG management status. SK chemicals is working with NICE Information Service, a credit information provider, and Quantified ESG, a company that specializes in ESG evaluation, to assess our 83 partner companies in terms of ESG management, and we have completed the evaluation of 30 companies. We plan to undertake a realistic ESG evaluation in 2022 by selecting business partners for each stage, and we will educate and self-assess 40 companies for primary intensive management on the value and significance of their pre-ESG management efforts. Following the evaluation, the results will be analyzed, and high-risk suppliers will be identified in order to develop improvement programs.

Improving ESG Management Performance of Partner Companies

High-risk companies will be identified in 2022 based on the outcomes of the diagnosis and evaluation, and improvement programs will be developed. We are seeking for new ways to recognize and reward top performers. By reflecting ESG management features into our SK chemicals purchasing system, we are also improving our purchasing process.

Eco-Friendly Supply Chain Management



3 COMMUNITY ENGAGEMENT AND DEVELOPMENT

Under the business goal to "promote human health and protect the environment," SK chemicals is making social contributions in three areas: eco-friendliness, social welfare, and the dissemination of happiness. We are committed to making social contributions in connection with the UN SDGs in order to assist the international community in achieving its sustainable development objectives. We have set a goal of using 3% of expected operational profit for social contribution from 2022 to 2024, and are promoting various social contribution activities. We collaborate with a variety of community organizations to drive social contribution activities that reflect community needs, and collaborate with regional office of education, educational and social enterprises (SEED CO_OP and Happy School) to develop and promote environmental education. We interact and cooperate with local welfare centers to identify the needs, develop programs and assess them so as to help local children and adolescents in low income group grow and become healthy members of the community. In addition, we work with professional volunteer working groups to design more autonomous and interesting volunteer works by associating the works with our business. In 2021, we developed non-face-to-face programs to constantly deliver CSR activities even in the face of COVID-19. In association with social enterprises, we conducted the various forms of social contribution activities including non-contact volunteer works to address diverse social issues. Furthermore, with the purpose of narrowing the gap in learning among students, online learning mentoring programs were developed in association with social enterprises for teenagers living in low income families who have difficulty accessing non-face-to-face learning systems. SK chemicals has set the target of 50% of the whole staff joining the activities for social contribution. From 2022, the three social contribution activities will be renamed "Green, Health, and Support for the Underprivileged" to promote social contribution activities to a larger range of interested parties and improve the business link of social contribution activities.

3 Thematic Programs

Eco-friendly Project for Social Contribution

Happy Green School | With an aim to raise the awareness of the gravity of environment and environmental protection, SK chemicals' first environmental education project dates back to 2012. Happy Green School is an environmental education program for children. This program is designed for our employees to become one-day teachers at elementary schools, providing eco-friendly education tailored to the level of elementary school students. From the very start of the project to the present, a total of 150 employees have become "eco-friendly teachers" after going through the internal training course for teacher, and the classes offered by the eco-friendly teachers have been well received with a total of 11,680 elementary school students in Seongnam, Ulsan, Cheongju, and Andong regions taking the classes. In addition, our employees help third graders of elementary schools easily understand why and how much the environment matters in an interesting way using the teaching materials suitable for the students In 2021, we have developed an online and offline textbook and a game app in consideration of the COVID-19 situation, and were able to conduct environmental education unrestricted by space. We also help to create jobs by fostering women with career discontinuity as environmental education instructors. In 2022, we plan to increase the number of target classes from 4 regions.

Lunchbox donation to vulnerable group suffering from prolonged COVID-19

Supports for the Underprivileged

Hope Maker | "Hope Maker" is a social welfare and social contribution project designed with the aim of supporting children and teenagers in low-income families as well as providing mentoring programs for them. SK chemicals has carried out this representative social contribution project in partnership with 12 community welfare centers since 2012, through which a total of 155 children and adolescents have been assisted in their economic and cultural activities. As part of the project, we have rendered economic assistance to those subject to Hope Maker, such as monthly donations along with holiday gifts, winter weather survival kit, Kimchi (through SK Happiness Kimchi-Sharing), and assistance for high school graduates. On top of that, we have operated "Hope Maker School," a career mentoring program matching university students to help them become right members of society. To this end, we strive to make this program reflect more needs of students in constant discussion with local welfare centers every year. Since 2020, we operated both online and offline Hope Maker School in the face of COVID-19 to help adolescents in Hope Maker project cultivate their learning skills and navigate their career paths. As a result, 69.5% of students showed increase in social support and 73.9% in self-efficacy increase. In 2021, 86.9% of third graders of high school students succeeded in gaining admission to universities or getting jobs.

Social Contribution Activities at Domestic Business Sites

One Company Two Village Support | The Ulsan Plant is working hard to carry out a cooperative project tailored to the needs of the local community. The plant has established sisterhood relationships with Geonam and Pyeondong villages in Namgu, Ulsan City, and has carried out volunteer works including providing rice to low-income household, purchasing farm crops, and sharing kimchi.

Volunteer Club of Members | As part of efforts to be more actively involved in social contribution, Ulsan Plant is running a social contributing club called "group of beautiful people." The plant has made donations through the Child Fund Korea to support the healthy growth of local children. Furthermore, the plant plans to deliver a variety of assistance projects down the road, designing social contribution activities in cooperation with business sites.

The 1st Blood Drive Campaign 20201 in affiliation with SK discovery

SK chemicals Volunteer Group

SK chemicals founded the "SK chemicals Volunteer Group" in 2004 to fulfill its duty as a corporate citizens and all members participate in community service accordingly. In 2021, 201 volunteers contributed a total of 1,701 hours of volunteer service. SK chemicals Volunteer Group consists of volunteer groups per site, such as the headquarters, Ulsan, Cheongju, and Andong. The secretariat has taken on multiple roles, such as driving directions of the group, developing volunteer programs at the company level, and cooperating with external institutions, with CEO assuming the head of the group. In 2021, due to prolonged COVID-19, we undertook non-face-to-face service instead of face-to-face volunteer activities to solve social issues by making a kit in collaboration with social companies and holding a blood drive.

2021 Sharing a Meal, Warm Contact project

Creating an Ecosystem for a Social Enterprise

SK chemicals is striving to foster social companies and create an ecosystem. Every year, we are contributing to increase the sales of social companies by procuring holiday gifts and winter hope kits from social companies to be distributed to Hope Maker each year.
SK chemicals has also been operating a Project Lab since 2018 to assist social enterprises in building ecosystems. Through SK chemicals' diversified molding and injection know-how and a network of industry infrastructure and collaborators, Project Lab helps social enterprises commercialize plastics products.

Project Lab
We delivered a comprehensive solution, combining SK's technology and know-how, to four social companies in 2020 and 21 companies in 2021. Among these, Why Dots, a social enterprise that works to prevent dementia and aid rehabilitation, was able to mass produce "Pio," a dementia-prevention AI using eco-friendly materials, with the assistance of material selection and manufacturing techniques. For the contributions to the development of the aging-friendly business, Why Dots received the Minister of Health and Welfare award.
Since 2019, SK chemicals has been using its Project Lab website to discover social enterprises such as Why Dots, with the aim of understanding customers' needs and delivering solutions promptly.

Expanding Supports to Social Enterprises Through Partnership
In 2022, we will listen to our clients through a variety of educational activities and cross-enterprise collaboration, as well as by promoting the Project Lab. We will continuously increase the supports to social enterprises and social ventures by maximizing SK chemicals' capacity, and provide support to 10% more companies each year until 2025 to contribute to creating an ecosystem for social enterprises that propose realistic alternatives based on plastics. SK chemicals will improve the technological capacity based on members' capacity, network capacity to attract external capacity, and operational capacity to build platforms such as the Project Lab website, so that more customers and service providers can find appropriate partners and realize new social values.

