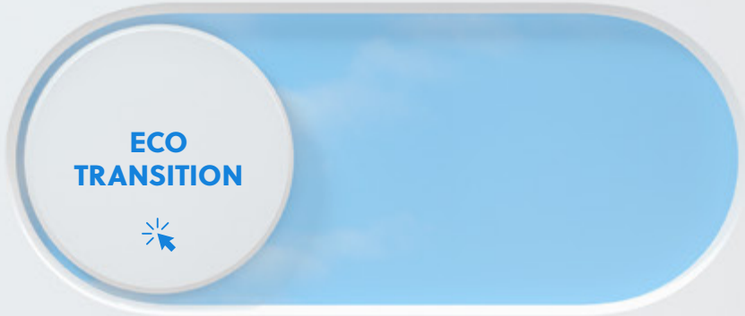
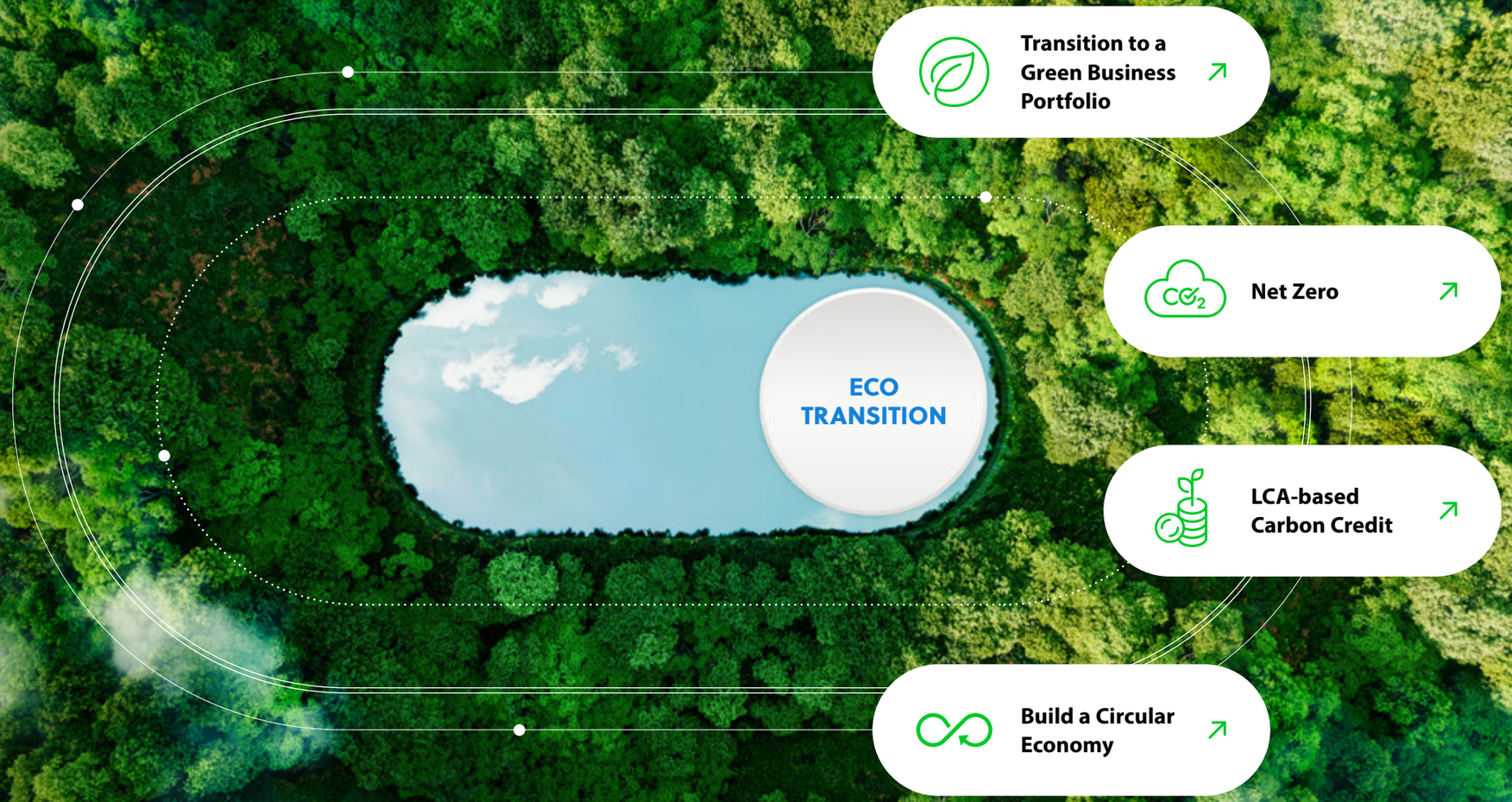
WE CARE FOR THE FUTURE
HEALTHCARE, EARTHCARE



SK chemicals

COVER STORY

SK chemicals has been pursuing ESG management since 2010, and has deeply contemplated the purpose of our business activities. Our mission and vision are “We enhance human health and protect the Earth's environment,” which we are strongly committed to.
We strive to pursue economic and social values by transforming our business portfolio into green businesses, driving Net Zero initiatives, securing LCA-based carbon credits, and establishing a circular economy throughout the product value chain. This is how we actively promote an “Eco Transition” across our entire business.



*** Click to go to related pages.**

↘ STORY 1

Transition to a Green Business Portfolio

SK chemicals is committed to transitioning to eco-friendly businesses to minimize environmental impact and create a sustainable environment. We are actively working on developing circular recycle solutions and securing the supply chain of recycle plastic materials. We will further strive to manufacture eco-friendly products by expanding our green materials business.

Expand the sales of green materials

↓

2030

80%

2040

90%

Recycled, Bio based

Business growth based on materials

Recycle Copolyester Production Percentage

2030

100%

STORY 2

Net Zero

SK chemicals feels a strong responsibility to tackle Climate Change issues and strives to minimize Climate Change risks. Following our endorsement of the TCFD in 2022, we have joined the SBTi and submitted our targets in 2023. Our goal is to obtain approval for our reduction targets in 2024. Also, we are dedicated to securing renewable energy sources and transitioning to eco-friendly fuels in order to achieve our 2040 Net Zero roadmap.

Transition to Eco-friendly Fuels such as hydrogen and set-up of Roadmap to Implement Renewable Energies.

Endorsement of TCFD in 2022, signed up for SBTi and submitted goals in 2023

TCFD

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Build targets

Scope 1&2 →

Net Zero 2040

ECO TRANSITION

STORY 3

LCA-based Carbon Credit

SK chemicals not only aims to reduce carbon emissions across the entire value chain by expanding the circular recycle and eco-friendly green material businesses, but also seeks to generate additional profit by acquiring carbon credits. These efforts are expected to have a positive long-term financial impact as well.

Expected to create profit

Secure a total of approximately

KRW 190 billion in 2026-2030

Secure carbon credit by producing and selling green materials

STORY 4

Build a Circular Economy

SK chemicals aims to transition from a linear economy to a circular economy system, maximizing resource efficiency and establishing a sustainable economic system.
By doing so, it is possible to reduce greenhouse gas emissions across the entire value chain.
Also, we aim to build a sustainable plastic ecosystem by collecting discarded plastic waste.

Create a closed loop throughout the entire product value chain from purchasing materials to discarding products to create a global resource circular ecosystem

Simultaneously, respond to global regulations and achieve net zero

About this Report

SK chemicals Co., Ltd. has been publishing the Sustainability Report every year since 2010 to inform our stakeholders of our performance and activities to create economic and social values. The 2022 Sustainability Report aims to share our ESG management strategies, goals, and performance for creating a sustainable future.

The mentioned environmentally friendly materials, eco-friendly products, and green materials in the report refer to CR-Copolyester (with a recycle content of over 50%) and CR-Polyester (with a recycle content of over 30%), which use recycled materials, as well as PO3G (with a bio-content of 100%), which utilizes biomass as raw materials. These products fall under the circular economy sector of the Korean Green Taxonomy guidelines (K-Taxonomy) for the recyle and upcycle of waste resources. Additionally, they have obtained certifications such as the Global Recycled Standard (GRS) for the use of recycled materials and ISCC (International Sustainability & Carbon Certification) Plus to ensure their ongoing compliance.

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.

Cover page

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Additional information

Additional Information

SK chemicals' website: www.skchemicals.com/en ↗
Sustainability Report ↗ TCFD Report ↗
GRI Table ↗

Scope of Report

The scope of this report encompasses the headquarters, R&D institute (Eco Lab), and business sites in Ulsan and Cheongju (S HOUSE). SK bioscience and SK multi-utility, two major consolidated subsidiaries in Korea, are also included in the report. Business activities that fall under financial reports are included. Other cases have been annotated.

Period of Report

The primary reporting period is from January 1, 2022 to December 31, 2022, and a number of qualitative performances include those from the first half of 2023. In addition, this report contains data for the previous three years — 2020, 2021, and 2022 — in order to identify the current status of increase and decrease as well as recent trends. There are items that have been changed from the previous reports and the reasons.

Principle of Report

This report is in accordance with the 2021 Global Reporting Initiative (GRI) standards. As member of the UN Global Compact (UNGC), the report includes our activities to achieve the 10 principles of human rights, labor, environment, and anti-corruption, as well as the Sustainable Development Goals (SDGs). Furthermore, to select major issues that fit the characteristics of the industry, we considered the Sustainability Accounting Standards Board (SASB) standards, and reflected recommendations from the Task Force on Climate related Financial Disclosure (TCFD). Financial data in this report abides by K-IFRS (Korean International Financial Reporting Standards).

Data Assurance

This report has been verified by the Korean Foundation for Quality (KFQ) a third-party independent assurance provider. The verification applied AA1000AS, Type 2, and Moderate level verification standards, and encompasses the general scope of ESG including social and environment KPIs. Qualification including the independence of the verification institution is included in the verification opinion sheet. Furthermore, the GRI table disclosed on SK chemicals' website is included in the verification scope.

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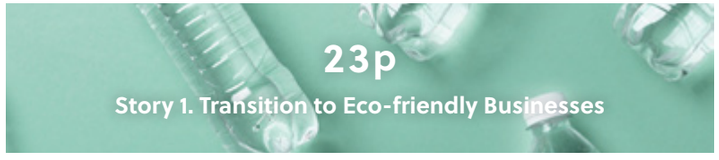
1 Overview

2 ESG Highlight



3 ESG Management

4 Appendix

CEO Message

CEO, SK chemicals **Kim Cheol**

金 徹

Dear valued stakeholders,

Last year, despite a difficult business environment due to macroeconomic uncertainties and geopolitical risks, SK chemicals achieved robust business performance through improved profitability in the Copolyester business and stable profits in the Pharma Business.

2022 was a significant year where we focused on preparing for future growth drivers.

To concentrate its capabilities on key businesses, the Green Chemicals Business established an Eco Transition strategy and secured recycle technology, strategic partnerships, and commercial production facilities for PO3G.

The Pharma Business continued to work on expanding mid- to long-term values by expanding sales of its flagship products and accelerating Open Innovation based on stable operations.

In terms of ESG management, 2022 was a year of transition that embraced ESG as a factor for survival for the company.

Our priority was to establish an ESG management system and set clear ESG strategic goals and tasks. We also strengthened the board-centered management system by discussing the implementation progress of ESG management, including the Climate Change response policies, at the board level.

Furthermore, the company established a comprehensive risk management system by setting up a Risk Management Committee.

In addition, we also built a Net Zero Roadmap based on the Science Based Target initiative (SBTi) and published our first Taskforce on Climate-related Financial Disclosures (TCFD) report to be disclosed to the public.

As a result, the company's ESG management assessment results from both in and out of the country have improved significantly.

We have been continuously included in the Dow Jones Sustainability Indices (DJSI) KOREA since 2021, upgraded our Morgan Stanley Capital International (MSCI) rating (BBB to A), and received the highest rating of A+ from the Korea Institute of Corporate Governance and Sustainability (KCGS).

In 2023, SK chemicals aims to accelerate our Eco Transition strategy as the Global Recycle Solution Provider to secure leadership in the recycling market.

We will concentrate our business capabilities on securing the sustainability of Copolyester, our key business, circular recycle PET/Copolyester businesses, and circular recycle materials with high growth potential.

Furthermore, we will continue our efforts to create a better world for the planet and humanity.

Like last year, we will disclose our TCFD report that includes the Net Zero achievement target and Climate Change response plan, and we plan to establish science-based greenhouse gas reduction targets and obtain SBTi approval.

Also, we will strive to strengthen the supply chain ESG support system and secure the sustainability of all stakeholders for SK chemicals with human rights investigations.

Based on our mission to "Promote human health and protect the environment," SK chemicals aims to take a leap forward as BIO and comprehensive life science company that innovates the green materials industry that will lead the natural circulation ecosystems, and human life. We will actively communicate with our stakeholders, and together, we will build a sustainable future.

We would like to ask for your continued support and interest towards the journey of SK chemicals.

"Circular recycle" in the report refers to "chemical recycle." SK chemicals is opening up the circular recycle materials market by utilizing the infinite regeneration potential of chemical recycle materials as a key future business."

CEO, SK chemicals **Ahn Jae-Hyun**

Ahn Jae-Hyun

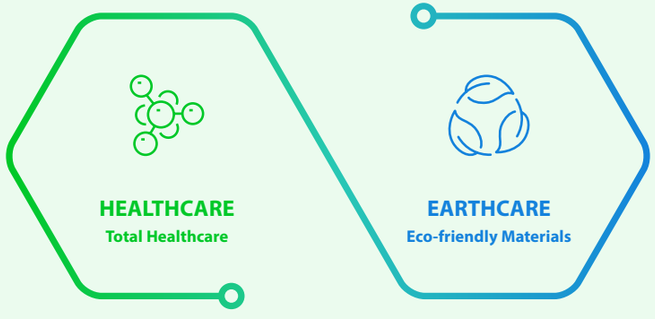
Company Profile

About the Company

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

VISION

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



MISSION

We enhance human health and protect the Earth's environment

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, know-how, and facilities, we are continuously growing with partnerships to strengthen our business portfolio, active investments, and R&D activities. Green Chemicals Business not only enhanced its existing business sectors of high-function copolyester and adhesives and coatings but also is expanding its business with our global top-class circular recycle technology to recycle plastic (CR-Copolyester, CR-PET) sectors. In addition, we are strengthening our portfolio of eco-friendly materials, such as bio-based plastic (PO3G) and biodegradable plastic (flexible PLA) to provide differentiated products tailored to our customers' needs. Life Science Business manufactures high-quality natural and synthetic pharmaceuticals and offers them domestically and internationally, continuously provides R&D results, and builds strategic partnerships with advanced global pharmaceutical companies to grow continuously. By concentrating on R&D and investment in diverse fields such as synthetic new drugs, natural products, and biotechnology, we are achieving excellent results in Korea and the most developed markets worldwide.

As of December 31, 2022

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/en
Revenue	KRW 1,829.2 billion
Operating Income	KRW 230.5 billion
Net Income	KRW 231.5 billion

* Financial performance has been prepared on a consolidated basis.

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

Product Overview Green Chemicals Business

Copolyester

SK chemicals is leading the market by commercializing ECOTRIA, a recycle material (PCR)ⓘ product. In 2022, we conducted a Life Cycle Assessment (LCA) in collaboration with a third-party organization for 19 copolyester product lines, including ECOZEN, ECOTRIA, SKYGREEN, and ECOZEN Claro, and nine of them obtained the UL Environmental Product Declaration (EPD) certification, proving their excellence. Although Chinese companies are entering the copolyester market, intensifying the global competition, SK chemicals plans to maintain its competitive advantage by transitioning our portfolio to high-value-added applications and developing new eco-friendly and recycle technologies.

ⓘ Post-Consumer Recycled (PCR) :
Recycle material sorted and collected from plastic products discarded by end consumers after use.

ECOZEN

It is a copolyester product mixed with biomass-derived components (carbon weight 1-15%), and it reduces dependence on petroleum-based raw materials while supplementing the disadvantages of petroleum-based plastics.

ECOTRIA

ECOTRIA boasts better resource circulation with post-consumer recycled materials (PCR) made of collected PET bottles. We began mass production of ECOTRIA-CR products using circular recycle technology in 2021. ECOTRIA obtained the Global Recycled Standard (GRS) and International Sustainability & Carbon Certification (ISCC) Plus certifications, which certify the use of PCR. In particular, two ECOTRIA product lines obtained UL's EPD Optimization verification that shows that the product reduces carbon emissions by recycle plastic, ultimately reducing carbon by 15-17% compared to existing petrochemical copolyester.

SKYGREEN

As a material that can be used for food contact, it is free of bisphenol A (BPA) and has excellent transparency and chemical resistance, replacing existing materials such as polycarbonate (PC) and acrylic. SKYGREEN has excellent mechanical strength and formability, and is supplied as a transparent material for COVID-19 protective face shields and transparent quarantine barriers, which expanded the market.

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 global top-level quality management based on our 30-years experience. The product's excellent quality is recognized by customers both home and abroad.

ECOZEN Claro

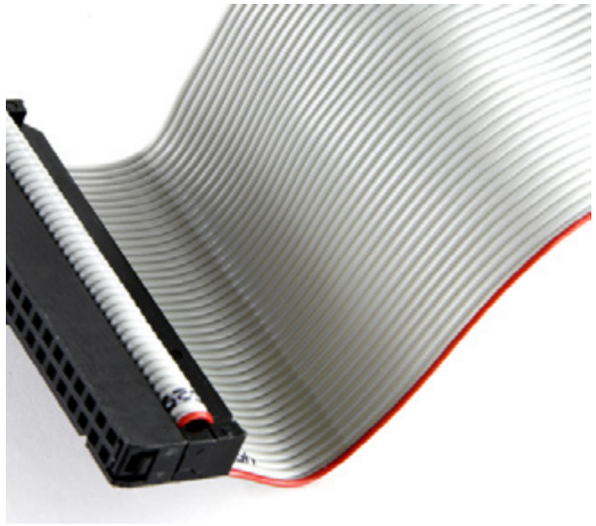
ECOZEN Claro is a crystalline material that maintains the excellent transparency and chemical resistance of copolyester, and is certified by the American Association of Plastic Recyclers (APR) and European EPBP (European PET Bottle Platform).

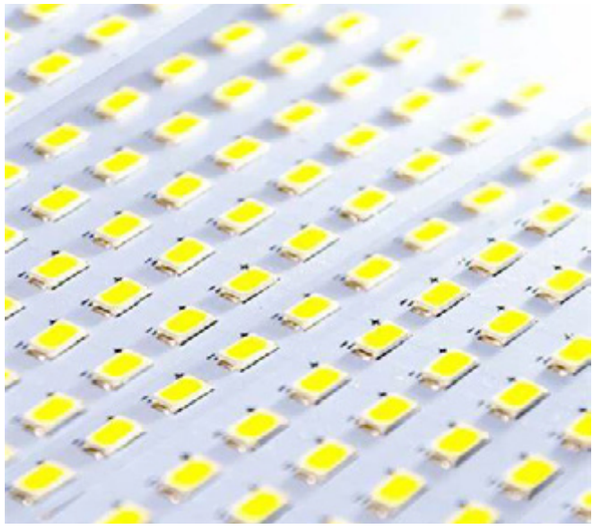
SKYCHDM

SKYCHDM is a monomer utilized for polyester polymer resin, polyurethane resin, or resin for paints. It can replace or be combined with aromatic and aliphatic base materials that are already in use. It is possible to accommodate existing raw materials' advantages, and to enhance a number of resin's shortcomings. In particular, it is possible to greatly improve the transparency or processability of polyester resin depending on the mix ratio.

Functional Materials

SK chemicals provides functional value to customers through products with outstanding durability, heat resistance, and chemical resistance. We are also continuously making efforts to develop products using recycle and bio-based raw materials.





Bio Materials

SK chemicals not only takes part in eco-friendly business activities with recycle materials, but also aim to contribute to a sustainable society by developing biomass-based and biodegradable materials.

SKYTRA
SKY TRA

As a compounding grade of PET, SKYTRA is a polyester-based compound material with excellent heat resistance, chemical resistance, and mechanical strength. Some grades have PCR, making them eco-friendly.

SKYPURA
SKY PURA

SKYPURA is SK chemicals' Poly-Cyclohexylene dimethylene Terephthalate (PCT) brand name. it is a super engineering plastic material that can be used in industrial fields that require high heat resistance, light resistance, and excellent electrical properties.

SKYPEL
SKY PEL

SKYPEL is a polyester-based thermoplastic elastomer that has properties of both rubber and engineering plastic. It is used in a number of ways, including for electrical/electronic components, automobiles, and films and fibers.

ECOTRION
ECOTRION

Polytrimethylene ether glycol (PO3G) is a new material that can completely replace polyol, 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. Also, 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 can contribute to improving environmental impact with a low carbon footprint.

Life Science Business

Pharmaceuticals

The Life Science Business has a diverse pipeline based on excellent marketing capabilities and R&D achievements. Our strengths in the therapeutic area are in the musculoskeletal and cardiovascular fields. In particular, with pharmaceuticals used for various disease groups such as anti-inflammatory and pain relievers (joints and rheumatism), cardiovascular (hypertension and hyperlipidemia), and nervous system (dementia and headache), we are able to generate stable profits. We will continue to diversify our product portfolio to steadily increase our market share.

Joins tab

Joins tab is the herbal ingredient-based arthritis treatment registered as the first natural medicine in Korea. Its anti-inflammatory and analgesic effects are proven to be equivalent to existing anti-inflammatory and painkillers, as well as has less side effects and effectively protects cartilage tissue. Accordingly, Joins tab is evaluated as a fundamental treatment for arthritis. Since its launch in 2002, it has achieved total sales of approximately KRW 550 billion as of 2022.

Wondron Patch (Rivastigmine)

Wondron Patch (Rivastigmine) is Korea's first patch-type dementia treatment developed in 2010. The product's excellent technology was recognized by the world as it was approved for sale as the first generic drug sold in Europe in 2013. Wondron patch maintains 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. And we also 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. Total sales to 2022 is more than KRW 500 billion. This product uses our own patented technology of extracting active constituents from ginkgo leaves to effectively reduce blood viscosity and expand blood vessels.
In 2010, SK chemicals launched "Renexin," (combination drug containing Ginexin-F and thrombolytic Cilostazol) an anticoagulant with reduced side effects and better efficacy. Afterwards, in 2020, we introduced "Renexin CR Tab" with better medication compliance and convenience. This is how we were able to solidify our position as a leader in the market for ginkgo leaf-based products.

Trast Patch

Trast is a patch-type knee osteoarthritis treatment, and has steadily grown as a major brand in Korean market since its release in 1996. It is a patch-type product that is directly applied to the joint area, minimizing the side effects of existing oral medications and has the advantage of long-lasting efficacy for 48 hours with a single application. Since obtaining the first product approval in China in 2006, we have continued to export the product. We plan to expand into the global market in the future as well.

Vaccine

SK bioscience is dedicated to developing vaccines and bio-pharmaceuticals to prevent and treat viruses that pose threats to humanity. With the development of the COVID-19 vaccine, we are continuing to develop the vaccine with the conviction to contribute to stabilizing health policies and medical systems not only in Korea but also around the world and securing a stable supply so that everyone can receive vaccinations equally.

Synthetic antigen COVID-19 vaccine (SKY Covione Multi)

SKY Covione Multi (GBP510) is a COVID-19 vaccine jointly developed by the Institute for Protein Design at the University of Washington's School of Pharmacy and SK bioscience. It used GlaxoSmithKline's (GSK) adjuvant AS03, and received development funding support from the Bill & Melinda Gates Foundation (BMGF) and the Coalition for Epidemic Preparedness Innovations (CEPI), as well as institutional support from the Korean government. The vaccine boasts excellent immunogenicity and safety of the synthetic antigen approach, and we became the first domestically developed vaccine company in Korea to successfully complete Phase 3 clinical trials for GBP510 in 2022. Its can be distributed at a refrigerated state of 2-8 degrees Celsius and can be stored long-term, making it suitable for increasing vaccination rates in underdeveloped countries and being supplied worldwide.

Typhoid Vaccine (SKYTyphoid Multi)

Typhoid is a disease that occurs in poor environments where clean water is scarce. It is mainly prevalent in poor areas, and infants with weak immunity are exposed to a high risk of infection. SK bioscience has been conducting R&D of the typhoid fever vaccine with the International Vaccine Institute (IVI) and the Bill & Melinda Gates Foundation (BMGF) since 2013. SKYTyphoid Multi, a typhoid fever vaccine, is a result of these efforts. SKYTyphoid Multi is a polysaccharide-protein conjugate vaccine in which the polysaccharide portion carries the role of the antigenic Salmonella typhi and is conjugated to the diphtheria toxoid protein. It provides immune protection and long-term prevention with just one dose, making it suitable for even infants aged 6 months to 2 years.

Zoster Vaccine (SKY Zoster)

Zoster is a cutaneous nerve agent caused by the reactivation of the varicella virus that was dormant in the ganglion. It is a disease that appears as a rash on the skin as the body's immunity is lowered for various reasons. SK bioscience became the world's second and Korea's first company to develop the premium zoster vaccine "SKY Zoster." SKY Zoster is a live vaccine that has been attenuated for the varicella-zoster virus and has demonstrated excellent safety in international non-clinical trial institutions. This flagship product is a response to the increasing demand for varicella-zoster vaccines.

Cell-cultured influenza trivalent vaccine (SKY Cellflu 3)

SKY Cellflu 3 is Korea's first cell-cultured influenza vaccine, introduced in 2015. It is produced using advanced aseptic cultivation technology without the use of fertilized eggs. This eliminates the need for antibiotics or preservatives, making it suitable for individuals with egg allergies. As a cell-cultured influenza vaccine, it has obtained the World Health Organization (WHO) PQ certification for the first time in the world.

Cell-cultured influenza surface antigen vaccine (SKY Cellflu 4)

SKY Cellflu 4 is a quadrivalent cell-cultured❶ influenza vaccine, the first of its kind to be launched globally and the only one available in Korea. Similar to SKY Cellflu 3, it is produced using a sterile culture system, recognized for its innovation and reliability, leading to a significant market share. SKY Cellflu 4, like its predecessor, is also supplied to the global market with WHO PQ certification.

❶ Cell-culturing: Produced with animal cells, allowing the production period to be shortened to 2-3 months, and can be produced stably regardless of the availability of fertilized eggs.

Varicella Vaccine (SKY Varicella)

SKY Varicella is a chickenpox vaccine developed by SK bioscience with our own bioprocess technology. It has undergone global Phase 3 clinical trials involving more than 19 clinical institutions both domestically and internationally, targeting children over 12 months and under 12 years of age, proving its immunogenicity and safety. It became the world's second vaccine to obtain WHO PQ certification. With the Pan American Health Organization (PAHO), a subsidiary of the United Nations, the vaccine is exported to Central and South America.

Domestic Business Sites and Global Network

With headquarters (ECO Lab) located in Pangyo, Seongnam, Gyeonggi-do, SK chemicals operates plants including Green Chemicals Business Plant in Ulsan, SK bioscience Plant in Andong and Pharmaceutical Plant in Cheongju. In addition, we secured a global network and strengthened competitiveness with the overseas subsidiaries in the U.S., Germany, Malaysia, and Shanghai, which are in charge of overseas sales, as well as offices in Japan and Guangzhou, China, and manufacturing sites in Suzhou and Yantai, China.

Status of Subsidiaries/Investors (As of Dec. 31, 2022)

Share Ratio

Subsidiary Companies

SK bioscience Co., Ltd. — 68%
Jul. 1, 2018
310, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Pharmaceutical manufacturing

SK multi utility Co., Ltd. — 100%
Dec. 1, 2021
718, Cheoyong-ro, Nam-gu, Ulsan, Korea
Manufacturing

SK bioscience USA, Inc. — 100%
Dec. 19, 2022
3 Park Plaza Suite 430, Irvine CA 92614
Development of bio technology

SK chemicals GmbH — 100%
June 20, 2008
ESCHBORN, GERMANY
Wholesale

SK chemicals America — 100%
Jul. 19, 2002
3 Park Plaza Suite 430, Irvine CA 92614
Wholesale

SK chemicals Suzhou Co., Ltd. — 100%
Nov. 16, 2006
Wujiang Economic Development Zone
Resin manufacturing

SK chemicals Yantai Co., Ltd. — 100%
June 15, 2020
Yantai Economic and Technological Development Area, Shandong
Resin manufacturing

SK chemicals-Daejung Co., Ltd. — 50%
Apr. 1, 2020
310, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Organic solvent manufacturing

SK chemicals Shanghai Co., Ltd. — 100%
Nov. 2, 2018
Shanghai, China
Management consulting

SK chemicals Malaysia — 100%
Aug. 25, 2020
KUALA LUMPUR MALAYSIA
Management consulting

Associates

JSI Co., Ltd. — 40%
Manufacturing

HDC Polyol Co., Ltd. — 20%
Manufacturing

Major Affiliates

ENTIS Co., Ltd. — 50%
Manufacturing

Sustainable Management Strategies

Directions for Sustainable Management

SK chemicals has spent considerable time contemplating the purpose and environmental impact of their business operations. We have successfully built a portfolio in the areas of Green Chemicals and Life Science by dedicating research and investments towards eco-friendly and biomaterials over the past ten years. This direction of innovation pursued by SK chemicals is in line with our mission and vision statement of "Protecting the environment and human health." and it also aligns with the Sustainable Development Goals (SDGs). Our commitment is not only focused on generating economic value but also on creating social value and promoting sustainability for the betterment of humanity.

Supporting Global Initiatives

SK chemicals is actively expanding its ESG (Environmental, Social, and Governance) disclosure practices to ensure transparency in communicating its ESG goals and performance. We adhere to global guidelines such as the Sustainability Accounting Standards Board (SASB) and the Task Force on Climate-related Financial Disclosures (TCFD). Furthermore, SK chemicals actively participates in initiatives such as the Carbon Disclosure Project (CDP), the Science Based Targets initiative (SBTi), and is a member of the 1.5°C Alliance.

These efforts have gained external recognition, as SK chemicals has been acknowledged for its excellence by global rating agencies. In 2022, we were included in the DJSI Korea Index for two consecutive years. Moreover, we received an A rating in the MSCI evaluation, an A- rating in the CDP assessment, and the highest A+ rating in the ESG evaluation conducted by the Korea Institute of Corporate Governance and Sustainability (KCGS).

Participation in Domestic and Global Initiatives

RE100

RE100 is a global energy transition initiative for companies to transition 100% of their electricity to renewable energy sources. "K-RE100" has been established for Korean companies to build the foundation for energy transition. Accordingly, SK chemicals joined K-RE100 in June 2022 to actively participate in the transition to renewable energy.

TCFD

We have declared our support for TCFD in July 2022, and disclosed our first TCFD report in September.

SCIENCE BASED TARGETS

SK chemicals joined the 1.5°C Alliance Membership, a science-based greenhouse gas reduction initiative, in February 2023. Our goal is to obtain approval for our greenhouse gas reduction targets by 2024.

CEPI

In 2022, SK bioscience and the Coalition for Epidemic Preparedness Innovations signed a research and development funding agreement for the development of mRNA vaccine platform technology.

International Vaccine Institute

To honor the significant contributions of the late Vice Chairman Park Man-hoon, who greatly contributed to the research capabilities of SK bioscience, in November 2021, we started the "Park Man-hoon Award" with the International Vaccine Institute (IVI). Each year, individuals and organizations that have made outstanding contributions to vaccine discovery, development, dissemination, and global health advancement are selected to receive cash prizes.

ⓘ CEPI (Coalition for Epidemic Preparedness Innovations)

Double Materiality Assessment

Selecting Important Issues

Every year, SK chemicals fulfills a materiality assessment and publishes a sustainability report based on the results of the assessment. The primary participants of the material assessment are internal and external stakeholders. The materiality assessment is carried out from a comprehensive risk perspective including social, environmental, governance, and ethical aspects, and is reviewed by the Board of Directors and verified by an independent third party every year. In particular, this year's materiality assessment applied the double materiality principle, where we went through a double materiality assessment based on the definition of environmental/social impacts and financial impacts.

STEP 1
Create an issue pool with an internal/ external environment analysis

- Create a pool of ESG issues (25 issues)
- Use international standards, assessment indicators, media analysis

STEP 2
Identify the actual and potential impacts of the issue

- Identify issues that bring actual and potential impacts
- Future issues that are uncertain but may lead to significant results should be considered (GRI, IFRS)

STEP 3
Materiality assessment of the impacts Apply double materiality

- Assess the materiality of the 25 issues from a Financial Materiality, and Environmental & Social Materiality perspectives

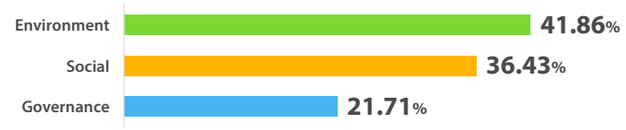
STEP 4
Select order of priority

- Select major issues by ranking the top 10 issues among all issues

More Participation from External Stakeholders

- Organize a regular communication channel with external stakeholders including partners, customers, investors, and shareholders, and reflect the voices in the materiality assessment (STEPS 1-2)
- Conduct surveys for external stakeholders both home and abroad and reflect results in the materiality assessment (STEP 3)
- Reflect ESG feedback from major investment institutions including DJSI and MSCI (STEP 3)
- Collect ideas by analyzing the media and reflect them in the materiality assessment
  - Conduct media analysis to analyze external stakeholders (Media analysis from Jan. Dec., 2022)
  - Major Issues: Chemical substances and product safety, efficient use of resources and resource circulation, transparent disclosure of information, etc.

Media Research Analysis Results

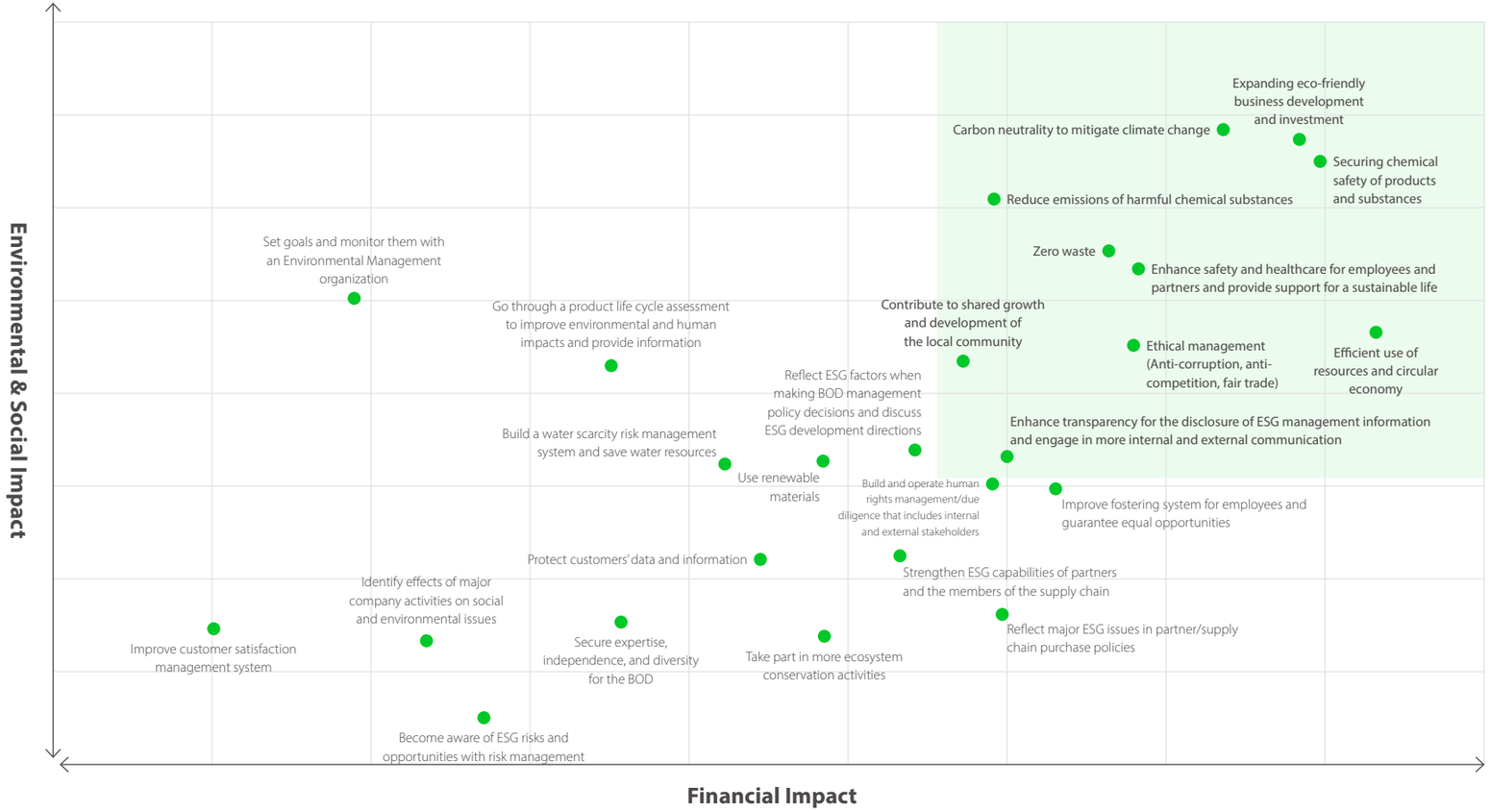


Applying Double Materiality

	Financial Materiality	Environmental & Social Materiality
Analysis of International Standards	· Apply indicators of major investment institutions such as DJSI, MSCI, and CDP · Review use and impacts of investment institutions such as TCFD and SASB, and reflect IFRS, CSRD, S&P Global conditions	· Analyze Environmental & Social Materiality indicators such as GRI Standards, ISO 26000, and UN SDGs · Respond to request to disclose information from external stakeholders such as the government and civic groups
Corporate Strategy	· Review strategies for the Green Chemicals and Life Science Businesses - Apply Product Stewardship such as green portfolio and product safety · Consider business portfolios that match climate change strategies and RE100	
Benchmarking		· Analyze internal and external disclosed data of global leading companies and competitors (10 companies) · Analyze the nonfinancial impacts that comprehensively reflect the industry initiative and industry trends
Media Research	· Analyze articles that can lead to financial impacts among media issues - Analyze factors where ESG issues can lead to financial impacts for SK chemicals · Apply financial risks like stakeholders and investors to media issues	· Analyze issues that are shown on the media among E/S/G activities - Analyze articles where SK chemicals made environmental and social impacts · Analyze company reputation, branding, and social value among media issues
Participation of Stakeholders	· Review important issues and financial impacts by E/S/G fields · Reflect expectations and concerns of stakeholders (including shareholders) regarding nonfinancial activities · Analyze the seriousness of negative effects and positive financial impacts	· Reflect the interests of stakeholders from a present/future perspective, and positive/negative perspective · Check expectations and concerns of stakeholders regarding the effects of business activities on E/S/G issues

Double Materiality Assessment Results

After the 2023 materiality assessment, we were able to select major issues that align with SK chemicals' key business and vision, including expanding eco-friendly business development and investment, and securing chemical safety of products and substances. From a financial perspective, efficient use of resources and circular economy, as well as securing chemical safety of products and substances emerged as important issues. From the environmental and social perspective, carbon neutrality and expanding eco-friendly business development and investment have been selected as major issues.