CASE STUDY - Project Lab Participant

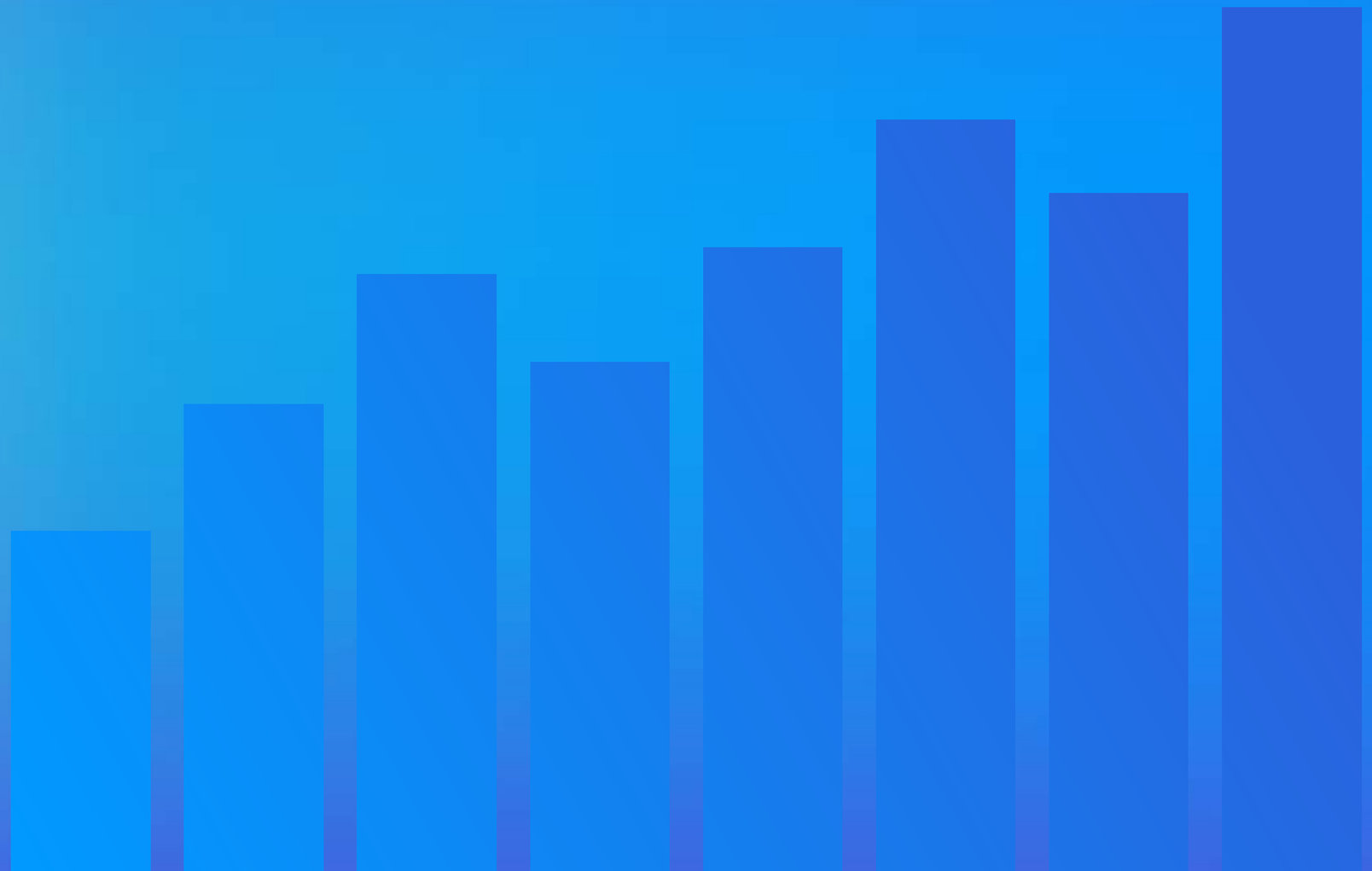
Why Dots

"We decided to adopt an eco-friendly material as the robot is mainly used by the elderly. But there were difficulties in producing small quantity of products using appropriate materials for a small startup. Since 2019, SK chemicals has worked with us to come up with a solution and introduced us to the appropriate company for materials that are not handled by SK chemicals. Upon using the ECOZEN which was a suitable material for our robots, we weren't familiar with the relevant process. But thanks to SK chemicals who provided not only samples but also technical support, we were able able to produce high-quality parts. As a result, we were able to successfully produce the outer part of the robot using eco-friendly materials only."

Tree Planet

"A SMIM pot is made of ECOTRIA, SK chemicals' eco-friendly material. The structural nature of a pot necessitates the use of a transparent material, but previously, making an environmentally friendly transparent plant pot was impossible. Recycling PET bottles didn't give us the strength we needed. However, by using ECOTRIA, a recycled PET material developed by SK chemicals, we were able to make SMIM eco-clear plant pot that is made by recycling five 500 ml PET bottles per one pot. In comparison to a conventional pot, the SMIM pot grows well with only 10% of water. We were able to advertise the recycled PET material from SK chemicals with confidence and pride throughout our business. We aim to continue using the environmentally friendly materials to ensure that we are not causing harm to the environment and carry out eco-friendly management."

DBL BOOK



ECONOMIC VALUE

Main Category	Subcategory I	Subcategory II	Unit	2019	2020	2021	Comment
Production volume	Green Chemical Business	Copolyester resin, DMT, etc	ton	268,736	252,804	366,469	
		Biodiesel*	ton	208,140	56,196	-	Bioenergy business was sold and its performance in May 2020 was completed
		BON	ton	8,796	9,208	13,058	
	Life Science Business	Vaccines	Dose	5,893,408	11,477,663	81,934,044	
		Tablets	Tablet	631,933,562	606,231,520	605,863,519	
		Patches	Patch	50,290,715	40,500,354	38,730,028	
Sales by Business Sector	Green Chemical Business	Copolyester resin, DMT, etc	KRW 100 million	8,320	8,592	10,371	
	Life Science Business	Pharma	KRW 100 million	2,372	2,523	3,002	
		Vaccines	KRW 100 million	1,832	2,375	9,290	
	Other	Internal transactions (consolidation adjustment)	KRW 100 million	- 1,394	- 1,502	- 1,766	
		Total Sales	KRW 100 million	11,129	11,988	20,896	
R&D and investment	Green Chemical Business	No. of R&D employees	Person	149	134	122	
		R&D investment	KRW 100 million	289	276	243	
		Sales to R&D investment ratio	%	3.5	3.2	2.3	
		Sales of new products	KRW 100 million	0	0	30	
		Sales of new products to total sales ratio	%	0	0	0.3	
	Life Science Business (Pharma)	No. of R&D employees	Person	55	52	50	
		R&D investment	KRW 100 million	107	122	143	
		Sales to R&D investment ratio	%	4.5	4.8	4.8	
		Sales of new products	KRW 100 million	0	18	11	
		Sales of new products to total sales ratio	%	0	0.71	0.37	
	Life Science Business (Vaccines)	No. of R&D employees	Person	121	146	208	Performance of subsidiary SK bioscience
		R&D investment	KRW 100 million	277	260	474	
		Sales to R&D investment ratio	%	16.5	14.4	10.7	
		Sales of new products	KRW 100 million	0	0	0	
		Sales of new products to total sales ratio	%	0	0	0	
Intellectual Property Rights	Applied	Patent-Domestic	Number	15	9	32	
		Patent-Overseas	Number	59	56	66	
		Trademark-Domestic	Number	7	5	4	
		Trademark-Overseas	Number	0	18	13	
	Registered	Patent-Domestic	Number	23	17	20	
		Patent-Overseas	Number	86	68	46	
		Trademark-Domestic	Number	4	5	8	
		Trademark-Overseas	Number	1	10	6	

Consolidated Statements of Financial Position

Unit: KRW

	2019	2020	2021
Assets			
Current assets	792,022,789,246	923,286,317,987	2,784,058,669,420
Cash and cash equivalents	183,975,936,156	86,764,151,843	255,615,367,155
Short-term financial instruments	88,673,666,823	339,928,469,816	1,794,156,437,313
Trade and other accounts receivable	171,327,000,317	233,192,607,955	366,865,111,272
Inventories	330,606,087,802	252,930,309,986	349,299,225,904
Contract assets	-	979,914,679	-
Other current assets	17,440,098,148	9,490,863,708	18,122,527,776
Non-current assets	1,339,686,360,783	1,196,680,638,899	1,171,573,724,836
Long-term trading financial assets	1,040,369,549	32,500,000	21,142,500,000
Trade and other accounts receivable	883,548,359	-	-
Long-term investment assets	23,376,057,843	24,492,063,443	35,081,486,249
Long-term loans	10,596,800,527	-	-
Investment in associates and joint ventures	8,776,408,020	9,104,020,171	16,328,276,602
Tangible properties	1,165,064,920,158	1,069,999,627,343	999,245,763,243
Right-of-use assets	58,182,699,644	16,101,459,538	15,386,726,242
Intangible assets	37,429,393,743	36,955,864,384	44,422,323,845
Investment in properties	15,104,065,924	17,055,665,021	17,212,277,612
Other non-current assets	1,950,322,430	2,344,511,421	11,327,379,952
Deferred tax assets	17,281,774,586	20,594,927,578	11,426,991,091
Total assets	2,131,709,150,029	2,119,966,956,886	3,955,632,394,256
Liabilities			
Current liabilities	718,865,361,025	645,679,130,159	1,086,649,251,139
Trade and other accounts payable	231,781,907,093	232,021,734,019	452,892,821,032
Short-term borrowings	198,755,573,825	107,636,902,688	11,671,373,163
Current portion of long-term liabilities	241,571,981,995	96,947,494,138	207,864,113,268
Current proportion of lease liabilities	11,534,922,051	3,038,108,909	2,788,637,923
Current proportion of contract liabilities	10,291,411,717	96,226,901,452	114,455,430,866
Liquidity reserve liabilities	-	-	22,437,979,100
Income taxes payable	7,825,912,130	69,339,226,370	174,009,868,314
Other current liabilities	17,103,652,214	40,468,762,583	100,529,027,473

Consolidated Statements of Financial Position

Unit: KRW

	2019	2020	2021
Liabilities			
Non-current liabilities	694,137,496,145	515,355,033,495	302,245,734,599
Bonds payable	558,680,066,667	460,480,569,890	256,063,406,698
Long-term borrowings	72,909,200,000	31,135,000,000	-
Lease liabilities	46,935,964,988	9,392,925,411	8,343,522,232
Defined benefit liabilities	7,945,076,095	7,643,269,177	4,869,971,132
Contracts liabilities	7,595,408,331	-	-
Other non-current liabilities	-	4,085,315,565	2,629,873,359
Deferred tax liabilities	71,780,064	2,617,953,452	30,338,961,178
Total liabilities	1,413,002,857,170	1,161,034,163,654	1,388,894,985,738
Equity			
Equity attributable to owners of parent	715,628,603,300	952,877,954,864	2,053,541,812,523
Issued capital	66,000,330,000	66,000,330,000	98,681,045,000
Capital surplus	264,314,596,680	264,314,596,680	1,192,768,791,273
Other components of equity	(9,889,506,203)	(18,117,669,311)	(21,346,012,463)
Accumulated other comprehensive loss	(2,594,106,840)	(2,624,096,023)	2,937,290,315
Retained earnings	397,797,289,663	643,304,793,518	780,500,698,398
Non-controlling interests	3,077,689,559	6,054,838,368	513,195,595,995
Total equity	718,706,292,859	958,932,793,232	2,566,737,408,518
Total liabilities and equity	**2,131,709,150,029**	**2,119,966,956,886**	**3,955,632,394,256**