No.	Major Issues	Financial Materiality	Environmental & Social Materiality
1	Expanding eco-friendly business development and investment	3	2
2	Securing chemical safety of products and substances	2	3
3	Carbon neutrality to mitigate climate change	4	1
4	Efficient use of resources and circular economy	1	8
5	Zero waste	7	5
6	Enhance safety and healthcare for employees and partners and provide support for a sustainable life	5	6
7	Reduce emissions of harmful chemical substances	11	4
8	Ethical management (Anti-corruption, anti-competition, fair trade)	6	9
9	Contribute to shared growth and development of the local community	13	10
10	Enhance transparency for the disclosure of ESG management information and engage in more internal and external communication	9	13

Double Materiality Assessment Results

	Impacts/Cause of the issue, and major issues for external stakeholders				Materiality index for External Stakeholders			Material Issue				Materiality Index			
Material Issue	Value Chain	Impact Scope	External Stakeholders/ Impact Assessment	Relevance and Materiality for External Stakeholders	Calculated Index	Impact Assessment	Impact Index	Material Risks or Opportunities	Business Cases	Business Impact	Business Strategies	Target/Index	Target Year	Progress	Rewards for Executives
Expanding eco-friendly business development and investment	Product and services	100%	Environment, consumer/ end user	· Expanding investment in eco-friendly businesses for product development is a key issue in related industries such as cosmetics and food · Increasing recycling efforts and promoting green materials have positive impacts on both the environment and local community	· Replacement rate of recycle plastic and sales of green materials	Social cost/ avoidance	A change in the quality or accessibility of natural resources	Develop sustainable products and services, discover new business opportunities	· With greater severity of environmental issues such as global warming and air pollution, the demand for eco-friendly products is rising · Reducing the use of plastic and promoting recycling have become important issues due to environmental regulations · In particular, the environment tax for food and cosmetics companies is increasing, and the demand for alternative products and recycling is also growing	Sustainable products and service will increase sales in the future but decrease existing sales	· Obtain the low-carbon certification for the world's first circular recycle copolyester UL · Secure the world's first mass production system for recycle materials and PET · Secure carbon credit by producing and selling green materials (Targeting total sales of approximately KRW 190 billion from 2026 to 2030)	· Replace materials made from copolyester with recycle plastic · Increase the sales mix for green materials	· 50% in 2025, 100% in 2030 · 80% in 2030, 90% in 2040	· Transition to eco-friendly business; accelerate green growth 24 produce green materials 26	Included in the KPI for CEO and responsible executives
Securing chemical safety of products and substances	Business sites, supply chain	100%	Environment, society, consumer/ end user	· Confirming the harmfulness of chemicals in our products is a crucial issue directly related to relevant industries and the health of end consumers	· Replacement rate of harmful chemical substances and LCA performance ratio	Social cost/ avoidance	Social and Environmental Impact Assessments conducted for projects	Secure business safety by ensuring product quality and safety, respond to possible risk factors by managing substances	· Domestic regulations including the Chemical Substances Control Act and the Act on the Registration and Evaluation, etc. of Chemical Substances have been strengthened, and international regulations including REACH have also been strengthened · Human errors and accidents related to the use of chemical substances can result in financial losses such as product recalls and fines, as well as non-financial losses such as damage to customer trust	Managing chemical substances and replacing harmful substances can lead to risks in the business, and are highly likely to lead to non-financial damage for the company	· Review impact of the purpose and disposal of products on human health with regulations on substance registration on the RAPID Sheet (Act on the Registration and Evaluation, etc. of Chemical Substances, REACH, etc.), food contact regulations (FDA, EFSA, NSF, etc.), and harmfulness regulations (SVHC, RoHS, etc.) · Develop and implement replacement plans (phase-out) for hazardous chemicals in use · Strengthen management of chemical substances by introducing the Chemical Management Systems (CMS) · Manage product impact with the Life Cycle Assessment (LCA)	· Replace harmful chemical substances (100%) · LCA enforcement rate (100%)	· 2025 · 2025	· Systematic management and replacement of harmful chemical substances 42 · Secure product safety based on LCA 26	Included in the KPI for responsible persons and executives of the research institute

	Impacts/Cause of the issue, and major issues for external stakeholders				Materiality index for External Stakeholders			Material Issue				Materiality Index			
Material Issue	Value Chain	Impact Scope	External Stakeholders/ Impact Assessment	Relevance and Materiality for External Stakeholders	Calculated Index	Impact Assessment	Impact Index	Material Risks or Opportunities	Business Cases	Business Impact	Business Strategies	Target/Index	Target Year	Progress	Rewards for Executives
Carbon neutrality to mitigate climate change	Business sites, supply chain, product and services	100%	Environment, society, consumer/ end user, external employees	· Addressing climate change and resolving energy issues within the business sites impact the surrounding air and water quality · Establishing a circular resource ecosystem to respond to climate change positively affect the local community and industry as a whole	· Reduction of greenhouse gases	Social cost/ avoidance	Social cost of carbon	Reduce energy and cost for the business site by responding to climate change and physical risks, expand new business areas	· With stronger regulations related to climate change from countries and increase in carbon trading prices, some countries and regions implemented pricing mechanisms including carbon taxes and CBAM to reduce emissions · Expanding the region for production and export can lead to increased production costs and potential challenges in terms of price competitiveness	Responding to climate change is not only a potential risk for the business, but will also affect production competitiveness and profit due to increased carbon trading cost and CBAM	· Declare support for TCFD, join/ be approved by SBTi by 2023 · Ensure process innovation and secure renewable energy in business sites- Responding to climate change based on stakeholder engagement and linking performance compensation · Build a circular economy ecosystem: Achieve a recycling rate of 20% for PET waste collected in the country by 2030	· Greenhouse gas Scope 1, Net Zero for Scope 2	· 2040	· Achieve carbon neutrality 28 · TCFD report	Included in the KPI for CEO and production executives

DBL, Double Bottom Line

DBL

SK Group seeks to increase Economic Value (EV) and Social Value (SV) simultaneously in all business activities. The group has been generating SV by contributing to the resolution of social issues and pursuing the happiness of its members. With the Double Bottom Line (DBL) that pursues and manages EV and SV at the same time, it is possible to provide visible indicators and references by measuring SV in terms of indirect economic contribution, environmental performance, and social performance. Every year, SK chemicals has annually disclosed the results of measurement of SV alongside EV.

Economic Value

In 2022, SK chemicals generated annual sales revenue of KRW 1,829.2 billion and an operating profit of KRW 230.5 billion, according to consolidated financial statements prepared in accordance with K-IFRS. Despite a difficult business environment due to macroeconomic uncertainties and geopolitical risks, SK chemicals achieved robust business performance through improved profitability in the Copolyester business and stable profits in the Pharma Business. The Green Chemicals Business secured recycle technology, built strategic partnerships, and operated commercial production facilities for PO3G. The Pharma Business continued to work on expanding sales for major products and accelerating Open Innovation to expand mid- to long-term values.

Social Value

At SK chemicals, Under the mission of 'promoting human health and protecting the environment', we produce and sell eco-friendly products and create social values by pursuing the happiness of our stakeholders.

Indirect Economic Contribution Performance

Indirect economic contribution performance refers to the indirect contributions to the society made by a company's economic activities. It consists of labor cost paid by the company, dividends allocated and paid to shareholders, tax paid to the society, and welfare benefit costs given to the employees.

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

Dividend Payment I Excluding the temporary special dividend effect from the SK bioscience IPO in 2021, the total dividend amount for 2022 has decreased, but we have maintained the dividend payout ratio of 30% of separate net income.

Tax Payment I With one-time exclusion of the increment of corporate tax due to the IPO with SK bioscience in 2021 and decrease of national and local taxes from decreased operating profit, "tax" performance decreased.

Environmental Performance

Environmental performance is consisted of "Product/Service" that looks over the direct effects of the products and services of the company on the environment, and the "Environment (Process)" that measures the level of environmental pollution resulting from production.

Products/Service I With increased sales of products with social value including ECOZEN and ECOTRIA, "Products/service" performance increased.

Environment (Process) I The measurement of SV of the Environment (process) performance, calculated based on water consumption, GHG emissions, and air/water pollutant, and waste, increased with direct reduction of GHG emissions by business sites and efficient management.

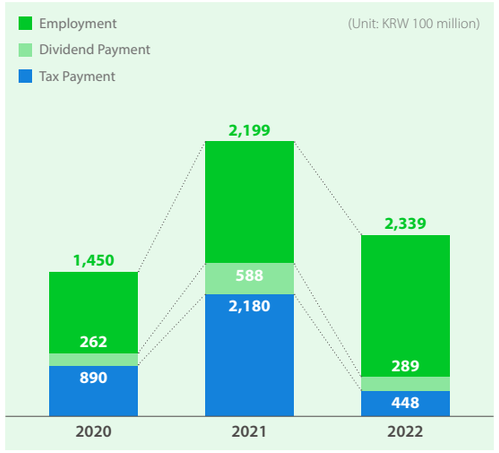
Social Performance

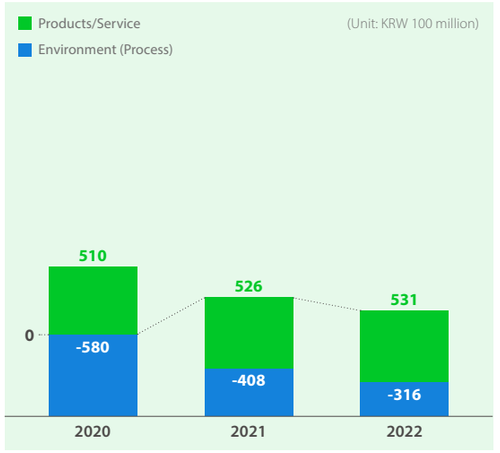
Social performance measures the social value created by enhancing the quality of life of purchasers or end-users, protecting consumers during the purchasing process, contributing to society through fair labor and Win-Win growth, and bolstering local communities.

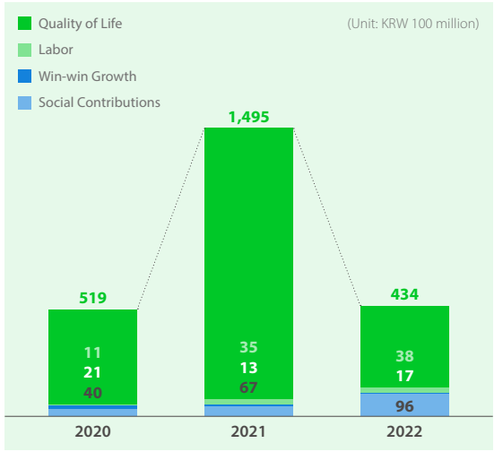
Quality of Life I As COVID-19 vaccine manufactured by SK bioscience (AstraZeneca) was only given in 2021, the social value from "quality of life" decreased compared to last year. Nonetheless, we are making efforts to create social value with our products.

Labor, Win-win Growth I We provide our employees with stable welfare benefits including childcare leave, and encourage vaccinations. By purchasing goods from developing nations through fair trade, we play a leading role in consumer protection.

Social Contribution I We have implemented major projects including "Dementia Awareness Improvement Program" and "Myanmar Cookstove" projects, and saw an increase in donations in 2022. as a result, the social value of "Social Contribution" increased.







2 ESG HIGHLIGHT

STORY 1. TRANSITION TO ECO-FRIENDLY BUSINESSES

Transition to a Green Business Portfolio / LCA-based Carbon Credit

Why is eco-friendly business important to SK chemicals?

SK chemicals is focusing on the development of circular recycle solutions and securing a supply chain of recycle plastic raw materials, and these efforts have increased our growth potential in a market where more and more people are interested in the environment and regulations. Therefore, expanding the green material business that aims to transition to eco-friendly businesses is an important strategy to enhance the brand image of SK chemicals and increase our competitiveness as a company responsible for future sustainability and environmental protection.

What are the social and environmental background surrounding the eco-friendly business?

The development of green materials is related to the severity of environmental issues such as global warming and air pollution. There is an increasing demand for eco-friendly products and technologies for sustainable development, and regulations and people's awareness are changing to meet this demand. In particular, reducing plastic use and promoting recycling are important issues related to environmental regulations.

What is SK chemicals doing?

SK chemicals has transitioned to a green materials business to replace petroleum-based raw materials with recycle raw materials and bio-based materials. In addition, we are actively making efforts to produce environmentally friendly products by replacing the materials of copolyester materials with recycle raw materials.

What are the future goals?

We will continue to produce eco-friendly materials by making our circular recycle raw material supply chain more stable and expanding our domestic and overseas infrastructure.

Key ESG Index

Ratio of Recycle Copolyester Production	2030	100%
Expand the sales ratio of green materials[1]	2030	80%
	2040	90%
Secure carbon credits by producing and selling green materials	2026~2030	KRW 190 billion (Acquisition goal, Based on Cumulative)

[1] Sales ratio of Recycled, Bio-based, and Biodegradable contents in Copolyester/CR-PET/Bio-materials sales

Transition to a Green Business Portfolio

Achievements in Building a Green Materials[1] Portfolio

Oct. 2019

Using mechanical recycle technology

- Launched ECOTRIA R, where 30% of its materials is post-consumer recycled (PCR) materials
- Obtained Global Recycle Standard (GRS) certification

May 2021

Securing purchase rights for circular recycle materials

- Acquired stakes in a Chinese company with technology and facilities for chemically depolymerizing waste PET bottles
- Secured the purchase rights of 20,000 tons of recycle materials for circular recycle

Oct. 2021

Applying circular recycle technology (1)

- Launched ECOTRIA CR that applied circular recycle technology for the first time in the world
- Built a lineup of various eco-friendly packaging materials

Jan. 2022

Applying circular recycle technology (2)

- Built a mass production system for SKYPET CR, Korea's first PET that applies circular recycle technology
- Built copolyester and PET lineup in the circular recycle sector

May 2022

Start to mass-produce using facilities with 5,000 tons of PO3G

- Reduced carbon emissions by 45% with 100% plant-based materials, officially started to supply high-functional polyol "ECOTRION"
- Can be replaced in various industries such as artificial leather for automobiles and sneakers

Nov. 2022

Obtain UL low carbon certification for the first time in the world

- Obtained the world's first "Low Carbon" certification for CR copolyester from UL, an international safety certification and testing agency
- Obtained eco-friendly product production certification in all processes

Mar. 2023

Secure capabilities to produce circular recycle materials and products

- Secured a supply of circular recycle materials and production facilities for waste plastic by acquiring a company specializing in green materials in China
- This allowed the company to secure the world's first commercialized polyester circular recycle materials and production equipment

[1] Green materials : Copolyester, CR-PET (Chemically-recycled PET), bio materials

Obtained "Low Carbon" from UL for Circular Recycle Copolyester

SK chemicals was recognized for its carbon reduction effect through plastic recycling in 'UL Solutions'. Two circular recycle copolyester product lines have been certified for their carbon reduction effect and obtained the "Environmental Product Declaration Optimization (EPD Optimization)" certification. In the process of obtaining the EPD Optimization certification, we were able to secure reliability and objectivity by conducting third-party LCA (Life Cycle Assessment) including environmental product declaration certification. As a result, SK chemicals has obtained UL Environmental Product Declaration (UL EPD) certification for 79 grades and 9 copolyester product lines including circular recycle copolyester, which is the most certified products for LCA in the global chemical industry.

The circular recycle material ECOTRIA CR, which has received the EPD Optimization certification, has an average carbon emission of 0.892 kgCO_2/kg, which is 68% less than the average emission of general plastics, making it an eco-friendly material.❶

If 1,000 tons of general plastic are replaced with ECOTRIA CR, it can reduce carbon emissions by 1,921 tons, which is equivalent to planting a forest the size of 1,304 football fields. It is expected to have a positive impact on industries such as cosmetics container, food packaging, electronics, and household goods, where there is a high interest in low-carbon materials.

Reduced carbon when replacing other materials with the CR-solution of SK chemicals❷

(when replacing 1,000T)

Green Life

Reduce carbon emissions by 1,921 T

Green Eco

Equivalent to making a forest the size of 1,304 soccer fields❸

Green Energy

Equivalent to reducing CO_2 emitted by 414 gasoline cars annually❸

Green House

Reduce energy using from 374 homes❸

❶ Numbers compared to PS, PP, ABS, PC, PMMA, SAN, HDPE plastics (Sphera LCI DB, 2022)
❷ GWP for other materials: Average of PET, SAN, PMMA, PC, ABS, PP GWP (2022 Sphera LCI DB)
GWP for SK chemicals: average of GWP for PETG-CR50 and Claro-CR50 (UL EPD report)
❸ Environmental Protection Agency in the US (EPA)

Securing the World's First Recycle Materials & PET Production System

SK chemicals has signed an asset transfer agreement with Shuye, a Chinese green materials specialist, for its circular recycle materials and circular recycle PET business-related assets. Shuye's assets to be acquired by SK chemicals include a depolymerization plant that chemically breaks down waste plastics into recycle materials and a CR-PET production facility that uses the resulting r-BHET to make PET again. As a result, SK chemicals has secured the world's first commercial production equipment and recycled polyester circular recycle material, and it became possible for us to also sell them separately.

By acquiring Shuye's assets, SK chemicals has secured a commercial production system for depolymerization-based circular recycle materials and products about 1-2 years faster than other Korean companies. It is expected that we will secure high price competitiveness by producing in China, where there is a lot of recycle plastic materials such as waste PET.

With this investment, SK chemicals will complete the recycle plastic value chain, starting from circular recycle materials, circular recycle PET, to circular recycle copolyester (CR-Copolyester), secure the sustainability of our key business, copolyester, and grow into a leading company in the global recycle plastic market.

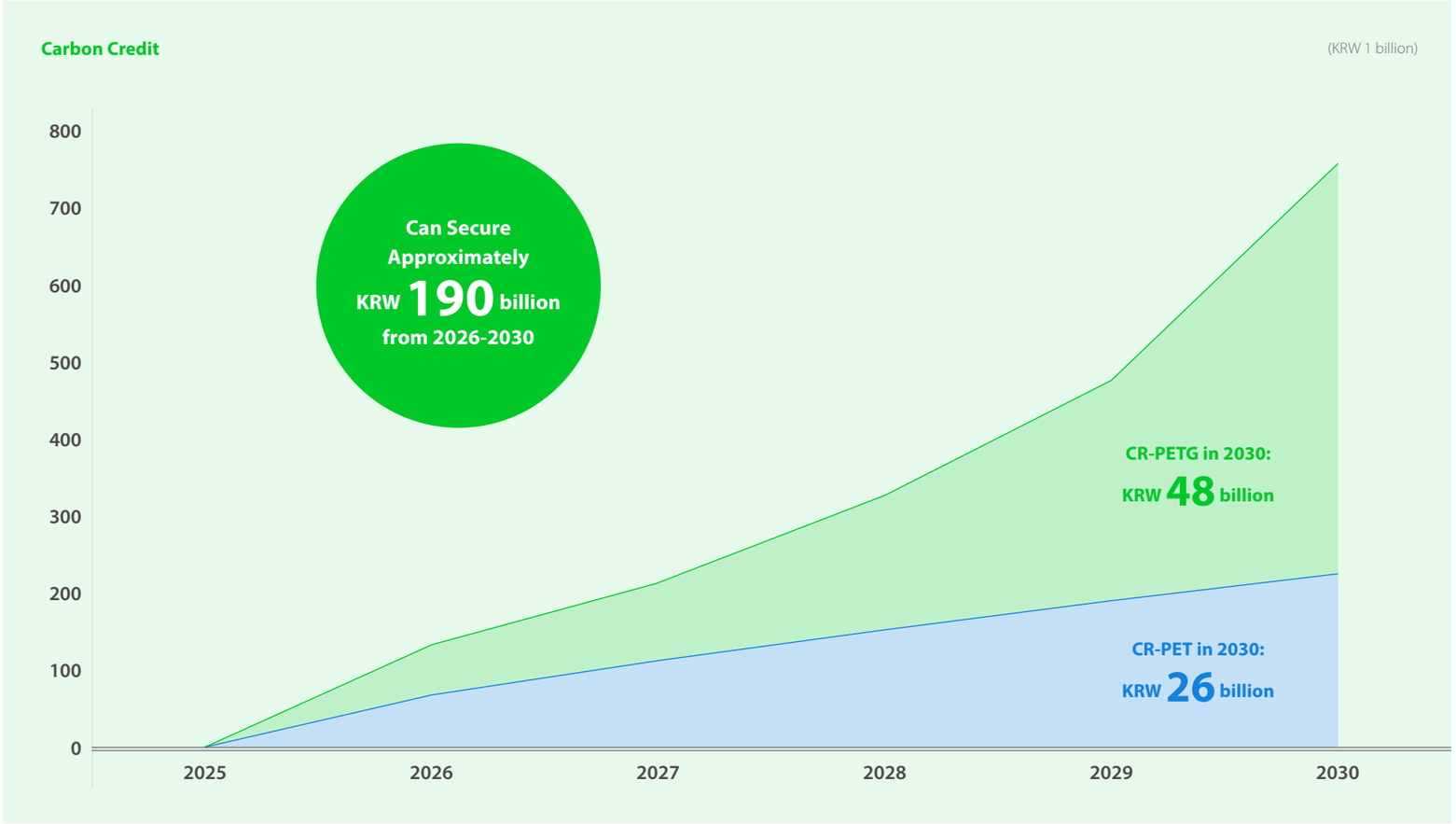
LCA-based Carbon Credit

Transitioning to an Eco-friendly Business by Securing Carbon Credit

SK chemicals is working to reduce carbon emissions by producing and selling green materials, and to generate additional revenue by converting them into carbon credits. This is in line with the trend where carbon-focused management of the past is evolving from reducing greenhouse gas in plants due to regulation to voluntarily reducing GHG throughout the value chain.

Carbon credits provide a practical means for companies to achieve Net Zero by measuring their products or services' greenhouse gas reductions contribution and certifying them as carbon reduction achievements, thereby demonstrating their environmental sustainability. These reductions are certified as carbon reduction achievements. SK chemicals aims to generate long-term financial benefits by converting autonomous greenhouse gas reductions from circular recycle and bio-based material product production/sales into Carbon Credits in accordance with global guidelines.

By transitioning to eco-friendly green material business, such as the use of environmentally friendly fuels, the adoption of renewable energy, and the expansion of Recycle Business, we expect to generate approximately KRW 74 billion in revenue and approximately KRW 190 billion in cumulative revenue in 2030. These efforts are aligned with our goal of achieving Net Zero.



Classification	Product Name	Reduction (tCO_2eq/ton)
CR-PET	SKYPET CR	1.35
CR-PETG	ECOTRIA CLARO CR50	0.66

* Estimate of carbon prices based on the IEA 1.5 ℃ Net Zero Emission scenario- Assumption: KRW 22,000 in 2022 / KRW 64,000 in 2026 / KRW 183,000 in 2030

STORY 2. STRENGTHENING CLIMATE CHANGE RESPONSE SYSTEM

Aiming for Net Zero / Building a Circular Economy

Why is responding to carbon neutrality important to SK chemicals?

Greenhouse gases are one of the main causes of global warming and extreme climate events. Climate change has serious impacts on both humans and nature, and sustainable development has become an important issue worldwide. Carbon neutrality is one possibility to realize sustainable development, and it is an important task that both businesses and individuals must take part in responsibly. In this regard, SK chemicals plans to replace products made from petroleum-based materials with discarded plastics and natural bio-based materials.

What are the social and environmental background surrounding carbon neutrality?

Setting up goals to realize Net Zero by 2040 is something that the entire world is taking part in, as responding to Climate Change became the top priority for humanity.
SK Group has shown a strong commitment to the initiative, and announced that it will reduce 200 million tons of carbon by 2030.

What is SK chemicals doing?

To achieve Net Zero, SK chemicals will convert the fuel used in our facilities to eco-friendly fuel. We are also considering using renewable energy. In particular, we are reducing Scope 1 emissions by converting the fuel used in the boiler at our Ulsan plant to hydrogen. Additionally, SK chemicals has launched an ESG Committee to establish a climate change response governance structure and enhance our carbon-neutral capabilities and climate resilience.

What are the future goals?

We aim to achieve Net Zero by 2040. To this end, we have implemented the 2040 Net Zero Roadmap that complies with the SBTi guidelines, and have set a goal to reduce or offset all expected greenhouse gas emissions of 370,000 tons.

Key ESG Index

NET ZERO	Achieve Scope 1+2	2040 Net Zero
	Ratio of PET Waste Recycling	2030 20%

Aiming for Net Zero

Progress on Net Zero

July 2021
Built and disclosed 2050 Net Zero goals to the public

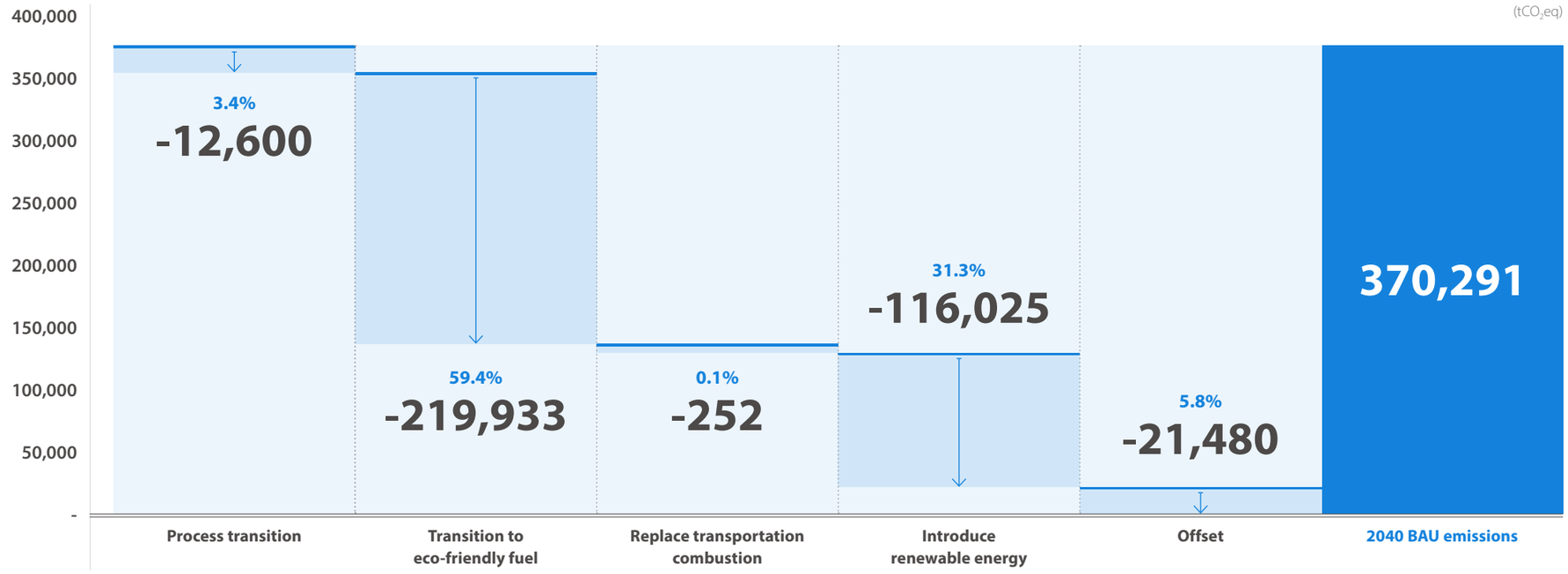
Mar. 2022
Changed goal to 2040 Net Zero and disclosed financial story

Sept. 2022
Built a Net Zero Roadmap based on SBTi

Jan. 2023
Pivoted reduction strategies for SBTi goals to be approved

Apr. 2023
Signed up to SBTi and submitted targets

2040
NET ZERO
100%



Eliminate 370K tons of GHG emissions by 2040

100%

Net Zero Methods

- **Process transition:** Transition of DMT process from CTA → QTA
- **Transition to eco-friendly fuel:** Introduce hydrogen fuel to all process in the Ulsan plant
  - Direct reduction of Scope 1 including DMT, CHDM Off-gas, and Copoly.
  - Use LNG and hydrogen fuel when producing SKMU steam to reduce GHG emissions for Scope 2 steam
- **Replace transportation combustion:** Business vehicles for the headquarters and Ulsan plant
- **Introduce renewable energy:** For solar power plant in PPA, REC, Cheongju plant

Declaration of Support for TCFD in 2022 and Become Accepted as a Member of SBTi in 2023

We have published a TCFD report in 2022, including our Net Zero target and climate action plans to external stakeholders after reporting to the ESG Committee. In addition, By submitting the target after joining SBTi in 2023, we will reduce GHG emissions with science-based greenhouse gas reduction targets. Furthermore, SK chemicals plans to strengthen our capabilities for sustainable management and implement various climate action plans to achieve Net Zero. With these efforts, we will enhance our competitiveness and contribute to creating social, economic, and environmental values all at once.

Securing Process innovation and Renewable Energy

At SK chemicals, we innovate various processes and aim to secure renewable energy to protect the environment. To this end, we have introduced a way to combust off-gas generated from the CHDM reaction process along with fuel from boilers to reduce LNG and GHG emissions. Our Ulsan plant will ultimately transition 100% from fuel to hydrogen to eliminate GHG emissions. In 2022, we built facilities and worked on securing hydrogen materials to use in the DMT process, and from the second half in 2023, we will start to officially use hydrogen fuel. Furthermore, we will reduce GHG emissions and save energy costs as we built solar power plant at the Cheongju plant in 2022. We are also working on signing PPA agreements to comply with RE100 to expand the use of renewable energy and reduce emissions. In particular, our Ulsan plant will sign PPA to actively expand the use of renewable energy.

Participation of Stakeholders and Responding to Climate Change

We feel a strong responsibility for Climate Change, and are taking part in various activities to solve the issue. The Myanmar Cookstove Project aims to improve energy consumption patterns of residents in Myanmar's arid regions, reduce greenhouse gas and air pollutant emissions, and promote public health and living environment. By sharing cookstoves, it is possible to reduce greenhouse gas and air pollutant emissions by using less firewood, improve living standards by reduce cooking time, and make people healthier. This is one of our major greenhouse gas reduction activities, and can offset a portion of greenhouse gas emissions. The amount of GHG emission reduction is equivalent to planting 7.8 million pine trees annually. We plan to distribute 18,000 cookstoves to residents in central-northern Myanmar by 2025. As a result, we will expect the effect of offsetting GHG emissions to continue through 2027.

Linking Compensation to Climate Change Performance

SK chemicals has established the "Net Zero" initiative as a KPI task for the CEO and production-related executives to effectively manage and improve Climate Change performances. Greenhouse gas emissions are included in the evaluation indicators for each executive, and they are evaluated on a scale of S, A, B, C based on their performance. KPI evaluation results are linked to the compensation system and are reflected in the calculation of CEO and executive remuneration.

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.

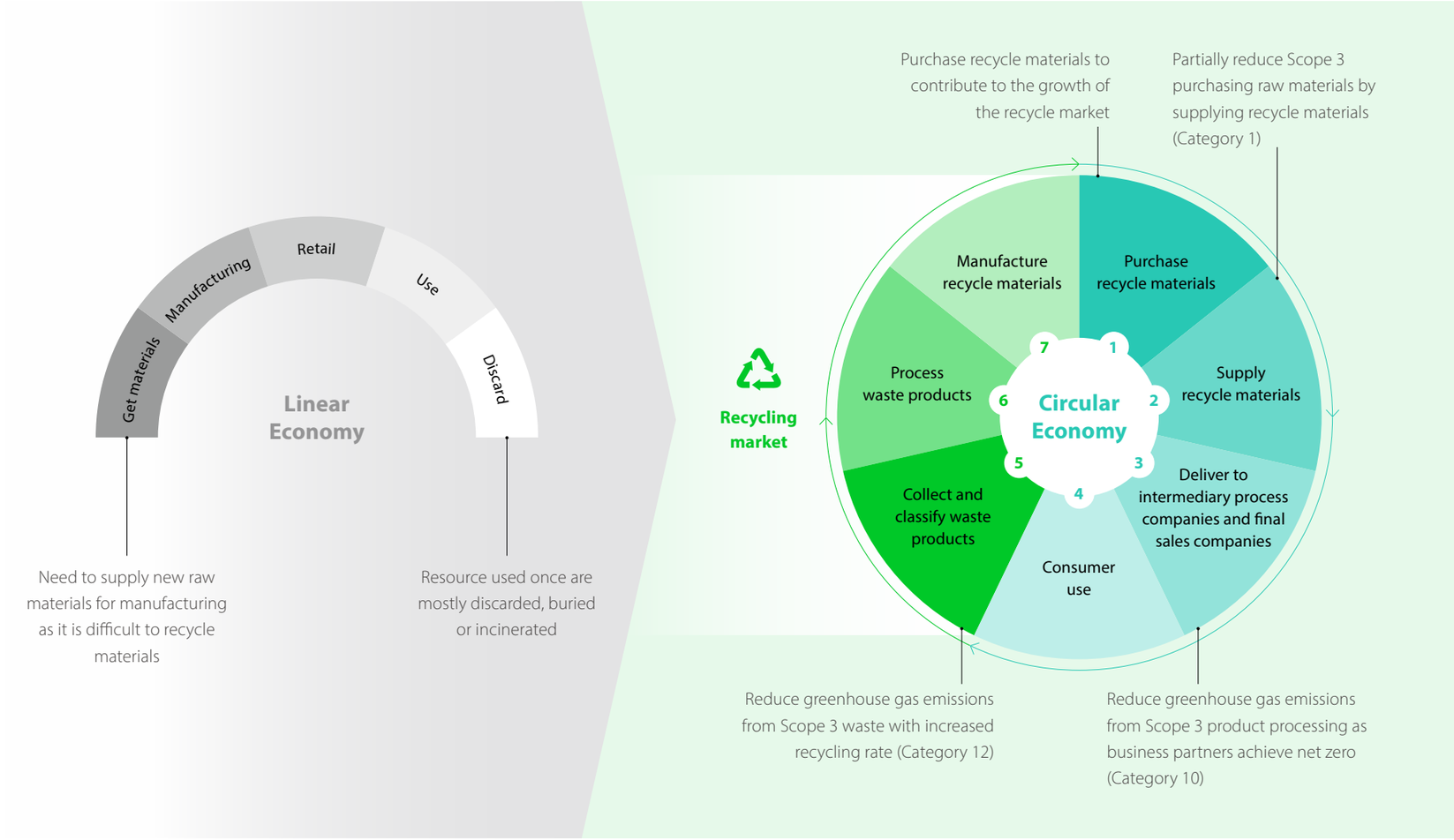
Building a Circular Economy

SK chemicals aims to build eco-friendly production process and a circular economy ecosystem for sustainable economic development. To achieve this, we are focusing on reducing greenhouse gas emissions and minimizing the environmental impact of plastics. In the existing linear economy system, resources must be continuously excavated and collected to produce products, leading to resource depletion, water pollution, greenhouse gas emissions, and other environmental factors. In contrast, in a circular economy system, resources used for manufacturing are repeatedly reused, maximizing resource efficiency and minimizing the negative environmental impact and amount of waste generated in the linear economy.

SK chemicals aims to tackle greenhouse gas emissions and Climate Change by expanding our circular economy system. Specifically, our plan is to increase the use of recycle materials in chemical product manufacturing to reduce the emissions associated with raw material procurement in the value chain (Scope 3).

SK chemicals aims to build a sustainable economic system by communicating with various stakeholders. We cooperate with local governments and waste collection companies to collect discarded plastic, recycle them into regenerated plastic, and supply them back to the market. By doing so, SK chemicals secures a stable network of recycle plastic materials and sales channels, and contributes to building a sustainable plastic ecosystem. We expect to recycle around 20% of the PET waste generated in Korea by 2030.

Strategy to Achieve Net Zero by Building a Circular Economy Ecosystem



STORY 3. STRENGTHENING AI TECHNOLOGY AND R&D CAPABILITIES

Building a New Drug Development Platform

Why is the pharmaceutical industry important to SK chemicals?

SK chemicals has the technology and experience to produce innovative products used in the pharmaceutical industry such as biosimilars and biological agents. This technology and experience are crucial for producing high-quality products in the pharmaceutical industry, and through this, SK chemicals aims to contribute to the growth of the industry.

What are the social and environmental background surrounding new drug development?