Consolidated Statements of Comprehensive Income

Unit: KRW

	2019	2020	2021
Sales	1,112,918,780,388	1,198,780,770,389	2,089,631,876,416
Cost of sales	841,891,816,357	810,782,693,273	1,208,252,148,242
Gross profit	271,026,964,031	387,998,077,116	881,379,728,174
Selling and administrative expenses	229,794,200,331	232,640,102,759	326,193,817,735
Operating income	41,232,763,700	155,357,974,357	555,185,910,439
Other income	9,265,991,579	12,567,892,627	27,409,549,709
Other expenses	38,384,532,975	27,815,467,546	44,231,104,316
Financial income	25,984,691,261	44,134,696,501	62,588,844,094
Financial costs	54,254,629,693	60,130,736,952	63,950,494,455
Equity method gains on associate and joint venture investment	2,041,587,778	1,757,212,860	1,618,945,234
Profit(losses) before income tax from continuing operations	(14,114,128,350)	125,871,571,847	538,621,650,705
Income tax expense from continuing operations	8,882,122,426	35,924,417,422	168,012,085,990
Profit for the year from continuing operations	(22,996,250,776)	89,947,154,425	370,609,564,715
Profit before income tax from discontinued operations	36,962,802,883	218,381,756,938	(134,418,662,607)
Income tax expense from discontinued operations	8,944,998,298	53,167,701,588	(32,552,435,910)
Profit for the year from discontinued operations	28,017,804,585	165,214,055,350	(101,866,226,697)
Profit before income tax	22,848,674,533	344,253,328,785	404,202,988,098
Income tax expense	17,827,120,724	89,092,119,010	135,459,650,080
Profit for the year	5,021,553,809	255,161,209,775	268,743,338,018
Other comprehensive income	(4,036,863,352)	(2,877,570,874)	(251,006,594)
Other comprehensive income to be reclassified to profit or loss in subsequent periods			
Equity adjustments in equity method	17,308,041	307,469,584	66,701,118
Gain (Loss) from translation of foreign operations	579,448,852	(194,585,531)	4,238,697,803
Loss on valuation of derivatives	(76,943,579)	(145,731,021)	1,194,758,118
Other comprehensive income not to be reclassified to profit or loss in subsequent periods			
Re-measurement loss on defined benefit plans	(4,556,676,666)	(2,844,723,906)	(5,751,163,633)

Consolidated Statements of Comprehensive Income

Unit: KRW

	2019	2020	2021
Total comprehensive income (loss), net of tax	984,690,457	252,283,638,901	268,492,331,424
Profit (loss) from continuing operations attributable to:			
Owners of parent	(17,420,365,921)	89,106,714,563	270,006,042,994
Non-controlling interests	(5,575,884,855)	840,439,862	100,603,521,721
Profit (loss) attributable to:			
Owners of the parent	10,597,438,664	254,320,769,913	168,139,816,297
Non-controlling interests	(5,575,884,855)	840,439,862	100,603,521,721
Total comprehensive income (loss) attributable to:			
Owners of the parent	6,589,776,677	251,484,529,872	168,640,349,018
Non-controlling interests	(5,605,086,220)	799,109,029	99,851,982,406
Earnings (loss) per share			
Common stock earnings per share			
Common stock earnings (loss) per share from continuing operations	(1,318)	4,533	14,007
Common stock earnings per share from discontinued operations	2,120	8,414	(5,421)
Common stock earnings (loss) per share from continuing operations		4,523	13,921
Common stock earnings per share from discontinued operations		8,378	
Preferred stock earning (loss) for share			
Preferred stock earnings (loss) per share from continuing operations	(1,400)	4,576	11,909
Preferred stock earnings per share form discontinued operations	2,252	8,405	(3,273)

SOCIAL VALUE

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Discharge of water pollutants	SK chemicals Ulsan Plant	Amount of discharge	ton	887,315	1,223,845	1,290,883	5.5%	
		BOD Concentration	ppm	1.3	0.2	1.8	800.0%	
		BOD Emissions	ton	1.15	0.24	2.32	849.3%	
		COD Concentration	ppm	16.21	13.5	14.78	9.4%	
		COD Emissions	ton	14.38	16.52	19.07	15.4%	
		SS Concentration	ppm	2.18	2.1	2.0	-5.5%	
		SS Emissions	ton	1.93	2.57	2.56	-0.3%	
		Total water pollutant emissions	ton	17.47	19.34	23.96	23.9%	
	SK multi utility Ulsan Plant	Amount of discharge	ton	-	-	2,002	-	
		BOD Concentration	ppm	-	-	1.8	-	
		BOD Emissions	ton	-	-	0.004	-	
		COD Concentration	ppm	-	-	14.78	-	
		COD Emissions	ton	-	-	0.03	-	
		SS Concentration	ppm	-	-	2.0	-	
		SS Emissions	ton	-	-	0.004	-	
		Total water pollutant emissions	ton	-	-	0.04	-	
	SK bioscience Andong Plant (L HOUSE)	Amount of discharge	ton	72,288	86,683	100,904	16.4%	
		BOD Concentration	ppm	107.4	223.6	317.9	42.2%	
		BOD Emissions	ton	78	194	321	65.5%	
		COD Concentration	ppm	79.4	110.5	173.0	56.6%	
		COD Emissions	ton	57.4	95.8	174.6	82.2%	
		SS Concentration	ppm	36.4	46.4	74.0	59.5%	
		SS Emissions	ton	3	4	7	85.6%	
		Total water pollutant emissions	ton	137.67	293.63	502.80	71.2%	
	SK chemicals Cheongju Plant (S HOUSE)	Amount of discharge	ton	24,237	19,289	19,126	-0.8%	
		BOD Concentration	ppm	3	10	14	43.2%	
		BOD Emissions	ton	0.07	0.18	0.26	41.9%	
		COD Concentration	ppm	17	47	50	6.4%	
		COD Emissions	ton	0.42	0.90	0.95	5.5%	
		SS Concentration	ppm	10	29	42	45.1%	
		SS Emissions	ton	0.25	0.55	0.79	43.9%	
		Total water pollutant emissions	ton	0.74	1.64	2.01	22.5%	
	Total	Total BOD Emissions	ton	78.86	194.25	323.36	66.5%	
		Total COD Emissions	ton	72.20	113.21	194.62	71.9%	
		Total SS Emissions	ton	4.82	7.14	10.83	51.6%	
		Total water pollutant emissions	ton	155.88	314.61	528.81	68.1%	
		Total basic unit of water pollutant discharge	ton/KRW 100 million	0.014	0.026	0.025	-3.6%	

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Water	SK chemicals	Water intake (Han River water supply)	ton	69,470	70,351	66,396	-5.6%	
Consumption	Headquarters	Groundwater consumption	ton	3,633	2,654	3,417	28.7%	
	(ECO Lab)	Recycled water volume	ton	0	0	0	No change	
		Water usage	ton	73,103	73,005	69,813	-4.4%	
		water recycling rate	%	0	0	0	No change	
		Wastewater discharge	ton	32,095	31,976	29,733	-7.0%	
	SK chemicals	Water intake (Nakdonggang River water supply)	ton	7,426,416	7,131,235	8,088,986	13.4%	SK multi utility included
	Ulsan Plant	Groundwater consumption	ton	0	0	0	No change	
		Recycled water volume	ton	3,147,872	2,995,905	2,914,741	-2.7%	
		Water usage	ton	10,574,288	10,127,140	11,003,727	8.7%	
		water recycling rate	%	30	30	26	-10.5%	
		Wastewater discharge	ton	887,315	1,223,845	1,290,883	5.5%	
	SK bioscience	Water intake (Lake Andong)	ton	104,436	118,704	138,720	16.9%	
	Andong Plant	Groundwater consumption	ton	0	0	0	No change	
	(L HOUSE)	Recycled water volume	ton	9,504	9,504	9,504	No change	
		Water usage	ton	113,940	128,208	148,224	15.6%	
		water recycling rate	%	9	8	7	-14.4%	
		Wastewater discharge	ton	72,288	86,683	100,904	16.4%	
	SK chemicals	Water intake (Daecheong Lake)	ton	50,671	45,075	46,601	3.4%	
	Cheongju Plant	Groundwater consumption	ton	0	0	0	No change	
	(S HOUSE)	Recycled water volume	ton	0	0	0	No change	
		Water usage	ton	50,671	45,075	46,601	3.4%	
		water recycling rate	%	0	0	0	No change	
		Wastewater discharge	ton	29,974	23,779	23,935	0.7%	
	Total	Total water intake	ton	7,650,993	7,365,365	8,340,703	13.2%	
		Water intake (KRW unit)	ton/ KRW 100 million	687	614	399	-35.0%	
		Total groundwater consumption	ton	3,633	2,654	3,417	28.7%	
		Total recycled water volume	ton	3,157,376	3,005,409	2,924,245	-2.7%	
		Total water usage	ton	10,812,002	10,373,428	11,268,365	8.6%	
		Total wastewater discharge	ton	1,021,672	1,366,283	1,445,455	5.8%	

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Waste generation	SK chemicals	Amount of general waste generated	ton	121	99	97	-2.6%	
	Headquarters	Designated waste generation	ton	42	45	58	29.6%	
	(ECO Lab)	Total waste generation (General + Designated)	ton	162	144	155	7.5%	
		Amount of waste incineration	ton	0	0	0	No change	
		Amount of landfills	ton	0	0	0	No change	
		Amount of recycle	ton	0	0	0	No change	
		Recycling rate	%	0	0	0	No change	
	SK chemicals	Amount of general waste generated	ton	24,562	25,304	7,043	-72.2%	
	Ulsan Plant	Designated waste generation	ton	7,152	7,882	9,672	22.7%	
		Total waste generation (General + Designated)	ton	31,714	33,186	16,715	-49.6%	
		Amount of waste incineration	ton	427	683	1,707	149.9%	
		Amount of landfills	ton	4,523	6,021	1,807	-70.0%	
		Amount of recycle	ton	26,724	26,411	13,200	-50.0%	
		Recycling rate	%	84	80	79	-0.8%	
	SK multi utility	Amount of general waste generated	ton	-	-	19,442	-	
	Ulsan Plant	Designated waste generation	ton	-	-	17	-	
		Total waste generation (General + Designated)	ton	-	-	19,459	-	
		Amount of waste incineration	ton	-	-	0	-	
		Amount of landfills	ton	-	-	1,811	-	
		Amount of recycle	ton	-	-	17,648	-	
		Recycling rate	%	-	-	91	-	
	SK bioscience	Amount of general waste generated	ton	182	299	435	45.5%	
	Andong Plant	Designated waste generation	ton	93	54	42	-22.2%	
	(L HOUSE)	Total waste generation (General + Designated)	ton	275	353	477	35.1%	
		Amount of waste incineration	ton	65	138	203	47.1%	
		Amount of landfills	ton	0	0	0	No change	
		Amount of recycle	ton	118	161	232	44.1%	
		Recycling rate	%	43	46	49	6.6%	

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Waste generation	SK chemicals Cheongju Plant (S HOUSE)	Amount of general waste generated	ton	186	168	175	4.1%	
		Designated waste generation	ton	2,173	2,073	2,286	10.3%	
		Total waste generation (General + Designated)	ton	2,358	2,241	2,461	9.8%	
		Amount of waste incineration	ton	2,301	1,753	1,228	-29.9%	
		Amount of landfills	ton	0	0	0	No change	
		Amount of recycle	ton	72	488	1,285	163.2%	
		Recycling rate	%	3	22	52	139.6%	
	Total	Total amount of general waste generated	ton	25,050	25,870	27,192	5.1%	
		Total designated waste generation	ton	9,459	10,054	12,075	20.1%	
		Total waste generation (General + Designated)	ton	34,510	35,924	39,267	9.3%	
		Total amount of waste incineration	ton	2,793	2,574	3,138	21.9%	
		Total amount of landfills	ton	4,523	6,021	3,618	-39.9%	
		Total amount of recycle	ton	26,914	27,060	32,365	19.6%	
		Total recycling rate	%	78	75	82	9.4%	
		Total waste (KRW unit)	ton/ KRW 100 million	3.1	3.0	1.9	-37.3%	
GHG emissions*	SK chemicals	Direct greenhouse gas emissions (Scope 1)	tCO_2eq	403,124	399,090	57,311	-85.6%	
		Indirect greenhouse gas emissions (Scope 2)	tCO_2eq	109,661	98,594	256,206	159.9%	
		Other greenhouse gas emissions (Scope 3)	tCO_2eq	12,677	13,415	214,705	1,500.5%	Only includes Category 15 (emissions by subsidiaries). Removed 176,623 tCO_2eq by SK multi utility
		Total greenhouse gas emissions (Scope 1+2)	tCO_2eq	512,785	497,684	313,517	-37.0%	
	SK multi utility	Direct greenhouse gas emissions (Scope 1)	tCO_2eq	0	0	341,167	-	
		Indirect greenhouse gas emissions (Scope 2)	tCO_2eq	0	0	30,804	-	
		Total greenhouse gas emissions (Scope 1+2)	tCO_2eq	0	0	371,971	-	
	SK bioscience	Direct greenhouse gas emissions (Scope 1)	tCO_2eq	3,661	4,013	4,734	18.0%	
		Indirect greenhouse gas emissions (Scope 2)	tCO_2eq	9,016	9,402	11,542	22.8%	
		Total greenhouse gas emissions (Scope 1+2)	tCO_2eq	12,677	13,415	16,276	44.3%	
Raw material usage	SK chemicals Ulsan Plant		ton	199,731	221,988	224,654	1.2%	
	SK bioscience Andong Plant (L HOUSE)		ton	340	374	524	40.1%	
	SK chemicals Cheongju Plant (S HOUSE)		ton	1,120	543	657	21.0%	
	Total		ton	201,191	222,905	225,835	1.3%	

※ Due to the spin-off of SK multi utility in December 2021, previously confirmed emission data has changed.

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Energy use*	SK chemicals	Coal	ton	138,785	144,471	0	-100.0%	
			TJ	3,580	3,727	0	-100.0%	
		Waste wood	ton	67,947	71,605	0	-100.0%	
		Gasoline	kl	44	50	63	26.0%	
			TJ	1	2	2	No change	
		Diesel	kl	96	67	46	-31.3%	
			TJ	3	3	2	-33.3%	
		Refined oil	ton	2,951	1,404	0	-100.0%	
			TJ	86	60	0	-100.0%	
		B-C Oil	kl	2	0	0	No change	
			TJ	0	0	0	No change	
		Liquefied natural gas	km^3	12,689	14,346	19,945	39.0%	
			TJ	553	626	860	37.4%	
		LPG	kl	0	0	11	100.0%	
			TJ	0	0	0	No change	
		Biogas	ton	9,565	172	-	-	To be calculated when the Ministry of Environment announces variables in 2021
			TJ	528	8	-	-	
		Propane	ton	10,875	7,399	9,166	23.9%	
			TJ	524	372	461	23.9%	
		Electricity	MWh	220,423	202,972	172,335	-15.1%	
			TJ	2,116	1,949	1,654	-15.1%	
		Steam	TJ	2,292	2,339	2,742	17.2%	
		Limestone	ton	3,742	4,104	0	-100.0%	
		Total energy use	TJ	9,683	9,086	5,721	-37.0%	

※ Due to the spin-off of SK multi utility in December 2021, previously confirmed data has changed.

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Energy use	SK multi utility	Coal	ton	-	-	128,177	-	
			TJ	-	-	3,179	-	
		Waste wood	ton	-	-	67,751	-	
		Gasoline	kl	-	-	73	-	
			TJ	-	-	3	-	
		Diesel	ton	-	-	2,064	-	
		Electricity	MWh	-	-	152,428	-	
			TJ	-	-	1,463	-	
		Limestone	ton	-	-	5,087	-	
		SF6	kg	-	-	900	-	
		Total energy use	TJ	-	-	4,645	-	
	SK bioscience	Liquefied natural gas	km^3	1,789	1,950	2,156	10.6%	
	Andong Plant		TJ	78	85	94	10.6%	
	(L HOUSE)	Electricity	MWh	20,104	21,667	25,104	15.9%	
			TJ	193	208	241	16.1%	
		Total energy use	TJ	271	292	335	14.5%	

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Energy use	Total	Total coal	ton	138,785	144,471	128,177	-11.3%	
			TJ	3,580	3,727	3,179	-14.7%	
		Total waste wood	ton	67,947	71,605	67,751	-5.4%	
		Total gasoline	kl	44	50	63	26.0%	
			TJ	1	2	2	No change	
		Total diesel	kl	96	67	119	77.6%	
			TJ	3	3	5	66.7%	
		Total refined oil	ton	2,951	1,404	2,064	47.0%	
			TJ	86	60	0	-99.9%	
		Total B-C Oil	kl	2	0	0	No change	
			TJ	0	0	0	No change	
		Total liquefied natural gas	km^3	14,478	16,296	22,101	35.6%	
			TJ	631	711	954	34.2%	
		Total LPG	kl	0	0	11	100.0%	
		Total Biogas	ton	9,565	172	0	-	
			TJ	528	8	0	-	
		Total Propane	ton	10,875	7,399	9,166	23.9%	
			TJ	524	372	461	23.9%	
		Total Electricity	MWh	240,527	224,639	349,867	55.7%	
			TJ	2,309	2,157	3,358	55.7%	
		Total steam	TJ	2,292	2,339	2,742	17.2%	
		Total limestone	ton	3,742	4,104	5,087	24.0%	
		Total SF6	kg	0	0	900	100.0%	
		Total energy use	TJ	9,954	9,378	10,701	14.1%	
		Energy Intensity	TJ/KRW 100 million	0.894	0.782	0.512	-34.5%	

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Renewable energy generation	SK chemicals Headquaters (ECO Lab)	Solar power	MWh	8	9	8	-7.4%	
		Geothermal heat	Gcal	70	0	0	No change	
			MWh	81	0	0	No change	
		Total renewable energy use	MWh	89	9	8	-7.4%	
Energy External Purchase	SK chemicals	Electricity-non-renewable electricity	MWh	220,423	202,972	172,335	-15.1%	
		Electricity-renewable electricity	MWh	0	0	0	No change	
		Total electricity	MWh	220,423	202,972	172,335	-15.1%	
		Steam-waste heat/incineration heat	TJ	86	76	0	-100.0%	
		Steam-other	TJ	2,292	2,339	2,742	17.2%	In December of 21, SK multi utility was splited, so steam was purchased and used
		Total steam (waste heat/incineration heat/other)	TJ	2,378	2,415	2,742	13.5%	
	SK multi utility	Electricity-non-renewable electricity	MWh	-	-	152,428	-	
		Total electricity	MWh	-	-	152,428	-	
	Total	Total Electricity External Purchases	MWh	220,423	202,972	324,763	60.0%	
		Total Steam External Purchase	TJ	2,378	2,415	2,742	13.5%	
Energy External Sales	SK chemicals Ulsan Plant	Electricity	TJ	474	170	0	-100.0%	In December of 21, SK multi utility was splited, so there is no energy sales
		Heat	TJ	2,687	2,384	0	-100.0%	
		Total Energy External Sales (Electricity + Heat)	TJ	3,161	2,554	0	-100.0%	
	SK multi utility Ulsan Plant	Electricity	TJ	-	-	1,637	-	In December of 21, SK multi utility was splited, so there is new energy sales (to SK chemicals)
		Heat	TJ	-	-	4,966	-	
		Total Energy External Sales (Electricity + Heat)	TJ	-	-	6,603	-	
	Total	Total Electricity External Sales	TJ	474	170	1,637	864.0%	
		Total Heat External Sales	TJ	2,687	2,384	4,966	108.3%	
		Total Energy External Sales	TJ	3,161	2,554	6,603	158.6%	