As population growth and aging accelerate worldwide, the pharmaceutical industry is attracting attention as a future growth industry that generates high added value, and the market is continuously growing. In response, domestic and foreign pharmaceutical companies are increasing investment in research and development, such as new drug development, to secure technological competitiveness. It has become necessary to establish R&D platforms utilizing open innovation and AI technology. In addition, there is a growing social demand for improving access to pharmaceuticals due to the spread of ESG management.

What is SK chemicals doing?

With a number of joint research, we have seen achievements in securing new pipelines such as patent applications for new drug candidates. We are also developing medicines for rare and incurable diseases, geriatric diseases to expand access to pharmaceuticals. Based on these efforts, we are creating various types of social value such as promoting public health and welfare, reducing social costs due to diseases, and improving the quality of life for patients and caregivers.

What are the future goals?

SK chemicals will continue developing new drugs more efficiently and effectively using AI and BIO technology, and strengthen cooperation with domestic and foreign pharmaceutical companies and BIO ventures. ESG management and social responsibility are important to us, and we will strive to create social value by improving access to medicines and preventing and treating diseases.

Key ESG Index

Accelerate the development of new drugs by signing global out-licensing contracts for open innovation new drugs and reinvesting profits from contracts in research after 2025.

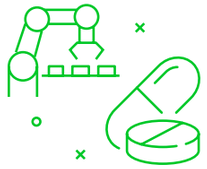
Building a New Drug Development Platform

Building an AI-based New Drug Development Platform

SK chemicals is building an R&D platform using open innovation and AI to secure future growth drivers. To this end, we are actively working on an AI-based new drug development platform by cooperating with specialized companies that have AI technology for exploring new drug candidates. In this process, SK chemicals has been able to reduce drug development time and costs by using machine learning technology based on big data to review vast amounts of data and suggest candidate materials. With the use of AI technology in drug development, SK chemicals aims to contribute to solving social issues such as rare and incurable diseases by analyzing patient data and developing specialized drugs. We are also making efforts to minimize unnecessary waste and energy usage to reduce the environmental impact of drug development. SK chemicals aims to establish an AI-based drug development platform through active open innovation and joint research with domestic and foreign AI-specialized companies, securing various new pipelines and building differentiated technological competitiveness.

Securing a New Pipeline with AI

SK chemicals has taken part in joint research with a total of seven domestic and international AI companies for new drug development until 2022. In 2021, after a joint research with Standigm, we were able to file a patent, and taken part in multi-faceted joint research with Simplex, Deargen, and others. In 2022, we discovered candidates for the treatment of non-alcoholic fatty liver disease and idiopathic pulmonary fibrosis through joint research using Doctor Noah Biotech's AI platform technology, and filed for patents. We also built new pipelines and began joint research with Oncovix, which has strengths in compound synthesis technology, Incerebro, which has a quantum physics-based AI technology platform, and Cyclica, a foreign company with a simulation AI technology platform based on molecular structure. We will continue to discover more new candidate substances by cooperating with AI companies.



Developing Drugs with AI

Conducted joint research with a total of seven domestic and international AI Companies

as of 2022

Ongentys capsule that treats Parkinson's disease treatment & Teglutik Oral Suspension that treats ALS's disease treatment

Enhancing Accessibility to Medicine

Developing Drugs for Rare and Incurable Disease

We have been working to develop drugs for rare and incurable diseases to improve the health and quality of life of patients and their families. In Korea, rare and incurable diseases are defined as diseases with less than 20,000 patients. The high cost of diagnosis and treatment places a significant economic burden on patients, leading to an increase in social costs. To address these social issues, SK chemicals has acquired a global new drug license for a rare neurodegenerative disease that currently has no effective treatment, expanding access to medication for domestic patients suffering from degenerative neurological disorders. Ongentys capsule that treats Parkinson's disease treatment capsule (active ingredient: opicapone), released in October 2020, reduces economic burdens for patients and increases convenience as patients only need to take it once a day instead of multiple times a day like existing medication. In addition, the amyotrophic lateral sclerosis treatment, Teglutik Oral Suspension (active ingredient: riluzole), released in January 2023, is in liquid form, making it possible for ALS patients with swallowing difficulties to take the medication more easily, compared to conventional solid-form drugs. SK chemicals will further expand its rare and incurable disease drug portfolio to meet the unmet needs of patients and improve accessibility.

Creating Social Value with New Drug Development

As the population rapidly ages and chronic diseases increase, social issues such as the burden of medical expenses are becoming more prominent. R&D of drugs to treat diseases is directly related to improving the health and welfare of the people, reducing social costs from diseases, and improving the quality of life. SK chemicals is striving to reduce social costs by constantly researching and investing in new drugs, providing various treatment options for patients and their families for a better life. Especially, our strengths lie in treating elderly diseases that are increasing rapidly in an aging society. We have strengthened our R&D pipelines and improved the efficacy and convenience of existing drugs for better treatment options to create social value.

3 ESG MANAGEMENT

ENVIRONMENT

Context

In order to fulfill our responsibility towards a sustainable environment, SK chemicals has been building and strengthening our environmental management system. We have outlined a roadmap for Life Cycle Assessment (LCA) of all products under the Green Chemicals Business, as well as a biodiversity system. The efforts mentioned in this report go beyond reducing environmental impacts at the workplace and include producing eco-friendly products and conducting research and development to minimize our environmental footprint. We will continue our efforts to address issues such as depletion of natural resources and ecosystem destruction caused by Climate Change, by achieving our SBTi-based Net Zero roadmap.

➡ **Scope of reporting business sites:**

SK chemicals	Headquarters (ECO Lab), Ulsan plant, Cheongju plant (S HOUSE)
SK multi utility	Ulsan plant
SK bioscience	Andong plant (L HOUSE)

Approach

We are striving to internalize environmental management to strengthen our greenhouse gas reduction targets and environmental risk management system. When making investment decisions, we review feasibility in terms of ESG, and continue activities to enhance corporate competitiveness and create eco-friendly performance results, such as expanding coverage of certified business sites for environmental management, expanding green portfolios and circular recycle.

2022 ACHIEVEMENT & PROGRESS

Key Areas	Key Agenda	2022 Targets	2022 Achievements	Mid- to Long-term Plans	page
Environmental Management Strategies and System	Strengthen ESG governance and system	Give the responsibility of environmental management manager to the committee within the BoD	· Reviewed and reported items related to the environment to the ESG Committee	· Stronger monitoring of environmental management from the top management	36
	Build an environmental management system	Expand the coverage for environmental management certified business sites	· Received ISO 14001 for business sites accounting for 92% of all sales	· Receive ISO 14001 for all business sites by 2024	38
	Stronger investment screening	Build an investment feasibility review system from an ESG perspective when making investment decisions	· Revise the regulations for the Investment Screening Committee (Investment exclusion review, compliance to the K-taxonomy guidelines)	· Minimize the possible environmental/social impacts when deciding to invest in new businesses	38
Sustainable Product Manufacturing and Responsibilities	Expand the Green Portfolio	Increase sales of environmental efficient products	· 56% of total sales came from environmental efficient products[1]	· Produce 100% Recycle Copolyester by 2030 · Expand the share of green material sales to 80% by 2030 and 90% by 2040	40
	Reduce the use of harmful chemicals	Build and implement plans to replace harmful chemicals	· Reduced the use of solvent naphta by 35% compared to last year	· Eliminate the use of solvent naphta by 2025	42
	Expand LCA	Build LCA roadmap for all products of the Green Chemicals business and implement the stages	· Completed LCA for DMT, CHDM, as well as 19 types of Copolyester	· Complete LCA for all products of the Green Chemicals business by 2025	44
Climate Change Responses	Establish a Climate Change System	Identify climate change opportunities and risks and establish responses	· Built a SBTi-based Net Zero Roadmap · Published the first TCFD report	· 2023: Sign up to SBTi and submit goals · 2024: Gain approval for the SBTi GHG reduction targets	45
	Reduce Greenhouse Gases (GHG)	Build plans and implement measures to emit 266K tons of GHG and reduce GHG emissions	· Emitted 267K tons of GHG · Achieved greenhouse gas reduction performance by constructing solar power plant at the Cheongju plant, using CHDM off gas and improving the DMT process	· Use 100% renewable energy in 2032 · Reduce at least 50% of GHG emissions compared to 2021 by 2032 · Achieve Net Zero in 2040	47
Preserving Biodiversity	Establish a Biodiversity System	Establish a Biodiversity System	· Established biodiversity policies and report to the ESG Committee · Nature purification activities to preserve biodiversity	· Strengthen activities for biodiversity risk analysis and conservation	49
Water Resource Management	Water Resource Risk Management	Recycle at least 90% of water	· Included water recycling rate in the KPI of employees, link to rewards · Participated in CDP Water Sector	· Strengthen the water resource risk management system by incorporating the physical risk analysis according to climate change	52
Pollutant Management	Expand Waste Recycling	Acquire at least Bronze level for ZWTL	· Acquired ZWTL Silver for Ulsan Plant (Actual recycling rate 94%)	· Maintain ZWTL Silver in 2023 · Acquire ZWTL Gold in 2024-2025	54
	Reduce Pollutants	Manage the concentration of pollutants with an internal guideline that is stricter than the emission regulations	· Water pollutants: 60% compared to the emission regulations · Air pollutants: 70% compared to the emission regulations	· Implement a stricter internal guideline than the emission regulations Water pollutants for 2023 : BOD, COD, SS 50%, TOC 80% Air pollutants for 2023 : SOx, NOx, dust 50%	55

[1] Environmental efficient products : Products certified to use eco-friendly/recycle materials such as C2C, GRS, ISCC Plus (SKYGREEN, ECOZEN, ECOTRIA, CLARO, ECOTRION, CR-PET)

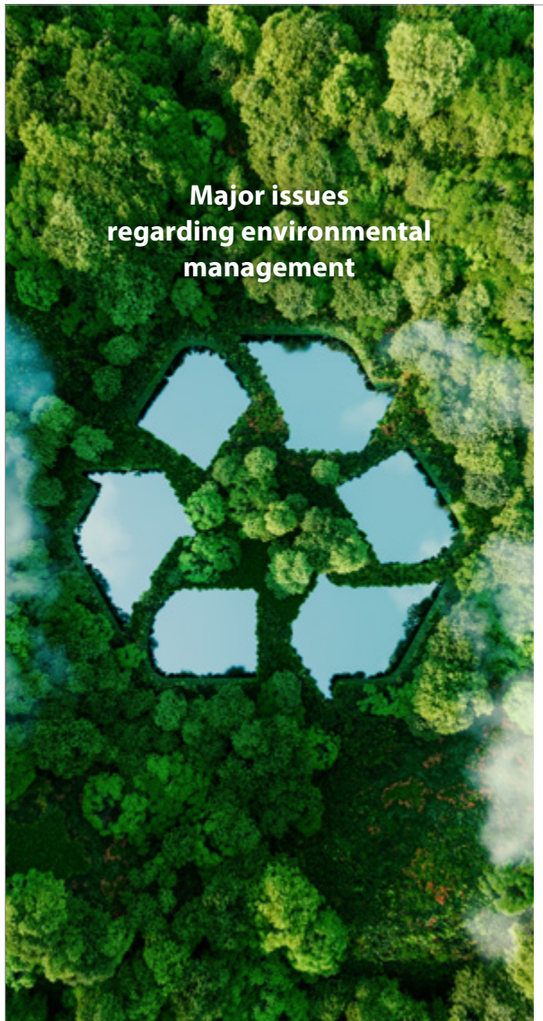
1. ENVIRONMENTAL MANAGEMENT STRATEGY & SYSTEM

Environmental Management Strategies and Governance

Environmental Management Strategy and Goals

SK chemicals is committed to continuous innovation to provide eco-friendly products and services for our stakeholders. We practice 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 recycle business to develop recycle technologies that can increase the recycling rate of waste. 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 Management Guidelines



Sustainable Product Manufacturing and Responsibilities
Expand the green portfolio, secure product safety based on LCA, manage and replace harmful chemicals in an organized way

Climate Change Responses
Build strategies and responses based on SBTi, reduce the use of energy

Preserving Biodiversity
Take a biodiversity approach and build relevant systems, manage risks related to and improve biodiversity

Water Resource Management
Build and monitor a water resource risk management system, recycle water resources and reduce the amount of waste water

Pollutant Management
Manage wastes and expand recycling, reduce air pollutants

Environmental Management Governance

At SK chemicals, we reformed the environmental management organizational system with the ESG Progress Team systematizing environmental management. The 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. Each business site is dedicated to realizing these goals. We will continue to improve company-wide management systems to build environmental management strategies for each business and empower our capabilities to implement them.

Environmental Management Organization

BoD (ESG Committee)

CEO

Head of Ulsan Plant	Head of SHE Planning Division	Head of Management Support Department	Head of Cheongju Plant	
Safety Environment Team	**SHE Planning Team**	**ESG Progress Team**	**Technical Support Team**	**SHE Team**
· Environmental Part - Respond to laws and inspections related to air/water quality/ chemicals/waste/soil - Permit - Operate wastewater processing plant - Organize comprehensive laws - ZWTL certification **· Safety Part** - Respond to laws and inspections related to industrial safety and health/Serious Accidents Punishment Act/fire/risk objects/ high-pressure gas - Permits - Manage business partners - PSM/ISO certification - SHE inspection - Build SHE regulations and processes	**· Build and implement companywide SHE management system** **· Planning Part** - Safety planning - Environmental planning **· Operation Part** - Assessment planning - Support planning - Health management	**· Establish companywide ESG management system/build management strategies** **· Respond to external ESG assessments** **· Build companywide Climate Change Responses strategies** - Build and implement strategies for 2040 NET ZERO - Develop carbon reducing certification methodology and aim for certification	**· Environmental Part** - Inspect waste water/air emission facilities and waste management - Respond to greenhouse gas laws and inspections **· Safety Part** - Review all firefighting facilities and equipment	**· Environmental Part** - Respond to laws and inspections related to chemical substances and permits - Review important regulations - SHE inspection - PSM/ISO certification - Build regulations and processes **· Safety Part** - Respond to laws and inspections related to occupational safety, risk items, fire/health - Permits **· Health Part** - Respond to health-related laws

Environmental Management System and Investment

ISO 14001, Building an Environmental Management System

SK chemicals aims to enhance its voluntary commitment to environmental management and promote environmental communication with stakeholders by disclosing information on raw materials, air and water pollution substances, energy usage, greenhouse gases, safety, and health through the "Environmental Information Disclosure System" to the government and relevant institutions. Since 2020, we have also built our own SHE IT System to systematically collect and manage environmental and safety-related data from all business sites.

Our Ulsan Plant obtained ISO 14001 certification, an environmental management system certification from the International Organization for Standardization (ISO), in 2005. It undergoes annual post-certification audits and renewal audits every three years. The Cheongju Plant has also established an environmental management system and obtained ISO 14001 certification in September 2022. As a result, SK chemicals has obtained ISO 14001 certification for business sites accounting for 92% of our total sales. To upgrade our environmental management system and oversee more aspects of environmental management, SK chemicals strongly recommended our subsidiary, SK multi utility, to obtain the ISO 14001 certification.

ISO 14001 Certification Status

Business Site	ISO14001	Sales Proportion*
SK chemicals Ulsan Plant	O	50%
SK chemicals Cheongju Plant	O	17%
SK bioscience Andong Plant	O	25%
SK multi utility Ulsan Plant	-	8%

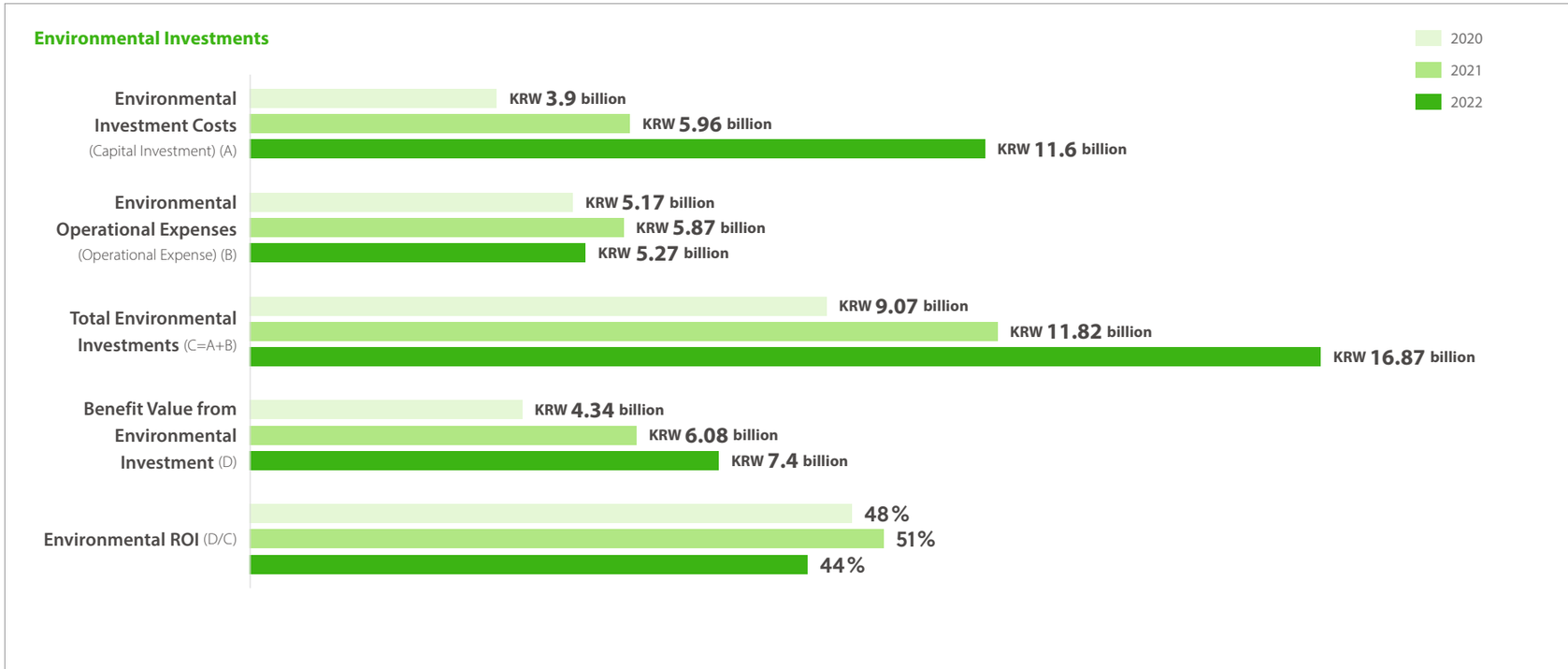
*A consolidated basis

Environmental Investment

SK chemicals has established systematic environmental investment principles to minimize environmental impact and generate benefits for the environment. In particular, the environmental investment costs, which will determine the future growth direction of SK chemicals, have also been increasing each year. In 2022, there was an increase in environmental investment costs compared to the previous year, attributed to the installation of solar power plant at the Cheongju Plant, the establishment of prevention facilities in compliance with strengthened water quality management standards at the Ulsan Plant, and improvements to the emissions control facilities in the CHDM process.

Sanctions Regarding Environmental Compliance

SK chemicals strives to comply with environmental regulations. As a result, in 2022, our penalties and fines were less than USD 20,000. Furthermore, over the past three years, SK chemicals has not incurred significant fines or non-monetary sanctions due to violations of environmental management, demonstrating our commitment to stable environmental practices. SK chemicals will continue to make ongoing efforts to comply with environmental compliance and establish a robust internal audit system and training programs to maintain and enhance the trust of all stakeholders.



Eco-friendly Business Sites

Building Eco-friendly Business Sites

SK chemicals has considered the environmental impact from the construction of business sites and has introduced eco-friendly architectural technologies such as energy efficiency. Notable examples include the company's headquarters, ECO Lab, and the L HOUSE at SK bioscience's Andong Vaccine Center. Both buildings have obtained domestic and international certifications for green buildings, and the L HOUSE, in particular, is the world's first pharmaceutical manufacturing facility to comply with the stringent certification standards of Good Manufacturing Practices (GMP) while also achieving the LEED Gold certification, a prestigious green building rating system in the United States.

Domestic and international green/LEED/energy certifications

Korean green building certification (GBCC)	International green building certification (LEED)	Energy efficiency level for buildings
Obtained the top score for level 1 green building (110 Points)	Obtained Platinum level for the first time among residential buildings	Obtained level 1 energy efficiency

Eco-friendly Technologies Applied in the ECO Lab

SK chemicals has applied 101 technologies, including architectural plans, IT technologies, and eco-friendly elements, when building the ECO Lab in the headquarters, to minimize environmental impact by reducing energy and resource consumption.

1. **BIPV (Building Integrated Photovoltaic System)**: Uses solar panels installed on the building's exterior to generate electricity, serving as an alternative energy source for lighting and heating systems
2. **Rainwater System:** Collects rainwater and dewatering (groundwater) from the building's roof and surroundings and reuse it as non-potable water for landscaping and water conservation, contributing to water resource conservation and flood prevention
3. **Geothermal Heat Pump System:** Renewable energy system that takes advantage of the constant temperature of geothermal energy (approximately 15℃) to operate heat pumps at high efficiency, enhancing the energy efficiency of the building's cooling and heating system

Eco-friendly business site status

Headquarters ECO Lab → Apply architectural design with 101 eco-friendly materials and technologies →

- **Compared to existing business facilities** → Reduced energy by **44%** | Water resource by **63%** | CO_2 emissions by **31%** (Equivalent to planting 94,000 pine trees annually)
- **Energy efficiency of business buildings** → **Obtained Level 1**
- **Certification as green buildings** → **LEED Platinum level** **GBCC Level 1**

SK bioscience L HOUSE (Andong) → Introduced 16 eco-friendly technologies →

- **Compared to existing plants** → **Reduced energy usage by approximately 30%**
- **Certification as green buildings** → **LEED Gold level**

LEED: Leadership in Energy and Environmental Design, U.S. green building standards
GBCC: Green Building Certification Criteria, Korean green building certification

2. PRODUCT STEWARDSHIP

Expand the Green Portfolio

Circular Recycle Solution

Expanding the Reduction of Waste Plastic I As part of its companywide Eco Transition Strategy since 2021, SK chemicals has been engaged in the Circular Recycle (CR) PET business and the establishment of a domestic PET recycle ecosystem. We started to mass-produce CR-PET, applying circular recycle technology for the first time in the world, since 2021. In 2022, CR-PET sales recorded 1,000 tons. Furthermore, SK chemicals aims to establish a circular economy by targeting a 20% recycle rate for PET waste collected domestically by 2030. In addition, we will enhance the mechanical recycle (MR) and circular recycle (CR) technologies for recycling waste PET, as well as secure additional production infrastructure for CR-PET in Korea. The ultimate goal is to achieve a 100% Recycle Portfolio by selling CR-PET until 2030.

SK chemicals is actively promoting and commercializing CR-PET. Also, we cooperate with the government and private sector to address the collection and recycling of PET waste in Korea. Furthermore, we are also working to secure domestic feedstock for recycling.

By applying recycle PET, SK chemicals aims to contribute to waste reduction and carbon emissions. Furthermore, by exploring the possibilities of circular recycle for low-grade materials that would otherwise be landfilled or incinerated, we will also reduce overall waste generation. Moving forward, SK chemicals will continue to focus on expanding the sales of CR-PET and securing recycled feedstock, actively participating in the establishment of a recycle ecosystem.

SKYPET CR Sales

Commercial use of SKYPET CR to 500ml bottles of Jeju Samdasoo
- Samdasoo became the Re:Born winner for the 2022 Packaging Contest

Sugar Eco
- Introduction of circulating recycle PET (Reduced 60 tons of plastic annually)
- Singed MOU to cooperate in the plastic resource circular ecosystem with eco-friendly detergent containers

Applied to the front and back glass of Samsung Galaxy S23 case and decoration film within the phone
- Commercialized the protective film and glass design film of the back cover

Officially Launching the Circular Recycle Business I As part of its efforts to reduce plastic waste, SK chemicals cooperates with brand owners and local governments to establish and commercialize a domestic PET recycle ecosystem and promote a circular economy that can increase the recycling rate. In 2021, we signed a Memorandum Of Understanding (MOU) with Gwangsan-gu, Gwangju Metropolitan City, and Jeju Special Self-Governing Province Development Corporation (Samdasoo) to establish an eco-friendly resource circulation system. In addition, SK chemicals has acquired related overseas companies to focus on securing circular recycle materials and leading the CR-PET market, contributing to the reduction of plastic waste.

The circular recycle PET, called "SKYPET CR," is used for everyday products such as Jeju Samdasoo bottled water, Sugar Eco kitchen detergent, and Samsung Galaxy S23. Based on these achievements, SK chemicals plans to continue efforts in developing new products, expanding production infrastructure, and strengthening global marketing to ensure a stable supply of recycled CR-PET to various industries domestically and internationally.

"'Circular Recycle' or 'Circular Recycling' within the report refers to 'Chemical Recycle.' SK chemicals is opening the circular recycle materials market by emphasizing the infinite recycling possibilities of chemical recycle products as a major future business."

Development of Eco-friendly Bio Materials

Commercializing PO3G, 100% Bio-based Eco-friendly Polyol | Through extensive research and development, SK chemicals has established a production system for annual production of 5,000 tons of bio-polyol PO3G (brand name: ECOTRION) and commenced full-scale production from 2022. The commercialization of bio-polyol PO3G is the first in South Korea and the second case globally.

ECOTRION is the polyol produced by fermenting 100% of corn. It is an essential ingredient used in the manufacturing of urethane elastic materials, spandex, synthetic leather, and other products. In particular, ECOTRION is an eco-friendly material that could reduce greenhouse gas emissions compared to conventional petrochemical products. It has gained attention from companies in the global fiber and sports goods markets where carbon regulations are being strengthened, such as the EU.

Achievements and Plans for Developing Bio Materials | Bio-polyol PO3G, made from corn, has obtained 100% bio-based material certification from relevant institutions in the United States and Europe[1]. In addition, when we analyzed the Life Cycle Assessment (LCA) of PO3G according to the International Standard PEFCR guidance[2], it was shown that PO3G can reduce 45% greenhouse gases emitted during the manufacturing process compared to conventional polyol. Moving forward, SK chemicals will continue its efforts to expand the scope of Life Cycle Assessment through collaboration with raw material suppliers and customers, aiming to further reduce environmental impacts.

Furthermore, with the PLA business, which focuses on biodegradable materials, SK chemicals aims to enhance its competitiveness in the field of eco-friendly materials. PLA is a unique biodegradable material suitable for film packaging applications such as disposable bags, shopping bags, and zipper bags. By proactively responding to the globally expanding market for environmentally friendly materials, including plastic regulations, SK chemicals seeks to contribute to solving environmental issues.

Development of the Use of Bio Materials and Expanding Sales | SK chemicals supply the natural-based material ECOTRION to Hyosung TNC, a spandex specializing company, and global 3D printing company Carbon. Hyosung TNC has launched the world's first bio spandex using SK chemicals' ECOTRION. SK chemicals also supplies ECOTRION to Carbon, a 3D printing company that produces premium sports materials. Carbon applies ECOTRION to its 3D printing liquid resin to manufacture high-performance sports products that require shock absorption and support, supplying them to renowned sports brands worldwide. Furthermore, SK chemicals received a great response at the NW Materials Show, a prominent shoe exhibition in the western United States to promote ECOTRION. The company plans to develop ECOTRION for various purposes to meet customer needs and further expand the market.

ECOTRION Commercial Production Ceremony

Automotive synthetic leather seats made with SK chemicals Bio-polyol 'ECOTRION'

(left) Grid Material using 3D Printing Resin of ECOTRION
(right) Bio spandex garment using ECOTRION

[1] Certified as BioPreferred Label from the United States Department of Agriculture (USDA) and TUC bio from Europe
[2] PEFCR: Product Environmental Footprint Category Rules, European Commission

Using Renewable Raw Materials

SK chemicals is expanding its use of recycle materials while building a green portfolio.

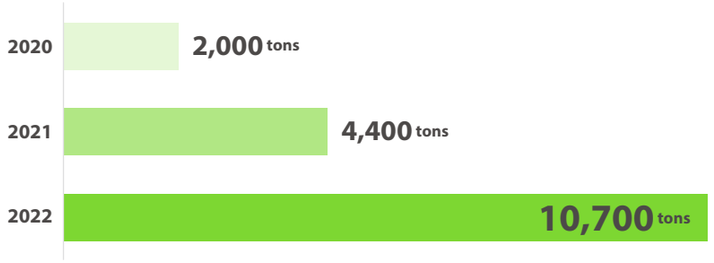
ECOTRIA R, which incorporates 30% post-consumer recycled (PCR) PET material, has obtained the Global Recycled Standard (GRS) certification. ECOTRIA R is classified as PET, identified by international plastic resin code #1, and it has garnered significant interest in overseas markets as it can be recycled into PET after use.

In 2021, SK chemicals began mass production of "ECOTRIA CR," a product that incorporates circular recycle technology. It has obtained certifications such as Global Recycled Standard (GRS) and ISCC (International Sustainability & Carbon Certification) Plus for the use of post-consumer recycled (PCR) materials.

The bio-based copolyester, ECOZEN, utilizes Isosorbide derived from corn as its raw material, which has the effect of absorbing 1.807kg of carbon dioxide per 1kg. Also, we use various renewable materials such as r-BHET (recycled BHET) and 1,3-Propanediol derived from corn-based bio-polyols, and will gradually use more of these materials.

Use of Renewable Raw Materials

* Total amount of renewable raw materials used Isosorbide, 1,3-Propanediol, r-BHET, PCR PET



Systematic Management of Harmful Chemical Substances and Replacing Them

Establishing Chemical Substance Management Governance

SK chemicals strengthens management of chemical substances with the Risk Management Committee under the BoD. To ensure effective risk management, a dedicated department called the Product Stewardship & Regulation Affairs (PSRA) team has been established, focusing on product responsibility and internal audit over human impact. We aim to achieve company-wide chemical safety goals beyond regulatory requirements. From a systemic perspective, SK chemicals has implemented a Chemical Management System (CMS) to prevent accidents caused by human errors in the chemical substance production process. We also established processes to review product design and development, ensuring they have no harmful effects on human health.

Strengthening Chemical Substance Management Policies and System

SK chemicals has thoroughly established a chemical substance management system to monitor compliance with regulations. We adhere to domestic regulations such as the Chemical Substances Control Act and the Act on the Registration and Evaluation, etc. of Chemical Substances. Under the Act on the Registration and Evaluation, etc. of Chemical Substances, we verify the Chemical Safety Report (CSR) data for risk assessment of human health and the environment during the manufacturing process and carry out hazard justification. We also assess compliance with food contact regulations (safety assessments), VOC (Volatile Organic Compounds) certification for durable goods, substance registration regulations such as RAPID Sheet (Act on the Registration and Evaluation, etc. of Chemical Substances, REACH, etc.), food contact regulations (FDA, EFSA, NSF, etc.), and hazardous substance regulations (SVHC, RoHS, etc.) to ensure the safety of products in terms of their use and disposal and their impact on human health.

In particular, SK chemicals has implemented the RAPID (Regulatory Affairs Product Stewardship Information Sheet) as a new chemical substance safety management policy to manage operational processes and product design, enhancing chemical substance safety management. The RAPID process prohibits the sale of products that do not meet all criteria, including REACH and international standards[1][2].

To handle all chemical substances in a safe and appropriate manner, SK chemicals has established a Chemical Management System (CMS). With CMS, we manage the use of chemical substances throughout the entire process, from purchasing raw materials to manufacturing products and disposal, aiming to prevent potential risks.

Chemical Substance Management Empowerment Program and Achievements

SK chemicals provides training for employees on company policies regarding chemical safety, regulations, handling, and overall chemical management. The training has been upgraded to ensure that chemical safety policies are reflected in aspects such as MSDS (Material Safety Data Sheets), chemical substance management, and chemical product development, in order to prepare for chemical leakage incidents.

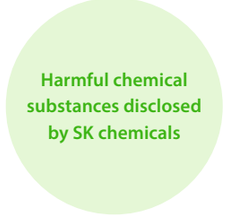
Furthermore, SK chemicals has implemented Key Performance Indicators (KPIs) to measure and monitor chemical management performance. The chemical substance management KPIs encompass various aspects, including the successful implementation of CMS (Chemical Management System), achieving 100% inclusion of human impact in LCA (Life Cycle Assessment) for all products, phased elimination and substitution of hazardous substances, and development of alternative technologies.

[1] Chemical substance management system and regulation information of major countries: REACH/TSCA/DSL / KECI / KECI / ENCSC / IECC / TCSI / RoHS / SVHC / California Proposition 65 / BPA / PFAS / PAHs, etc.
[2] Food contact regulation compliance information: FDA / EFSA – ECOTRIA CR received GRS certification

Transparent Disclosure of Chemical Substances

SK chemicals aims to assist various stakeholders in selecting safe and eco-friendly chemical products by transparently disclosing our efforts to manage harmful chemicals. To do so, we identify harmful chemicals, such as substances subject to international standards like SVHC (Substances of Very High Concern) and Sin List, as well as toxic and prohibited substances under the Korean Chemical Substances Control Act and the Act on the Registration and Evaluation, etc. of Chemical Substances. The specific content and total amount of these hazardous chemicals contained in products are disclosed on the company's website.

Transparent Disclosure of Chemical Substances



Global Standards	Domestic Standards[1]	
SVHC Sin List	Toxic substances Restricted substances Prohibited substances	Accident-preparing substances Permitted substances

Replacing Harmful Chemical Substances

SK chemicals has established and implemented a phase-out plan for the use of harmful chemical substances. In the long term, SK chemicals aims to replace the usage of all harmful chemical substances to ensure the health and safety of stakeholders and minimize the impact on the global environment and ecosystems.

In 2022, a medium- to long-term plan was established to change and develop substances used in SKYBON products to ones that do not pose any harmful issues. By 2025, we will achieve a 100% reduction in the use of Solvent Naphtha. To accomplish this, SK chemicals provides an annual roadmap and includes the progress and achievement of the phase-out plan in the executive Key Performance Indicators (KPIs), making efforts to achieve the goal of substituting harmful chemical substances. (Four-year reduction targets: 10% in 2022, 40% in 2023, 60% in 2024, and 100% in 2025)

Targets to Replace Harmful Chemical Substances

Classification	Performance		Targets	
	2021	2022	2023	2025
Use	326 tons	213 tons	195 tons	0

Chemical Substances Management and Replacement (Phase-out) Achievements

SK chemicals is continuously making efforts to enhance chemical substance management capabilities. We launched the Chemical Research Institute in 2021, and in the first half of 2022, CMS was implemented at the Ulsan Plant to better manage chemical substances. Also, we developed a "Chemical Accident Prevention and Management Plan" to comply with regulations related to harmful chemical substances and improve site safety. Measures such as accident prevention, off-site impact assessment, and emergency response programs are implemented to minimize damages in the event of a chemical accident.

SK chemicals is actively working to replace harmful chemical substances that we use. With optimization of DMT raw materials, we significantly reduced the use of PX, and in May 2022, completely substituted it. Furthermore, in addition to providing MSDS for each product, SK chemicals publicly discloses the usage of harmful chemical substances on the website to increase trust in Sustainable Product Manufacturing and Responsibilities. As a result of these efforts, there were no environmental/safety accidents related to chemical substances and no violations of chemical substance-related regulations last year.

2020-2022

Chemical substance leaks
Excessive exposure to chemical substances for employees
Violation of chemical substance regulations

0 Cases

[1] Act on the Registration and evaluation, etc. of Chemical Substances, Chemical Substances Control Act

Securing LCA-based Product Safety

Strengthening LCA for product safety

SK chemicals is strengthening its LCA (Life Cycle Assessment) policy to ensure the chemical safety of its products. Following the Cradle-to-Gate principle, we enhanced the criteria to include human health impacts in the existing LCA parameters. Furthermore, SK chemicals has reinforced its policy to conduct 100% LCA, including human health impacts, for all chemical products manufactured by the company.

Managing Product Impact with LCA

In 2022, LCA (Life Cycle Assessment) was conducted in collaboration with third-party organizations for 19 product groups of copolyesters (ECOZEN, ECOTRIA, SKYGREEN, CLARO) at SK chemicals. Among them, 9 product groups obtained UL Environmental Product Declaration (UL EPD) certification. In addition, a comprehensive assessment was conducted for an engineering plastic product group (SKYPURA-PCT) and raw material products, SKYDMT and SKYCHDM, which are used as raw materials for various polymer resins.

This indicates that 90% of SK chemicals' Green Chemicals Business revenue in 2022, and 68% of the total revenue including the Pharma Business sector underwent an LCA assessment. SK chemicals is committed to minimizing environmental and social impacts associated with product manufacturing. This is why we strive to produce environmentally friendly products.

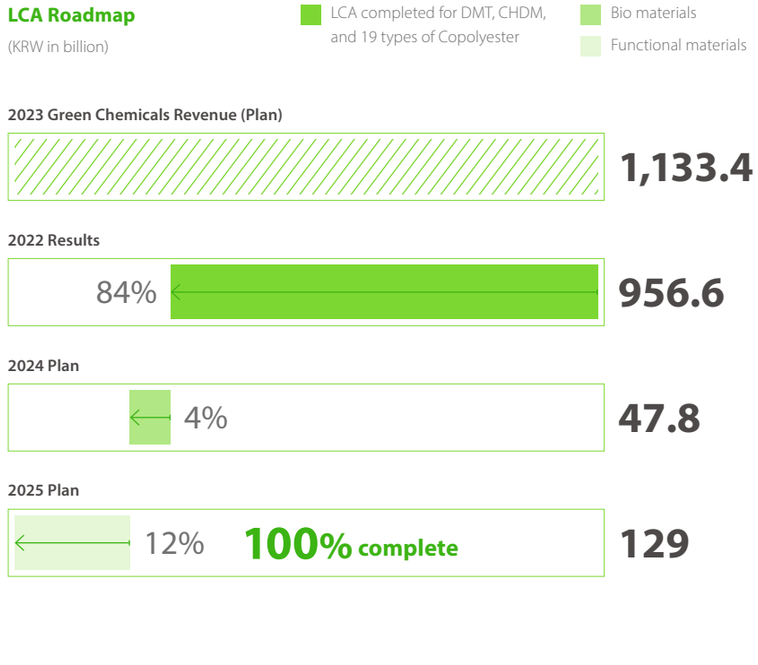
LCA Roadmap for All Products / Goals and Achievements

SK chemicals has built LCA roadmaps for all products of our Green Chemical Business until 2025. Following the roadmap, by 2024, new facilities will be built, and LCA for the production of bio-based material PO3G, which started mass production in 2022, will be secured for the mass-produced products by 2024. Furthermore, by 2025, we will expand LCA to functional materials such as SKYBON and SKYPEL products.