Environment

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Air Pollutants	SK chemicals	Dust	mg/S㎥	3.6	3.8	3.6	-5.8%	
	Ulsan Plant	Sulfur Oxides (Sox)	ppm	43.3	30.1	32.5	7.9%	
		Nitrogen Oxide(Nox)	ppm	60.3	42.1	43.3	2.9%	
		Volatile Organic Compounds(VOCs)	ppm	0.4	0.6	0.5	-20.0%	
	SK multi utility	Dust	mg/S㎥	-	-	3.1	-	
	Ulsan Plant	Sulfur Oxides (Sox)	ppm	-	-	21.6	-	
		Nitrogen Oxide(Nox)	ppm	-	-	39.1	-	
		Volatile Organic Compounds(VOCs)	ppm	-	-	0	-	
	SK bioscience	Dust	mg/S㎥	-	-	2.5	-	
	Andong Plant	Sulfur Oxides (Sox)	ppm	-	-	11.0	-	
	(L HOUSE)	Nitrogen Oxide(Nox)	ppm	-	-	38.3	-	
		Volatile Organic Compounds(VOCs)	ppm	-	-	0	-	
	SK chemicals	Dust	mg/S㎥	3.2	4.4	3.0	-33.3%	
	Cheongju Plant	Sulfur Oxides (Sox)	ppm	0	0	0	No change	
	(S HOUSE)	Nitrogen Oxide(Nox)	ppm	47.8	64.9	30.5	-53.0%	
		Volatile Organic Compounds(VOCs)	ppm	77.8	85.4	61.5	-27.9%	
	Total	Total Dust	mg/S㎥	6.8	8.2	12.1	48.2%	
		Total Sulfur Oxides (Sox)	ppm	43.3	30.1	65.1	116.3%	
		Total Nitrogen Oxide(Nox)	ppm	108.1	107.0	151.2	41.3%	
		Total Volatile Organic Compounds(VOCs)	ppm	78.2	86.0	62.0	-27.9%	
Environmental investment costs	SK chemicals		KRW 100 million	42.7	39.0	65.1	66.7%	
	SK bioscience		KRW 100 million	2.6	2.5	3.2	26.0%	
Violation of environmental regulations	Total	Fine-Number of cases	Number of cases	1	0	0	No change	
		Fine - Amount	KRW one million	0.5	0	0	No change	
		Fine (over US$10,000) - Number of cases	Number of cases	0	0	0	No change	
		Fine (over US$10,000) - Amount	KRW one million	0	0	0	No change	

Social

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Social Value	Economic Indirect Contribution Performance	Employment	KRW 100 Million	1,471	1,450	2,199	51.7%	
		A Dividend	KRW 100 Million	60	262	588	124.4%	
		Payment of Taxes	KRW 100 Million	279	890	2,180	144.9%	
		Total	KRW 100 Million	1,810	2,602	4,967	90.9%	
	Environmental Performance	Products/Services	KRW 100 Million	393	510	526	3.1%	
		Environment (Process)	KRW 100 Million	-589	-580	-408	29.7%	
		Total	KRW 100 Million	-196	-70	118	268.6%	
	Social Performance	Quality of Life	KRW 100 Million	448	519	1,495	188.1%	
		Labor	KRW 100 Million	23	11	35	218.2%	
		Co-Growth	KRW 100 Million	21	21	13	-38.1%	
		Social Contribution	KRW 100 Million	5	40	67	67.5%	
		Total	KRW 100 Million	497	591	1,610	172.4%	
Improvement in health Program	Smoking Cessation Program	Number of successful People in smoking cessation programs	Person	1	3	4	33.3%	
	Obesity Escape Program	Number of successful People in obesity escape programs	Person	15	20	13	-35.0%	
	10,000 Steps Walking Program	Number of successful People in 10,000 Steps Walking Programs	Person	32	43	32	-25.6%	
	Total	Total	Person	48	66	49	-25.8%	
Health promotion of workers	SK chemicals	Comprehensive Medical Examination	Person	1,127	1,393	1,041	-25.3%	
		General Medical Examination	Person	1,428	1,731	1,411	-18.5%	
		Special Medical Examination	Person	738	704	716	1.7%	
	SK multi utility	Comprehensive Medical Examination	Person	-	-	57	-	
		General Medical Examination	Person	-	-	57	-	
		Special Medical Examination	Person	-	-	37	-	
	SK bioscience	Comprehensive Medical Examination	Person	175	31	197	535.5%	
		General Medical Examination	Person	94	53	468	783.0%	
		Special Medical Examination	Person	121	375	330	-12.0%	
	Total	Comprehensive Medical Examination	Person	1,302	1,418	1,295	-8.7%	
		General Medical Examination	Person	1,538	1,844	1,936	5.0%	
		Special Medical Examination	Person	852	1,098	1,083	-1.4%	
Work-related Illness	Number of work-related disease outbreaks		Number	0	0	0	–	
	Death toll from work-related illnesses		Number	0	0	0	–	

Social

Main Categorty	Sub Category I	Sub Category II		Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Work-related Injuries	Number of disasters			Number	11	12	4	-66.7%	Criteria for the number of disasters: All accidents requiring more than one day of treatment Ulsan/Cheongju/Basa/ Research Institute.Including Headquarters Excluding Affiliates/Subcontractors
	Death toll			Number	0	0	0	No change	
	Days lost			Day	209	73	150	105.5%	
	Lost Time Incident Rate(LTIR)			-	0.62	0.59	0.23	-60.6%	Lost Time Incident Rate (LTIR): Number of accidents X 200,000/ (total number of members X number of working days X 8 hours)
Total Workforce Composition	SK chemicals	Male	Permanent Employee	Person	1,290	1,225	1,195	-2.4%	
			Temporary Employee	Person	20	18	65	261.1%	
			Total	Person	1,310	1,243	1,260	1.4%	
		Female	Permanent Employee	Person	278	269	276	2.6%	
			Temporary Employee	Person	26	26	29	11.5%	
			Total	Person	304	295	305	3.4%	
	SK biosceince	Male	Permanent Employee	Person	303	391	415	6.1%	
			Temporary Employee	Person	28	165	221	33.9%	
			Total	Person	331	556	636	14.4%	
		Female	Permanent Employee	Person	129	184	260	41.3%	
			Temporary Employee	Person	12	92	111	20.7%	
			Average	Person	141	276	371	34.4%	
Status of manpower composition by employment type	SK chemicals	Permanent Employee		Person	1,568	1,494	1,471	-1.5%	
		Temporary Employee		Person	46	44	94	113.6%	
	SK bioscience	Permanent Employee		Person	432	575	675	17.4%	
		Temporary Employee		Person	40	257	332	29.2%	
Executive staff composition status	SK chemicals	Male		Person	22	21	22	4.8%	
		Female		Person	0	0	0	No change	
		Percentage of Female Executives		%	0	0	0	No change	
	SK bioscience	Male		Person	12	17	25	47.1%	
		Female		Person	3	4	6	50.0%	
		Percentage of Female Executives		%	20	19	19	No change	
Administrator Staff Configuration Status	SK chemicals	Male		Person	149	148	148	No change	
		Female		Person	7	8	9	12.5%	
		Percentage of Female Executives		%	4.7	5.4	6.1	12.5%	
	SK bioscience	Male		Person	42	60	74	23.3%	
		Female		Person	8	12	20	66.7%	
		Percentage of Female Executives		%	16.0	16.7	21.3	27.7%	

Social

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Status of Workforce Composition by Age	SK chemicals	Over 50 years old	Person	316	336	336	-3.3%	
		30 to 50 years of age	Person	1,032	980	980	4.1%	
		under 30s	Person	266	222	222	-0.9%	
	SK biosceince	Over 50 years old	Person	22	34	39	14.7%	
		30 to 50 years of age	Person	297	397	422	6.3%	
		under 30s	Person	153	401	546	36.2%	
Staff composition status by category	SK chemicals	Employment status for the disabled	Person	23	39	44	12.8%	The employment status of the disabled includes GC+LS based on the employment share report for the disabled
		Employment status of national veterans	Person	30	29	26	-10.3%	
		Foreign employment status	Person	0	0	0	No change	
	SK biosceince	Employment status for the disabled	Person	10	21	43	104.8%	
		Employment status of national veterans	Person	0	0	1	100.0%	
Number of new employees	SK chemicals	Male	Person	79	67	108	61.2%	
		Female	Person	46	35	40	14.3%	
	SK biosceince	Male	Person	59	90	363	303.3%	
		Female	Person	30	67	240	258.2%	
Number of retirees	SK chemicals	Male	Person	57	119	232	95.0%	
		Female	Person	29	23	45	95.7%	
		Total	Person	86	142	277	95.1%	
Number of new employees by position	SK chemicals	G3, Executive	Person	4	3	1	-66.7%	
		G2	Person	20	18	20	11.1%	
		G1	Person	72	49	55	12.2%	
		G	Person	29	32	72	125.0%	