In addition, selected products that have undergone LCA were subjected to obtaining UL EPD (Environmental Product Declaration) certification. Based on 3rd-party LCA, a total of nine product groups consisting of SKYGREEN (2 product groups), ECOZEN (5 product groups with bio-based materials), and ECOTRIA CR (2 product groups utilizing recycle materials) within the copolyester category, totaling 72 graded products, have obtained UL EPD certification. As a result, we were able to be recognized for reducing carbon by 15-17% compared to conventional petroleum-based copolyesters.

12 LCA Impact Categories of SK chemicals

6 categories from other companies	Additional 6 categories at SK chemicals
Carbon footprint	Land use
Acidification	Ecotoxicity
Eutrophication	Human toxicity
Global warming	Lonizing radiation
Ozone layer destruction	Lack of water (use)
Photochemical smog	Dust and fine dust



3. CLIMATE CHANGE STRATEGY

SBTi-based Climate Change Strategies and Responses

Establishing Climate Change Strategies

SK chemicals has established a carbon neutrality strategy in response to the Changing Climate crisis, which is publicly disclosed to all stakeholders. To identify the risks and opportunities associated with Climate Change, materiality assessments were conducted considering both business sites and the Value Chain. The assessments were categorized into short-term, medium-term, and long-term strategies to set the directions.

Furthermore, we set a target to achieve Net Zero in 2040, and disclosed detailed reduction pathways. SK chemicals incorporates these targets into the overall management and executes them systematically. By formulating climate change strategies, we can anticipate the costs of achieving Net Zero, as well as the potential fluctuations in revenue and profitability in the core business areas due to future changes in carbon prices and policies. Moving forward, SK chemicals plans to strengthen its climate change strategy by anticipating and preparing for various variables that may arise during the journey towards achieving Net Zero, thereby minimizing uncertainties.

To reduce emissions by 50.4% by 2032 compared to 2021, we are sequentially implementing reduction and offset measures through the conversion to eco-friendly fuels for business sites, introduction of renewable energy, portfolio transformation, and the Cookstove CDM project. Also, by 2040, SK chemicals aims to reduce emissions by 92% compared to 2021 by expanding the use of hydrogen fuel and renewable energy. In particular, to achieve a 100% transition to renewable energy by 2032, we will actively invest in solar power generation, PPA, REC, and other measures to secure renewable energy sources. Moreover, we will reduce over 90% of emissions compared to 2050 BAU including our subsidiaries to reduce GHG throughout the value chain.

Subsidiaries such as SK multi utility and SK bioscience are also actively pursuing carbon neutrality. They develop strategies to reduce GHG and monitor the results based on IT systems. Furthermore, we encourage them to establish targets on reducing GHG based on Science-based methodologies to (SBT) by 2028, to achieve Net Zero.

Stakeholder Participation and Communication

SK chemicals is committed to participating in global efforts to mitigate the average global temperature increase, including supporting the TCFD declaration and participating in SBTi. In addition to this, we seek sustainable development by enhancing collaboration with stakeholders. By closely cooperating with suppliers, consumers, local governments, and various stakeholders, SK chemicals aims to lead the eco-friendly circular economy ecosystem and play a crucial role as a key participant in driving market growth. Furthermore, to achieve the 2040 Net Zero goal based on economic viability and feasibility, SK chemicals will annually publish TCFD reports to transparently disclose its climate strategy.

SK chemicals Net Zero Solution

The Climate Change strategy is divided into two categories: Net Zero Operations and Net Zero Chemicals. "Net Zero Operations" focuses on short-term and medium-term strategies to reduce Scope 1 and Scope 2 emissions by increasing the use of eco-friendly and renewable energy. It aims to achieve carbon neutrality at business sites and establish a circular ecosystem that reduces waste by using eco-friendly materials, such as recycle raw materials. To this end, SK chemicals has set a detailed target to achieve a 20% recycling rate for PET waste collected domestically by 2030.

To pursue long-term strategies under "Net Zero Chemicals," we are heavily investing in R&D to develop chemical products that minimize environmental impact by utilizing eco-friendly materials. SK chemicals is also driving the Circular Recycle business to achieve a "Bottle to Bottle" circular economy and expanding the production and sale of CR-PET (Circularly Recycle PET) and CR-Copolyester, thereby strengthening our business system based on ESG management. Throughout this process, we aim to contribute to the circular economy by pursuing carbon neutrality from an LCA perspective, considering all stages from product design to disposal and recycle.

SK chemicals TCFD report

	Risks and Opportunities	Major Business Impacts	Responses of SK chemicals	Net Zero
Low-carbon, Eco-friendly Business Sites	· **Policy/law** Stronger carbon emission regulations and plastic use and recycle regulations · **Image** Enhance company image as an eco-friendly company with eco-friendly products, stronger connection with investments · **Natural disasters** Increase of extreme weather events including typhoon, floods, and heavy rain, and more natural disasters including yellow dust and increased temperature, leading to impacts on the business sites · **Market** Consumers are turning to eco-friendly materials and circular economy, more investment, easier to develop technology · **Technology** More investment for product portfolios and low-carbon transition of processes / More achievements and business opportunities for sales and carbon reduction by expanding the low-carbon product group	· **Production unit cost** Increased use/cost for water resources due to droughts, lower production efficiency due to rise in temperatures · **Supply chain and transportation** Increased delivery costs due to poor weather · **Fuel/emissions cost** Increased production costs due to rise in electricity and fuel prices · **Supplied fuel** Decrease in oil demand/rise in natural gas prices	**Net Zero Operations** **Make business sites eco-friendly** Transition to eco-friendly fuel, expand the use of renewable energy	**2040**
Expanding Eco-friendly Businesses Based on Climate Change		· **Sales** Reduced demand for products that emit a lot of GHG due to high carbon taxes, more demand for low-carbon energy products, more demand for recycle plastic products	**Net Zero Chemicals** **Build an eco-friendly circular economy ecosystem** Recycle products, recycle fuel	**2050**

Activities to Reduce Greenhouse Gases (GHG)

1
Using CHDM Off-gas

In 2022, we confirmed that the off-gas generated and emitted during the CHDM reaction process contains a significant amount of hydrogen. To combust it along with the fuel in the boiler, we have made facility improvements. We applied to our processes from 2022 to reduce 810 tons of greenhouse gases. In 2023, it is expected by using Off-gas in the entire CHDM process, we will reduce 2,100 tons of emissions annually.

2
Improving DMT Process

From the DMT process, we completely transitioned our PX oxidization process, which releases a lot of greenhouse gases, to QTA. This allowed us to reduce a total of 30,800 tons of greenhouse gases from 2021. We improved 70% of our processes to QTA in 2021, and in October 2022, we successfully completed the transition to 100% QTA and stabilized the process.

3
Switching Manufacturing Fuel for Ulsan Plant

At our Ulsan Plant, we have switched the fuel used for manufacturing to reduce GHG. Our ultimate goal is to replace the existing LNG fuel with hydrogen and achieve zero greenhouse gas emissions in the future. In 2022, we secured equipment and hydrogen feedstock to use hydrogen feedstock in the DMT process. Starting from the second half of 2023, we expect to begin using hydrogen fuel in the production process, starting with the DMT process, which will result in a reduction of 5,000 tons of greenhouse gas emissions.

4
Solar Energy

To reduce GHG emissions and energy costs, we have established a solar power plant at the Cheongju Plant in 2022. Starting from 2023, approximately 12% of the energy consumed at the Cheongju Plant will be supplied through solar power generation, resulting in an expected annual reduction of 600 tons of greenhouse gas emissions (GHG).

5
Transition of company vehicles to hybrid cars/EVs

Since 2022, SK chemicals has been promoting the Green Vehicle Purchase Target, which involves purchasing or leasing more than 22% of new vehicles as eco-friendly vehicles (hybrid, electric, hydrogen-powered). In 2022, we purchased six eco-friendly vehicles, accounting for 31% of the overall fleet. In addition to providing charging facilities for company vehicles, we have also installed electric vehicle charging stations at our business sites to ensure the convenience of our employees and customers.

6
Signing PPA agreements to achieve RE100

We aim to reduce emissions by expanding the use of renewable energy through Power Purchase Agreements (PPAs). Particularly, for our Ulsan Plant, we plan to actively increase the use of renewable energy by utilizing PPA agreements in line with the government's plan to develop large-scale offshore wind power generation sites. We are currently reviewing the economic feasibility and details with the goal of implementing this initiative by 2024.

Energy Saving Activities

Reducing the Use of Energy

SK chemicals makes efforts to analyze energy consumption patterns and minimize related costs. To do so, we research ways to reduce energy costs by identifying energy-saving cases within the plant. Also, we monitor and analyze energy use within the plant to improve inefficient areas and optimize energy consumption.

At the SK chemicals Ulsan Plant, we set a goal to achieve a minimum of 2% reduction in energy costs compared to the previous year when establishing annual business plans, aiming for energy optimization and cost reduction. In 2022, we saved approximately KRW 4.1 billion with five projects. This goal is reflected as a key performance indicator (KPI) for the executive in charge of Ulsan Plant production and is pursued as a significant initiative.

Transitioning to Eco-friendly Fuel

The Ulsan Plant is gradually transitioning the fuels used in the production process to eco-friendly alternatives. The ultimate goal is to replace the conventional LNG fuel with hydrogen. Starting from 2022, we have been establishing facilities and securing raw materials for the use of hydrogen as a feedstock, beginning with the DMT process.

Furthermore, SK multi utility, a subsidiary company, plans to close its coal-fired combined heat and power plant after the construction of an LNG power plant. Starting from 2025, we will start transitioning to environmentally friendly fuels, such as hydrogen and LNG. The introduction of environmentally friendly fuels by SK multi utility is expected to reduce environmental impact by reducing atmospheric pollutants such as SOx and NOx, as well as greenhouse gas emissions (GHG).

Energy Reduction Task for the Ulsan Plant in 2022

4. CONSERVATION OF BIODIVERSITY

Biodiversity Approach and System

Biodiversity Policies

Biodiversity Approach and Policies

SK chemicals acknowledges the importance of preserving biodiversity for sustainable growth and environmental protection, and we have established policies accordingly. In selecting locations for production facilities and business sites, SK chemicals avoids conducting production activities near biodiversity preservation areas. We also conduct environmental impact assessments for any site-related changes in the areas where our business sites are located. Furthermore, we track changes in the ecosystem environment and engage in various mitigation activities to preserve it, while also identifying and managing biodiversity-related risks. The efforts to mitigate biodiversity risks are reported to the ESG Committee and disclosed on our Sustainable Management Report.

In addition, we actively contribute to preventing deforestation. We do not engage in business expansion activities that result in deforestation, and we continuously monitor deforestation activities within our value chain. Specifically, we plan to gradually replace paper and pulp used in the products and packaging materials we supply with FSC-certified paper and pulp.

Step 1. Analyze the business site location and value chain

Step 2. Assess dependency and impact levels

Step 3. Build reduction plans, implement them, and disclose them

Preserving Biodiversity with Stakeholders

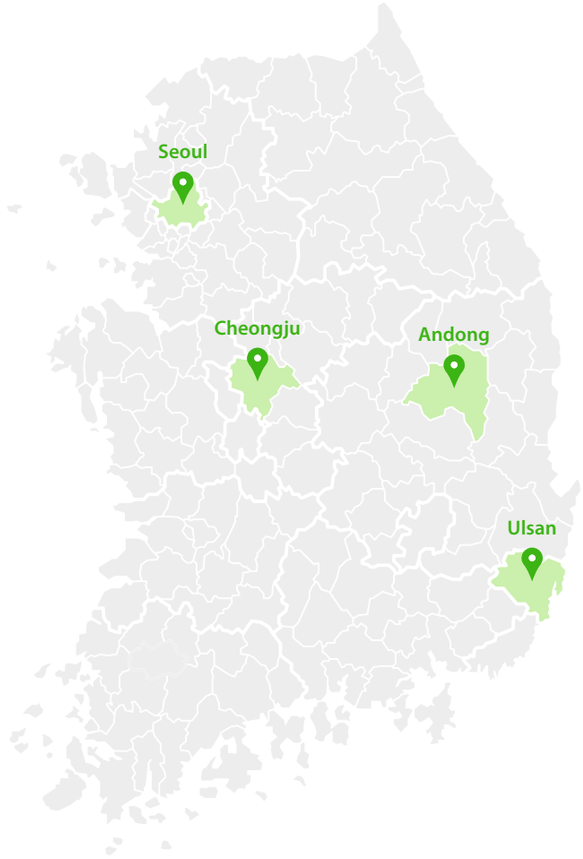
SK chemicals is actively engaged in preserving biodiversity activities in collaboration with internal and external stakeholders. To begin with, we conduct relevant education programs to raise awareness of biodiversity among employees and promote awareness through various environmental conservation activities. Also, we are expanding volunteer activities based on biodiversity, such as coastal cleanup initiatives.

Furthermore, we actively communicate with local communities and stakeholders to contribute to building a society that promotes biodiversity conservation. We not only seek to identify social enterprises that can participate in various eco-friendly projects but also collaborate with renowned organizations both domestically and internationally to develop eco-friendly initiatives.

Biodiversity Risk Management Process

The management process for biodiversity risks is integrated into the company's overall risk management process, referencing global evaluation methodologies and frameworks such as the TNFD (Taskforce on Nature-related Financial Disclosures) guidelines and the LEAP (Locate Evaluate Assess Prepare) approach. In the risk assessment, both dependency-related biodiversity risks and impact-related biodiversity risks are considered. The assessment scope includes various areas such as the company's own business sites, adjacent areas to business sites, upstream and downstream operations, and other relevant domains.

Vulnerable Areas of Biodiversity



Biodiversity Risk Management and Mitigation Measures

Major Biodiversity Risks and Mitigation Measures

Business Stage		Major Business Sites and Regions	Dependency of SK chemicals on natural resources	Impact that SK chemicals make on the ecosystem		Mitigation measures		page
Upstream	Production and Processing of Raw Materials	· Major suppliers of copolyester raw materials: Hanwha Impact, Lotte Chemical, and other Korean companies · Major suppliers of vaccine raw materials: Lonza, Merck, and other European companies	· Green Chemicals Business procures petroleum-based raw materials including PTA and MEG from Korean chemical companies. When going up the upper stage of the value chain, these petrochemical products may be greatly dependent on drilling, ecosystem diversity and species diversity when obtaining raw materials	**High**	· SK chemicals purchases products processed by Tier-1 business partners for major raw materials. Therefore, it can be challenging to assess the initial ecological impact. · However, considering the nature of petroleum-based chemical products, the extraction of raw materials such as petroleum or natural gas itself can have significant ecological destruction and environmental impact. Therefore, close monitoring and evaluation of Tier-2 or lower-level business partners are necessary. · Raw materials of vaccines in the Life Science business are supplied through European manufacturers, and their direct ecological dependence is relatively lower compared to the Green Chemicals business. However, since many pharmaceutical products are distributed using paper packaging materials, there is a potential risk of large-scale deforestation associated with the supply of pulp.	**Aggressive**	· Due to limitations in control, the actual ecological impact is mainly observed at Tier-2 or lower-level raw material suppliers. · SK chemicals has implemented an active supply chain ESG policy and requires primary suppliers, such as PTA and MEG manufacturers, to ensure responsible production practices within their own supply chains. · In 2022, SK chemicals conducted screening and evaluation, including biodiversity criteria, for a total of 40 suppliers. · For packaging materials used in bio/life science products, priority is given to purchasing pulp certified by the Forest Stewardship Council (FSC) to minimize biodiversity impacts.	82
Direct Operation	Operating Business Sites	· Korean business sites (Seongnam, Ulsan, Cheongju, Andong)	· Headquarters – Seongnam · Production business sites – Ulsan, Cheongju, Andong	**Moderate**	· SK chemicals does not directly operate any business sites in areas with wild animals designated by international agreements such as the Ramsar Convention, Basel Convention, Montreal Protocol, the UN Convention on Biological Diversity (CBD), or the IUCN Red List. · We also do not conduct operations within ecological/landscape conservation areas designated by the Korean Ministry of Environment (9 locations) or local governments throughout the country (24 locations).	**Good**	· SK chemicals conducts thorough feasibility studies and environmental impact assessments, including biodiversity assessments, when building or modifying new business sites. Our business sites have been built after undergoing 100% environmental impact assessments to address potential biodiversity issues. · At the SK chemicals headquarters, we apply environmentally friendly technologies in building design to reduce energy and water consumption and minimize carbon emissions.	49
Adjacent areas to own operations	Community	· Regions near our Korean business sites (Seongnam, Ulsan, Cheongju, Andong)	· Water resource used by each business site - Seongnam (headquarters): Han River - Ulsan Plant : Nakdong River - Cheongju Plant : Daecheong Lake - Andong Plant: Andong Lake	**Moderate**	· SK chemicals discharges the water used at its business site into the nearby watershed. However, all water discharged by the company meets or exceeds the domestic discharge standards for water quality and is discharged after being treated to meet purification standards through the local sewage treatment facilities.	**Good**	· In the CHDM manufacturing process, we recollect and reuse methane alcohol from wastewater to prevent the discharge of harmful chemical substances into the surrounding environment. · To preserve and restore the local community's ecosystem, SK chemicals engages in beach cleaning activities called "Beach Combing" together with its members to collect marine debris and help save the sea.	51
Downstream	Waste and Recycling	· Regions that are wasted after production or use by customers	· Green materials of SK chemicals go through product distribution and use stages. When disposed, they depend on the resources of the landfill or the energy resources for recycling/reproduction	**High**	· Plastic pollution is a global issue. In Korea, specific single-use plastic products are banned, and a deposit-refund system for disposable plastic products is being expanded. The European Union has completely prohibited plastic landfilling since 2020. · SK chemicals is committed to reducing waste and minimizing environmental impact by producing products using recycle materials made from collected PET bottles. By utilizing recycle PET, we aim to decrease waste generated in the disposal stage.	**Aggressive**	· SK chemicals has developed and sells products that incorporate recycle materials, such as ECOTRIA, a product that combines recycle materials with existing products, and ECOZEN Claro, a recyclable product. This is how we contribute to resource circulation by recycle products. · In order to establish a complete plastic recycling value chain, SK chemicals acquired circular recycle materials and PET production facilities for circular recycle from Shuye, a Chinese green materials company, in 2023. · Furthermore, the Ulsan Plant of SK chemicals achieved a waste recycling rate of 94% in 2022, earning the Zero Waste to Landfill (ZWTL) Silver rating. This accomplishment demonstrates the commitment to waste reduction and environmental sustainability.	54

Producing Upcycling Products for Resource Circulation

SK chemicals has collaborated with other members of the SK Group, such as SK Plasma and SK bioscience, to carry out eco-friendly product manufacturing and donation activities. The goal was to collaborate with a prospective social enterprise called 'WeChange' to upcycle discarded milk cartons and donate them to local childcare centers. With this volunteer activity, SK chemicals aims to pursue both environmental protection through resource circulation and support for marginalized communities. Approximately 200 employees participated. Also, the company provides points to employees who participate in volunteer activities, which can be accumulated and used to help those in need or exchanged for gift certificates. SK chemicals plans to strengthen the purpose of this fourth round of eco-friendly product manufacturing volunteer activities and continue to engage in various activities with other SK Group affiliates in the future.