Social

Main Categorty	Sub Category I	Sub Category II		Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Childcare Leave	SK chemicals Green Chemical Business	Number of parental leave users	Male	Person	1	4	0	-100.0%	
			Female	Person	6	3	5	66.7%	
			Total	Person	7	7	5	-28.6%	
		Number of returnees after parental leave	Male	Person	1	1	3	200.0%	
			Female	Person	7	7	2	-71.4%	
			Total	Person	8	8	5	-37.5%	
		Number of employees who have worked for more than 12 months after returning to work	Male	Person	0	1	3	200.0%	
			Female	Person	7	6	0	-100.0%	
			Total	Person	7	7	3	-57.1%	
		Percentage of employees who have worked for more than 12 months after returning to work	Male	%	0	100	100	0.0%	
			Female	%	100	86	0	-100.0%	
			Average	%	50	93	50	-46.2%	
	SK biosceince Life Science Business	Number of parental leave users	Male	Person	1	2	4	100.0%	
			Female	Person	11	11	12	9.1%	
			Total	Person	12	13	16	23.1%	
		Number of returnees after parental leave	Male	Person	1	2	3	50.0%	
			Female	Person	8	7	5	-28.6%	
			Total	Person	9	9	8	-11.1%	
		Number of employees who have worked for more than 12 months after returning to work	Male	Person	1	2	1	-50.0%	
			Female	Person	8	7	5	-28.6%	
			Total	Person	9	9	6	-33.3%	
		Percentage of employees who have worked for more than 12 months after returning to work	Male	%	100	100	33	-66.7%	
			Female	%	100	100	100	No change	
			Average	%	100	100	67	-33.3%	
	SK biosceince	Number of parental leave users	Male	Person	1	0	4	100.0%	
			Female	Person	5	6	11	83.3%	
			Total	Person	6	6	15	150.0%	
		Number of returnees after parental leave	Male	Person	1	0	2	100.0%	
			Female	Person	5	6	5	-16.7%	
			Total	Person	6	6	7	16.7%	
		Number of employees who have worked for more than 12 months after returning to work	Male	Person	0	1	1	No change	
			Female	Person	0	5	8	60.0%	
			Total	Person	0	6	9	50.0%	
		Percentage of employees who have worked for more than 12 months after returning to work	Male	%	100	0	50	50.0%	
			Female	%	100	100	47	-53.3%	
			Average	%	100	50	48	-3.3%	

Social

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Retirement Pension	SK chemicals	Retirement pension operating amount (DB, defined benefit type)	KRW 100 Million	986	1,022	1,078	5.5%	
		Number of retirement pension subscribers (DB, defined benefit type)	Person	1,354	1,260	1,182	-6.2%	
	SK bioscience	Retirement pension operating amount (DB, defined benefit type)	KRW 100 Million	176	243	208	-14.7%	
		Number of retirement pension subscribers (DB, defined benefit type)	Person	379	406	301	-25.9%	
Labor Union and Labor Council Membership Statusl	SK chemicals	No. of members of the labor union	Person	608	421	415	-1.4%	
		Percentage of members of the labor union	%	31	28	29	3.2%	
		Number of labor-management conferences held	Number	4	4	4	No change	
		Application ratio of collective agreement	%	100	100	100	No change	
Performance evaluation review rate	SK chemicals	Number of workers subject to periodic performance assessment review	Person	1,337	1,418	858	-39.5%	
		Number of workers undergoing regular performance assessment	Person	1,254	1,317	827	-37.2%	
		Percentage of workers who have undergone a regular performance assessment	%	93.8	92.9	96.4	3.8%	
Equal pay ratio between men and women*	SK chemicals	Management position	Times	1.17	1.33	1.34	0.8%	* Equal pay ratio for men and women: the ratio of average basic salary to average basic salary for men
		Non-Management position	Times	1.28	1.25	1.28	2.4%	
	SK bioscience	Management position**	TImes	0.99	1.04	0.98	-5.8%	** Management: Group of Team Leader and Above
		Non-Management position	Times	1.07	1.08	1.01	-5.8%	

Social

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Educational hours and educational investment expenses	SK chemicals	Average annual education hours per person	Hour	23.2	47.4	47.3	-0.3%	
	Green Chemical Business	Average annual cost of education per person	KRW	2,396,121	1,866,723	1,785,803	-4.3%	
		Total education hours	Hour	45,683	74,846	76,875	2.7%	
		Total educational investment	KRW 100 Million	28	23	24	2.8%	
	SK bioscience	Average annual education hours per person	Hour	30	10	6	-41.8%	
		Average annual cost of education per person	KRW	1,118,749	787,048	1,054,656	34.0%	
		Total education hours	Hour	14,372	8,498	5,537	-34.8%	
		Total educational investment	KRW 100 Million	5	7	10	50.1%	
Co-growth and win-win cooperation of partner companies	SK chemicals	Total amount of loans to partner companies	KRW 100 Million	20.1	19.0	21.1	11.1%	
		Number of partner companies that received loans	Number	8	7	7	No change	
		Number of partners whose contracts are temporarily or permanently suspended	Number	0	2	0	-100.0%	
Number of partners registered and managed	SK chemicals	Number of partners registered and managed	Number	962	1,028	1,061	3.2%	
		Purchase amount for partner companie	KRW 100 Million	7,273	7,391	9,840	33.1%	
Investment and support for social contribution	Expenses for social contribution activitie		KRW 100 Million	3.2	23.0	44.0	91.3%	
	Participation in volunteer activities	Number of volunteers participating	Person	621	353	201	-40.2%	
		Volunteer hours per person	Hour	3.5	4.6	8.1	75.2%	
	Number of environmental education		Person	1,950	30	3,822	12,640.0%	Resume the class due to the development of online textbooks
	Join Hope Maker		%	75	84	84	No change	

Governance

Main Categorty	Sub Category I	Sub Category II	Unit	2019	2020	2021	year-on-year rate of increase and decrease	Comment
Ethical management	Official Ethics Management Channel Report	Number of applications	Number of cases	5	5	5	No change	
		Number of processing cases	Number of cases	5	5	5	No change	
		Percentage of complaints resolved	%	100	100	100	No change	
	Unfair trade practices such as reduced competition, monopolies, etc., and other violations of laws	Number of violations	Number of cases	0	0	0	No change	
		Number of non-monetary sanctions	Number of cases	0	0	0	No change	
		Number of lawsuits (definite defeat)	Number of cases	0	0	o	No change	
	Violation of information protection (customer data personal information, etc.)	Number of thefts	Number of cases	0	0	0	No change	
		Number of lost cases	Number of cases	0	0	0	No change	
Customer complaints	Annual Customer Complaints DB	Number of registered and processed	Number of cases	46	51	60	17.6%	
The management of the board of directors	Number of times held	Regular board of directors	Number	12	13	17	30.8%	
	Agenda	Registered agenda	Number of cases	19	21	35	66.7%	
		Approved agenda	Number of cases	19	21	35	66.7%	
	Attendance rate	Inside director	%	100	100	97	-3.0%	
		outside director	%	97	100	100	No change	
Board Remuneration	Registered director	Total amount paid	KRW one million won	1,162	1,942	2,566	32.1%	
		Personnel	Person	2	2	2	No change	
		Average remuneration per person	KRW one million won	581	971	1,283	32.1%	
	Inside director	Total amount paid	KRW one million won	223	267	294	10.1%	
		Personnel	Person	4	3	4	33.3%	
		Average remuneration per person	KRW one million won	56	89	74	-16.9%	
Shareholder composition	Stocks held and share ratio	SK discovery Co., Ltd	Number of shares	3,930,310	3,930,310	6,137,781		* Share ratio is based on the total number of issued stocks with voting rights (19,736,209 shares) (common stock + preferred stock) * No. of shares held: Based on the 2021 Business Report in DART (common stock + preferred stock)
			%	29.77	29.77	31.10		
		Chey Chang-won and related people	Number of shares	333,517	255,517	383,273		
			%	2.53	1.94	1.94		
		National Pension Service	Number of shares	851,540	1,179,620	1,430,519		
			%	6.45	8.94	7.25		
		Treasury stocks	Number of shares	13,064	157,779	178,990		
			%	0.10	1.20	0.91		
		Minority shareholders	Number of shares	8,071,635	7,676,840	11,605,646		
			%	61.15	58.16	58.80		
		Total	Number of shares	13,200,066	13,200,066	19,736,209		
			%	100.00	100.00	100.00		
Dividend status	Common stock	Share dividend (won/share)	Common stock	450	2,000	3,000	50.0%	
		Number of dividend shares (KRW 1,000/share)	Common stock	11,730	11,729	17,590	50.0%	
		Market price dividend rate (%)	Common stock	0.7	0.5	2.0	300.0%	
	Preferred stock	Share dividend (won/share)	Preferred stock	500	2,050	3,050	48.8%	
		Number of dividend shares (KRW 1,000/share)	Preferred stock	1,457	1,314	1,967	49.7%	
		Market price dividend rate (%)	Preferred stock	1.8	1.2	3.3	175.0%	

GLOBAL INITIATIVE REPORT

UN SDGs

Stakeholders' expectations for SDGs

SK chemicals aims to implement sustainable management based on stakeholder participation. As a member of the international community, we would like to closely examine what issues SK chemicals want to contribute to, identify the differences between stakeholders' perceptions and our current status, and establish a virtuous cycle system that reflects ESG management strategy. We asked internal and external stakeholders for their opinions and confirmed that it is in line with SK chemicals' ESG management strategy.

What social issues (SDGs, global sustainability goals) do you think can be solved with SK chemicals' expertise and characteristics? (Multiple answers possible)?

SDGs	Ranking anticipated by SK chemicals stakeholders	No. of responses	SDGs	Ranking anticipated by SK chemicals stakeholders	No. of responses	SDGs	Ranking anticipated by SK chemicals stakeholders	No. of responses
13 CLIMATE ACTION	Dealing with climate change and its impacts	198	14 LIFE BELOW WATER	Protecting marine and coastal ecosystems	78	4 QUALITY EDUCATION	Inclusive and equal quality education	44
8 DECENT WORK AND ECONOMIC GROWTH	Creation of productive employment and quality jobs	180	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Establishment of social infrastructure and promotion of industrialization	74	6 CLEAN WATER AND SANITATION	Ensuring water access, safety and public sanitation	37
17 PARTNERSHIPS FOR THE GOALS	Strengthening of global partnership for sustainable development	166	7 AFFORDABLE AND CLEAN ENERGY	Ensuring energy access	73	11 SUSTAINABLE CITIES AND COMMUNITIES	Ensuring safe housing and access to basic living infrastructure	29
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Reducing depletion of natural resources and waste generation	159	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Eradication of illegal acts such as violence and corruption	61	2 ZERO HUNGER	Prevention of food crises such as hunger and malnutrition	20
3 GOOD HEALTH AND WELL-BEING	Strengthening healthcare for health and well-being	126	15 LIFE ON LAND	Protection of terrestrial ecosystems such as forests and wetlands	52	1 NO POVERTY	Eradicating poverty in all its forms across the globe	19
10 REDUCED INEQUALITIES	Prevention of all kinds of discrimination	81	5 GENDER EQUALITY	Achieving gender equality, empowering women and girls	51			

UN SDGs

17 major goals and 169 targets are integrated into the Sustainable Development Goals (SDGs) by the UN under the slogan of "Leave no one behind." By selecting 11 goals from the SDGs according to our business characteristics of providing eco-friendly materials and total healthcare solutions, SK chemicals is carrying out related activities. In the future, we plan to expand the scope of our activities and conduct activities in consideration of more goals.

UN SDGs Indicator		Major Activities	Pages
GOAL3 	Ensure healthy lives and promote well-being for all at all ages	Contributing to disease treatment through pharmaceutical business Contributing to disease prevention through vaccine business	35~45
GOAL4 	Ensure inclusive and equitable quality education and promoting lifelong learning opportunities	Supporting to earn job-related degrees and certificates Implementing personal information protection and security training Providing safety training and education for the company and for partner companies Supporting training for partner companies to strengthen their competitiveness Offering an environmental education program for elementary school students Providing a career education program for low-income youth	67, 71~73
GOAL6 	Ensure availability and sustainable management of water and sanitation for all	Reducing wastewater by establishing eco-friendly process and sites	51
GOAL7 	Ensure access to affordable, reliable, sustainable and modern energy for all	Raising energy efficiency through the establishment and operation of ecofriendly business sites Converting to high-calorie fuel and increasing the usage rate of renewable energy Supporting the use of energy through our Myanmar Cookstove supply project	54~55
GOAL8 	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Creating quality jobs through making support system and policies. Encouraging the growth of partner companies through financial support programs	64~67 69~70
GOAL9 	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Investing more in R&D regarding the protection of global environment Rigorously investing in R&D regarding the improvement of human health	50 13~21

UN SDGs Indicator		Major Activities	Pages
GOAL10 	Reduce inequality within and among countries	Mitigating inequality through human rights system	64
GOAL12 	Ensure sustainable consumption and production patterns	Striving to recycle wastewater or waste materials generated in the course of production	51, 53
GOAL13 	Take urgent action to combat climate change and its impacts	Newly establishing and operating a management organization solely responsible for climate change risk Establishing and implementing goals for GHG reduction and biomaterial development Making efforts to mitigate GHG emissions through the use of waste resources	53~55 57
GOAL14 	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Reducing marine pollution risks through the development of eco-friendly plastic products	57
GOAL17 	Strengthen the means of implementation and revitalize the global partnership for sustainable development	Evaluating ESG management status of partner companies and supporting their systematization Building a comprehensive solution based on various infrastructures and partner networks Promoting global partnership activities for sustainable management	69~70

TCFD

TCFD is an initiative enacted in 2015 by the Financial Stability Board (FSB), mandated by the G20 financial ministers and central bank governors, aiming to promote the disclosure of information related to climate change. Stakeholders in and outside Korea have utilized TCFD information in their decision-making such as in the investment decisions. Our corporate activities related to climate change are disclosed as follows in accordance with 11 detailed items based on the information disclosure framework. Furthermore, the concrete roadmap will be prepared and reported to the management following the approval process.

TCFD Recommendations		Pages	Relevant CDP questionnaire
	Governance		
a.	Disclose the board of director's oversight of climaterelated risks and opportunities	23~24, 48, 54~55	CDP_C1.1
b.	Disclose management's role in assessing and managing climaterelated risks and opportunities	13~15, 29~30, 48, 54~55	CDP_C1.2
	Strategy		
a.	Disclose climate-related risks and opportunities the organization has identified over the short, medium, and long-term	13~15, 47, 54~55, 57	CDP_C2.1, C2.2a, C2.3a, C2.4a
b.	Disclose the impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning	13~15, 47, 54~55	CDP_C2.3a, C2.4a
c.	Disclose the resilience of the organization's strategy, taking into consideration different climaterelated scenarios, including a 2℃ or lower scenario	13~15	CDP_C3.2a
	Risk Management		
a.	Disclose the organization's processes for identifying and assessing climate-related risks	23~24, 48~50, 54~55	CDP_C1.2a, C2.2
b.	Disclose the organization's processes for managing climate-related risks	23~24, 48~50, 54~55	CDP_C2.2
c.	Disclose the integration of identification, assessment, and management process of climate-related risks and company-wide risk management system	23~24, 48~50, 54~55	CDP_C2.2
	Indicators and Targets of Reduction		
a.	Disclose the indicators used by the organization to assess climate related risks and opportunities in line with its strategy and risk management process	33, 83	CDP_C4.1a
b.	Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions	54~55, 83	CDP_C6.1, C6.3, C6.5
c.	Disclose the targets used by the organization to manage climate-related risks and opportunities and performance	13~15, 47, 54~55	CDP_C4.1a

SASB

SK chemicals faithfully discloses information in accordance with the SASB guidelines, establishes a management plan for relevant information, and reports such information to the management to ensure the inclusion of the approval process.

GC

Classification	SASB Code	Accounting Metrics		Unit	Pages	Contents
SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS						
Greenhouse Gas Emissions	RT-CH-110a.1	Scope 1 Emissions		Metric tons (t) CO_2-e	83	57,311 In December 2021, SK chemicals' Scope 1 emissions were greatly reduced and Scope 2 emissions increased as SK multi utility was established by separating the utility division.
		Scope 1 Percentage covered under emissions-limiting regulations		%		100%
	RT-CH-110a.2	Scope 1 Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, analysis of performance against those targets			13~15	SK chemicals has set a goal of reducing and offsetting 50% in 2030 and 100% in 2040, to achieve the 2040 Net-Zero.
Air Quality	RT-CH-120a.1	Air emissions of the following pollutants	NOx (excluding N2O)	Metric tons (t)	88	326.5
			Sox	Metric tons (t)		225.2
			Volatile Organic Compounds (VOCs)	Metric tons (t)		6.0
			Hazardous Air Pollutants (HAPs)	Metric tons (t)		-
Energy Management	RT-CH-130a.1	Total energy consumed		Gigajoules (GJ)	84~86	10,366,088
		Percentage grid electricity		%		
		Percentage renewable		%		0.005%
		Total self-generated energy		Gigajoules (GJ)		77.8
Water Management	RT-CH-140a.1	Total fresh water withdrawn		Thousand cubic meters (m^3)	81	8,340,703
		Total water consumed		Thousand cubic meters (m^3)		11,268,365 SK chemicals calculates total water usage as total water intake + total groundwater consumption + total recycled water.
		Total water withdrawn percentage in regions with 'High' or 'Extremely High' baseline water stress		%	-	0
		Total water consumed percentage in regions with 'High' or 'Extremely High' baseline water stress		%	-	0
	RT-CH-140a.2	Number of incidents of non-compliance associated with water quality permits, standards and regulations		Number	88	0
	RT-CH-140a.3	Description of water management risks and discussion of strategies and practices to mitigate those risks			51	

SASB

GC

Classification	SASB Code	Accounting Metrics		Unit	Pages	Contents
SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS						
Hazardous Materials Management	RT-CH-150a.1	Amount of hazardous waste	Percentage generated	Metric tons (t)	82~83	4,409 SK chemicals manages wastes according to the standards prescribed by the Waste Management Act in Korea, and among them, wastes containing specific harmful substances are classified as designated wastes and legally disposed of. Designated waste is not consistent with hazardous waste defined by the SASB.
			Percentage recycled	%		82%
Community Relations	RT-CH-210a.1	Discussion of engagement processes to manage risks and opportunities associated with community interests			71	
Workforce Health & Safety	RT-CH-320a.1	Total recordable incident rate (TRIR)	Direct employees	Rate	89~90	
			Contract employees	Rate		0
		Fatality rate (fatality)	Direct employees	Rate		0
			Contract employees	Rate		0
	RT-CH-320a.2	Description of efforts to assess, monitor and reduce exposure of employees and contract workers to long-term (chronic) health risks			62~63	
Product Design for Use-phase Efficiency	RT-CH-410a.1	Revenue from products designed for use-phase resource efficiency		Reporting currency	-	-
Safety & Environmental Stewardship of Chemicals	RT-CH-410b.1	Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous		Percentage(%) by revenue	-	-
		Percentage of such products that have undergone a hazard assessment		%	-	-
	RT-CH-401b.2	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact			59~60	
Genetically Modified Organisms	RT-CH-401c.1	Percentage of products by revenue that contain genetically modified organisms (GMOs)		Percentage(%) by revenue	-	0
Management of the Legal & Regulatory Environment	RT-CH-530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry			-	
Operational Safety, Emergency Preparedness & Response	RT-CH-540a.1	Process Safety Incidents Count (PSIC)		Number	89~90	
		Process Safety Total Incident Rate (PSTIR)		Rate		
		Process Safety Incident Severity Rate (PSISR)		Rate		
	RT-CH-540a.2	Number of transport incidents		Number	-	0
ACTIVITY MERTICS						
RT-CH-000.A		Production by Reportable segment	Copolyester, DMT	Metric tons (t)	-	366,469
			BON	Metric tons (t)	-	13,058
			Tablet	Tablet	-	605,863,519
			Patch	Patch	-	38,730,028

SASB

LS

Classification	SASB Code	Accounting Metrics	Unit	Pages	Contents
SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS					
SAFETY OF CLINICAL TRIAL PARTICIPANTS	HC-BP-210a.1	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials		-	Domestic: Discussion of procedures in accordance with Subject Compensation Protocol Global: Not applicable
	HC-BP-210a.2	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI)	Number	-	Not applicable
	HC-BP-210a.3	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries	Reporting currency	-	Not applicable
ACCESS TO MEDICINES	HC-BP-240a.1	Description of actions and initiatives to promote access to health care products for priority diseases and in priority countries as defined by the Access to Medicine Index		-	Not applicable
	HC-BP-240a.2	List of products on the WHO List Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP)		-	Not applicable
AFFORDABILITY & PRICING	HC-BP-240b.1	Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved payments and/or provisions to delay bringing an authorized generic product to market for a defined time period	Number	-	Not applicable
	HC-BP-240b.2	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year	%	-	Not applicable
	HC-BP-240b.3	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year	%	-	Not applicable
DRUG SAFETY	HC-BP-250a.1	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database		-	Not applicable
	HC-BP-250a.2	Number of fatalities associated with productas reported in the FDA Adverse Event Reporting System	Number	-	Not applicable
	HC-BP-250a.3	Number of recalls issued, total units recalled	Number	-	1 (Cosca)
	HC-BP-250a.4	Total amount of product accepted for takeback, reuse, or disposal	Metric tons (t)	-	Not applicable (no products are recovered and reused)
	HC-BP-250a.5	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	Number	-	Not applicable
COUNTERFEIT DRUGS	HC-BP-260a.1	Description of methods and technologiesused to maintain traceability of products throughout the supply chain and prevent counterfeiting		-	-
	HC-BP-260a.2	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products		-	-
	HC-BP-260a.3	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products	Number	-	0
ETHICAL MARKETING	HC-BP-270a.1	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	Reporting currency	-	Not applicable
	HC-BP-270a.2	Description of code of ethics governing promotion of off-label use of products		-	Life Science Biz. Regulations for Self-Compliance with Marketing Fair Trade (Enacted)Chapter 4 Prohibition of False/Exaggerated Advertising

SASB

LS

Classification	SASB Code	Accounting Metrics		Unit	Pages	Contents
SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS						
EMPLOYEE RECRUITMENT, DEVELOPMENT & RETENTION	HC-BP-330a.1	Discussion of talent recruitment and retention efforts for scientists and research and development personnel			66~67, 91	
	HC-BP-330a.2	Voluntary turnover rate *	Executives/senior managers	Number (%)	-	0 (0%)
			Midlevel maganers	Number (%)	-	0 (0%)
			Professionals	Number (%)	-	0 (0%)
			All others	Number (%)	-	37 (100%)
		Involuntary turnover rate	Executives/senior managers	Number (%)	-	0 (0%)
			Midlevel maganers	Number (%)	-	0 (0%)
			Professionals	Number (%)	-	0 (0%)
			All others	Number (%)	-	0 (0%)
SUPPLY CHAIN MANAGEMENT	HC-BP-430a.1	Percentage of (1) entity's facilities and (2) Tier I suppliers' facilities participating in the Rx-360 International Pharmaceutical Supply Chain Consortium audit program or equivalent third-party audit programs for integrity of supply chain and ingredients		%	-	-
BUSINESS ETHICS	HC-BP-510a.1	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery		Reporting currency	-	-
	HC-BP-510a.2	Description of code of ethics governing interactions with health care professionals			27	Life Science Biz. Regulations for Self-Compliance with Marketing Fair Trade (Enacted) Chapter 3 Permissible Scope of Provision of Money and Goods
ACTIVITY MERTICS						
HC-BP-000.A		Number of patients treated			-	
HC-BP-000.B		Number of drugs (1) in portfolio and (2) in research and development (Phases 1-3)			-	18 (Check the contents of the disclosure of the business report for 2021)https://dart.fss.or.kr/dsaf001/main.do?rcpNo=20220318001113

* No. of voluntarily transferred employees only applicable to LS business

APPENDICES

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Training and Education	404-1	Average hours of training per year per employee	94
	404-2	Programs for upgrading employee skills and transition assistance programs	66~67
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Non-discrimination	406-1	Incidents of discrimination and corrective actions taken	29
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Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	95
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INDEPENDENT ASSURANCE STATEMENT

Dear Stakeholders of SK CHEMICALS,

KFQ has been engaged by SK CHEMICALS to provide independent assurance on the 2021 Sustainability Report for SK CHEMICALS (the 'Report'). It is our responsibility to provide an independent assurance statement in accordance with the standards and scope of assurance as specified below. SK CHEMICALS has sole responsibility for the preparation of the Report.

Standards and Scope of Assurance

- Standards: AA1000AS(v3) and AA1000AP(2018)
- Type: Type 2, covers the assessment of adherence to the Accountability principles of inclusivity, materiality, responsiveness, impact; and reliability and quality of disclosed information on sustainability performance.
- Level: Moderate, limited evidence has been obtained to support our assurance statement
- Scope:
  - GRI Standards(2020) Core option
    - Reporting Principles
    - Universal Standards
    - Topic Specific Standards

Methodology

In order to assess the reliability of disclosures about the sustainability performance in the Report by applying the standards, we reviewed sustainability-related processes, systems, internal control procedures, and available data. The documentation reviewed during the assurance engagement includes:

- Non-financial information e.g., data provided to us by SK CHEMICALS, disclosed Business Reports, and information obtained from media and/or the internet; and
- Financial information i.e., Financial statements reported on the DART (Data Analysis, Retrieval and Transfer System, http://dart.fss.or.kr), the Electronic Disclosure System managed by Financial Supervisory Service.

The assessment was performed by document review and onsite inspection. We interviewed employees who are responsible to prepare the Report, where we evaluated the validity of the materiality assessment processes, a stakeholder-centric approach to select material issues, data collection and management procedures, report preparation procedures, and validation of claims stated in the report. It was confirmed that errors, inappropriate information, and ambiguous expressions identified during the assessment were properly corrected prior to the Report being published.

Topic	GRI Disclosure	Topic	GRI Disclosure
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INDEPENDENT ASSURANCE STATEMENT

Competency and independence

The assurance team was organized in accordance with KFQ's internal regulations. KFQ has no conflict of interest which could threaten the independence and impartiality of verification, other than providing third-party audit services to the SK CHEMICALS business

Limitations

The completeness and responsiveness of sustainability performance represented in the Report have inherent limitations due to its nature and the methodology used to determine, calculate and estimate its performance. In accordance with the terms of the contract, we assessed the information and evidence provided by the company. We did not perform any further assessment procedures on raw data.

Findings and Conclusions

As a result of the assessment, we confirm that the Report fulfills the 'Core options' requirements of GRI Standards, adheres to the AA1000AP(2018)'s Accountability principles, and demonstrates a Type 2 assurance level, as evidenced by reviewed data and information. Based on the assessment, nothing has come to our attention to suggest that the Report provides material errors or misstatements and does not properly describe the adherence to the Accountability principles.

• Inclusivity
SK CHEMICALS is gathering opinions from various stakeholders including customers, shareholders and investors, partner companies, employees, local communities through communication channels such as customer satisfaction survey, general shareholders' meeting, Win-Win growth program, employees culture survey, local community agreement. Nothing came to our attention to suggest that the main stakeholders are not stated in the Report.

• Materiality
SK CHEMICALS identifies important issues by conducting a materiality assessment in terms of stakeholders' interests and business impacts, followed by prioritization. It is confirmed that the Report properly describes the identified issues resulting from the materiality assessment without any omission.

• Responsiveness
SK CHEMICALS consistently engages with stakeholders to respond to their feedback and main interests. Nothing came to our attention to suggest that its responses and performance are inappropriately described in the Report.

• Impact
We found during our assessment that SK CHEMICALS is identifying and monitoring impacts relating to stakeholders and reporting them to the extent possible. Nothing came to our attention to suggest that it does not properly assess and report impacts relating to material issues.

• Reliability and quality of disclosed information on sustainability performance
We assessed the reliability of specified environmental and social performance data related to sustainability. We conducted an interview with managers responsible for the Report preparation, where we reviewed internal data on a sample basis and publicly available documentation, and confirmed the reliability of the processes for collating qualitative and quantitative sustainability data described in the Report. Nothing came to our attention to suggest that intentional misstatements and/or material non-conformities in data are presented during the assessment.

Recommendation for improvement

KFQ recommends following developmental approaches in order to systematize sustainability management in the future and to disclose the results of the report effectively.

- SK CHEMICALS, a leading company in the field of eco-friendly materials and healthcare, established its own ESG management governance by utilizing the characteristics of industries directly related to sustainability. In the future, we hope that SK CHEMICALS transparently discloses its ESG-related decision, and hence stakeholders could confirm the company's well-developed ESG management strategy that meets their expectations.
- We look forward to continuously disclosing the performance related to the eco-friendly circular economy and Net-Zero roadmap. The action shall allow stakeholders to clearly understand SK chemicals' efforts for climate change.

kfq Korean Foundation for Quality

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May, 2022, Seoul, Korea
Ji Young Song, CEO
Korean Foundation for Quality (KFQ)

Ji Young Song

PARTICIPATING ASSOCIATIONS AND ORGANIZATIONS

Gyeonggi-do Nurses Association	Korean Hospital Association	Seongnam branch of Korea Industrial Safety Association	Ulsan branch of Korea Industrial Safety Association
Ulsan District Environmental Preservation Association	Korea Enterprises Federation	Korea Customs Logistics Association	Korea International Trade Association
Korean Association for Radiation Application	Korea Industrial Technology Association	Korea Listed Companies Association	Korea Pharmaceutical Traders Association
The Korean Medical Library Association	Korea Pharmaceutical and Bio-Pharma Manufacturers Association	Korea Occupational Health Care Association	Gyeonggi Enterprises Federation
Association of Heads of General Affairs of Large Enterprises	Korea Hospital Association Council of the Future Medical Industry	Ulsan Association of Environmental Engineers	Environmental Protection Council
Ulsan Nurses Association	Seoul Pharmaceutical Industry Development Council	Yongyeon Yong Jam Complex Factory Managers' Council	Ulsan Metropolitan City Factory Manager Council
Ulsan Regional Industrial Complex Management Council	Ulsan Yeocheon Safety Council	Ulsan General Affairs Department Heads Council	Chungcheongbuk-do Environmental Conservation Association
Korea Fire Safety Institute	Korea Pharmaceutical Association	Korea Electric Engineers Association	

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