Beach Combing

SK chemicals planned Beach Combing to provide opportunities for its employees and their families to empathize with the issues facing marine ecosystems and engage in volunteer activities related to environmental issues. Beach Combing is an environmental conservation activity of combing the beach to collect driftwood and debris.

Prior to collecting trash and engaging in craft activities using the collected materials at Eulwangri Beach in Jung-gu, Incheon, educational sessions were conducted on marine pollution and environmental conservation through Beach Combing. Participants took part in an upcycling experience, creating mood lamps using discarded PET bottles and leftover fibers from sock factories. We were able to emphasize the importance of upcycling to the members.

5. WATER RESOURCE MANAGEMENT

SK chemicals received the Carbon Management Sector Honors Award and Special Award for the Water Resource Sector at the 2022 CDP Climate Change Responses·2022 CDP Climate change and Water Security.

Water Resource Risk Management System and Monitoring

Water Resource Management System

SK chemicals manages key water resource-related items at the management level with a system that allows real-time monitoring of water use, wastewater generation, and water pollutants. We report the findings regularly to the ESG Committee. We also monitor whether internal water-related policies align with external policies and have established a process for conducting evaluations at the board or management level. As a result, there have been no water-related legal violations, and SK chemicals complies with water management regulations and legislation.

Stakeholder Participation and Support for the Initiative

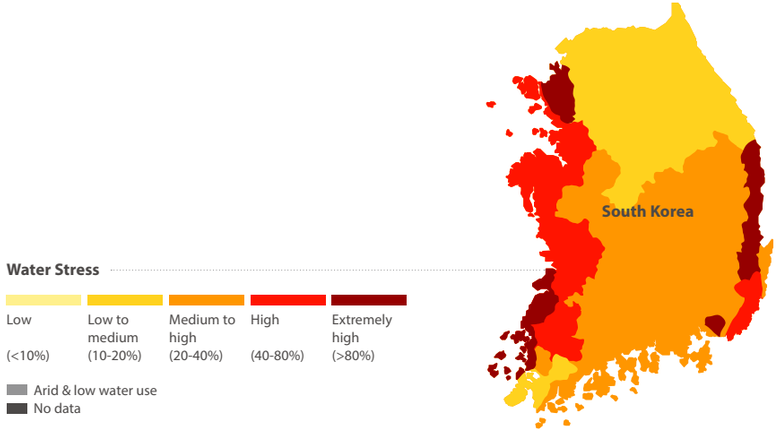
SK chemicals adheres to the UN Sustainable Development Goals (SDGs) objectives and processes. We measure and publicly disclose Social Value (SV), evaluate key water resource management indicators such as water reuse rates and concentrations of water pollutants, and incorporate them into our environmental performance assessment and rewards through domestic and international initiatives. Since 2019, water reuse rates and concentrations of water pollutants have been established as key performance indicators (KPIs) for executives and team leaders, and performance evaluations and incentives are provided based on these indicators. Also, SK chemicals participates in CDP's Water Sector to systematically manage water risks and ensures clearer communication to appropriately reflect the company's water risk management status in the investment decision-making process.

Water Resource Risk Management and Monitoring

SK chemicals monitors the amount of water used at each business site every month to ensure stable and systematic product manufacturing and production management. Each business site has an operations management team responsible for managing water intake. The Ulsan business site, which receives its water supply from the Nakdong River from K-water, oversees the overall management of water intake, including nearby business partners. The site directly discharges treated wastewater into the watershed and has established internal indicators to manage water quality standards, policies, and goals that exceed legal requirements.

Exposure to Water Resource Risks

As a chemical company, SK chemicals is exposed to long-term water risks, which can be categorized into water stress for product development (physical water stress) and water quality risk due to chemical process emissions such as catalysts. To manage water stress, we continuously monitor water intake and usage, communicate with local residents, and monitor policies. Korea, where the headquarters and major business sites are located, is considered a country with relatively well-managed water resources, resulting in a relatively low likelihood of water pollution due to external factors. Nonetheless, SK chemicals conducts rigorous monitoring activities and implements water resource management to prevent water pollution during the discharge process.



Classification	Business Site Information			Water Stress		Water Quality Risk
SK chemicals business site	Address	Latitude	Longitude	2023	Positive scenario (2030)	
Cheongju Plant	Cheongju, Chungcheongbuk-do, Korea	36.6	127.5	Medium-high (20-40%)	Medium-high (20-40%)	Low-Medium (10-20%)
Ulsan Plant	Ulsan Metropolitan City, Korea	35.5	129.3	Medium-high (20-40%)	High (40-80%)	Low-Medium (10-20%)
Andong Plant	Andong, Gyeongsangbuk-do, Korea	36.6	128.7	Medium-high (20-40%)	Medium-high (20-40%)	Low-Medium (10-20%)

* Water Risk Atlas, 2030 Water Scarcity Projection to 2030

Recycling Water Resources and Reducing Wastewater

Water Recycling

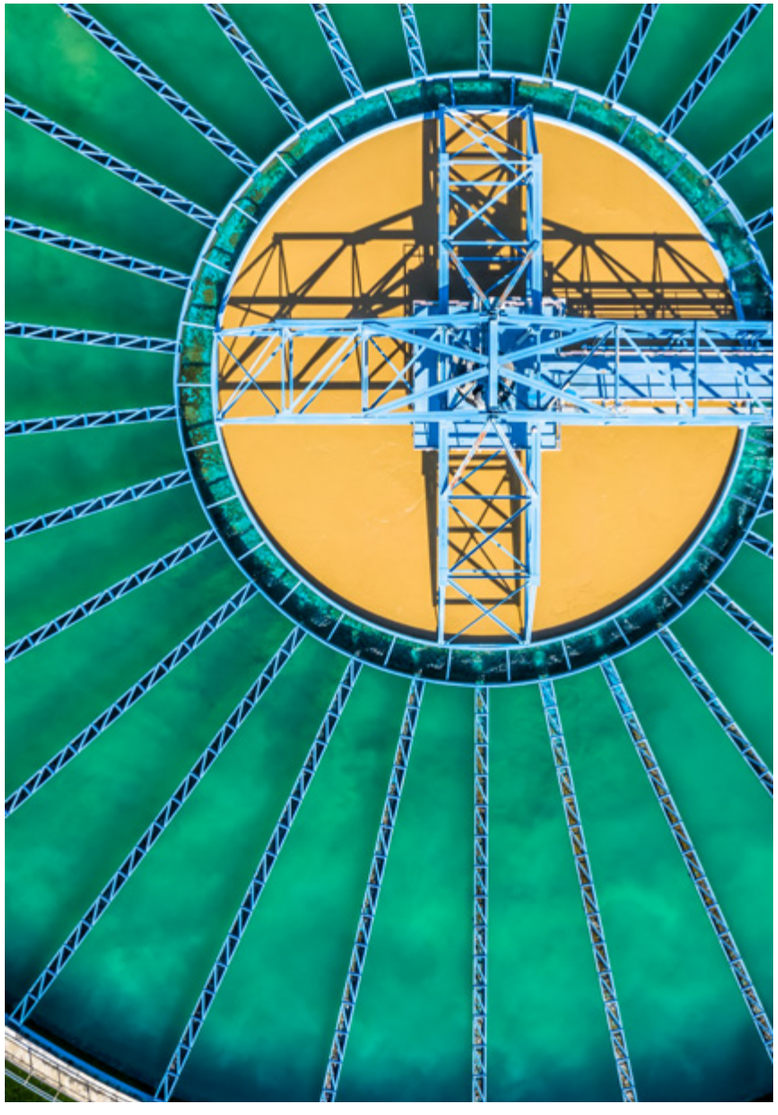
As water is a limited natural resource, water resource recycling is a crucial factor in reducing dependence on water. In line with this, SK chemicals is establishing a system to assess the recycling capacity of all domestic and global business sites in order to contribute to environmental protection and a sustainable future. The water intake in areas identified based on water quality hazard assessments (using WRI Aqueduct and WWF Water Risk Filter) is continuously monitored for 24 hours using flow meters.

At the SK chemicals Ulsan business site, concentrated water that has passed through the RO membrane of the PDH (Propane Dehydrogenation) purification unit is recycled as firefighting water. One out-of-service RO unit has been modified to utilize the concentrated water in its pure form. Additionally, condensate generated from the steam heat exchanger of the purification unit is also collected and recycled. The recycling capacity based on pure production is 1,080 tons per day.

SK chemicals aims to increase water recycling by recovering cooling water during the production process. The cooling water used in the CC system comes into direct contact with the products, making it challenging to recover and reuse. While the cooling water generated during the production process is currently treated and discharged through wastewater treatment facilities, SK chemicals is actively exploring ways to improve the recovery rate of cooling water. Starting from May 2023, we will relocate to China, reducing the overall use of cooling water, thereby increasing the potential for recovery and reuse.

Developing Own Water Resources

To mitigate the risk of natural disasters such as droughts and floods in the Ulsan business site, which is designated as a water-stressed area, SK chemicals directly sources water from the Nakdong River through K-water. The water is treated internally before being used. Unlike regular tap water, there is no need to operate chlorine removal facilities, ensuring cost-effectiveness.



Processes to Reduce Wastewater

SK chemicals discharges wastewater to a wastewater treatment facility in consultation with the local government and outsources the treatment. The headquarters (Seongnam) discharges wastewater to the Pangyo Water Quality Restoration Center, while the Cheongju business site discharges wastewater to the Cheongju General Industrial Complex Public Wastewater Treatment Facility. We monitor the total discharge volume from each discharge point by using flow meters.

SK chemicals' headquarters and Cheongju plant transport wastewater to a nearby public treatment facility to remove contaminants before releasing it. The Ulsan business site has a wastewater treatment facility that removes various water pollutants such as COD, BOD, and SS to ensure the discharge does not negatively impact the sea. When it comes to releasing water pollutants, we manage them according to our stringent internal standards beyond legal discharge limits. In 2022, we aimed to manage the discharge volume to be 60% of the legal limits for BOD, COD, and SS, and in 2023, we raised the target level to 50%.

The wastewater treatment facilities at the Ulsan business site undergo regular inspections and water quality tests. We also utilize the Tele Monitoring System (TMS) measurement device provided by the Ministry of Environment to monitor the real-time wastewater concentration of effluents. In 2022, we established an activated carbon filtration system to comply with the stricter effluent water quality management standards under the Water Environment Conservation Act.

In addition, we offer training on preventing water quality pollution and managing the wastewater processing system to reduce wastewater, and devise solutions with nearby companies.

Ulsan Plant Wastewater Treatment Plant

Measured wastewater effluent concentration in real-time with the Ministry of Environment's TMS measurement system

Established a facility to prevent activated carbon filtration

6. CONTAMINANT MANAGEMENT

Waste Management and Expanding Recycling

Waste Management Policies

SK chemicals sets a target of reducing waste generation by 5% compared to the previous year. Efforts are made to ensure that generated waste is not simply discarded but rather recycled. To maximize the actual recycling rate of waste, we identify recyclable waste and search for more recycling partners.

As part of the efforts to reduce waste disposal, SK chemicals is undertaking a project to replace the outdated coal and waste wood boilers with eco-friendly LNG boilers at the Ulsan Plant. It is expected that by stop using coal and waste wood boilers by June 2025, there will be a reduction of approximately 17,000 tons in waste, including coal ash and incineration residues.

Waste Management System

SK chemicals manages the generation and disposal of waste by utilizing the government's proper waste management system called "Allbaro." According to the Waste Management Act, waste generated at business sites is treated through contracts with specialized waste disposal companies, ensuring appropriate methods such as incineration, landfill, and recycling are applied. Additionally, we strive to maximize recycling rates to minimize the landfill or incineration of waste during the production process. Furthermore, we plan to renew the Zero Waste To Landfill (ZWTL) certification, which was obtained in 2022, annually.

Recycling Waste

SK chemicals contributes to resource circulation through product recycling. Our ECOTRIA, which incorporates recycle materials into existing products, and ECOZEN Claro, which is recyclable, are offered to the market. Additionally, SK chemicals continues to increase the recycling rate by discussing waste management and recycling options with waste disposal companies, ensuring that waste generated at business sites is not discarded but recycled.

At the Ulsan Plant, efforts have been made to improve the recycling rate by considering the characteristics of waste. Starting from a recycling rate of 75% in 2016, various measures have been explored. Since 2021, additional companies have been identified to recycle waste from waste wood boilers into flooring materials, minimizing landfill waste. In the DMT (Dimethyl Terephthalate) production process, an organization has been found to recycle MFB (Methylparabenzoate), a byproduct that was previously disposed of, thereby improving the recycling rate. Additionally, process optimization has led to a reduction of over 50% in waste generation from DMT mixtures. Thanks to these efforts, we were able to improve our waste recycling to more than 90%.

Obtaining Waste Recycling Certification

SK chemicals' Ulsan Plant has undergone third-party verification for Zero Waste To Landfill (ZWTL) to objectively assess the recycling rate of waste. In August 2022, it achieved a substantial recycling rate of 94% and obtained the ZWTL Silver rating from UL Solutions.

ZWTL verification is a system that verifies the proportion of waste that is continuously recycled after primary recycling, without being landfilled or incinerated, by waste management companies. It serves as an indicator to evaluate a company's efforts in resource circulation. SK chemicals aims to maintain the ZWTL Silver (94%) rating until 2023 and continuously increase the waste recycling rate to achieve the Gold (95%) rating from 2024 to 2025.

Reducing Air Pollutants

Strategies to Minimize Air Pollutants

SK chemicals Ulsan Plant adheres to government regulations regarding the emission of air pollutants in order to minimize environmental impact. In addition, we have implemented our own stringent guidelines for air pollutant emissions, surpassing the legal standards. In 2022, we managed our emission levels with a target of 70% of the legal emission standards for NOx, SOx, and particulate matter. In 2023, we raised the target level to 50%.

Air Pollutant Management System at Business Sites

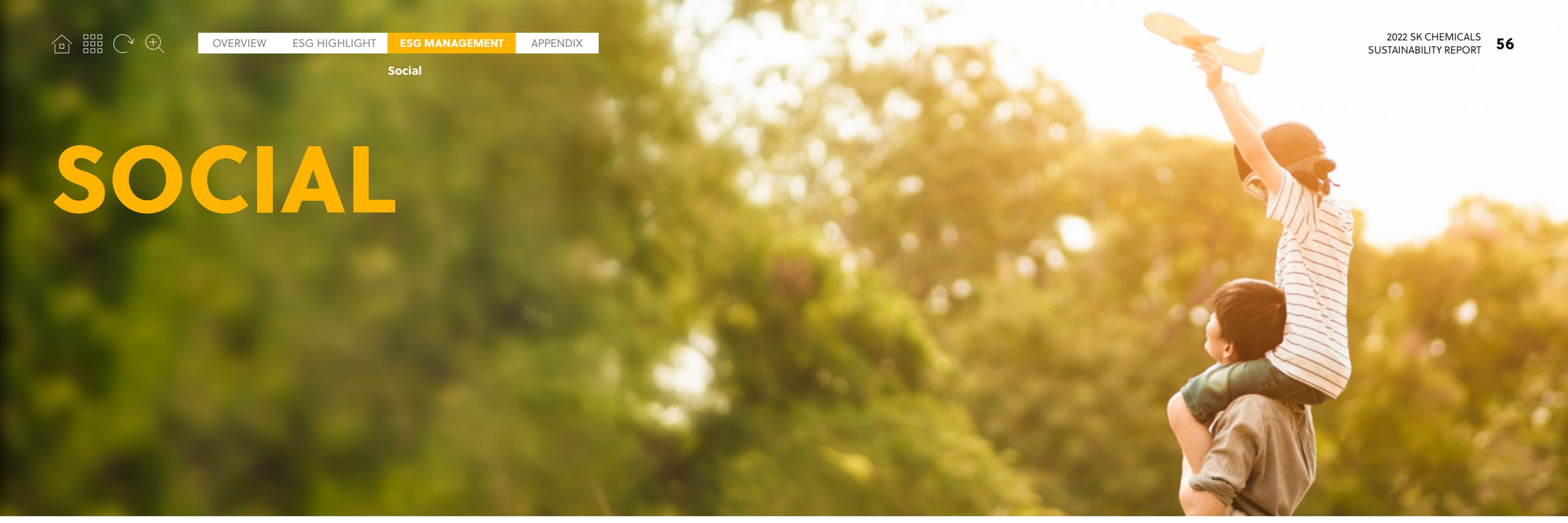
SK chemicals Ulsan Plant has been systematically managing the concentration and emission levels of air pollutants, including nitrogen oxides, sulfur oxides, and particulate matter, generated during production. In 2022, an air pollutant management system called the Tele Monitoring System (TMS) was established to ensure transparent management of nitrogen oxide emissions from the process heat medium heating facility. Since January 2023, the plant has been operating within the nitrogen oxide emission standards, maintaining levels below 40%.

Activities to Reduce Air Pollutants

From 2019 to 2022, SK chemicals replaced 11 conventional burners in the Ulsan Plant's heat medium heating facility with low-NOx burners that emit less nitrogen oxide. Furthermore, as the emission standards for air pollutants became stricter (THC[1] below 200 ppm) and substances that do not produce odors were included in the total emission regulation, we improved our air emission facilities and achieved THC concentration 0 ppm.

Through these proactive efforts to reduce air pollutant emissions, SK chemicals has exceeded the annual air pollution allocation targets from 2020 to 2022. In February 2023, SK chemicals entered into a new voluntary agreement on Fine Dust Reduction with the Ministry of Environment. In 2018, a similar agreement was made, and we achieved the goal of reducing fine dust emissions by 40% compared to 2014 levels in 2022. Under the new agreement, the aim is to reduce fine dust emissions by 40% compared to 2016 levels by 2024, further contributing to the reduction of air pollutants.

[1] Total hydrocarbons, THC



SOCIAL

Context

In order to create an environment where employees can demonstrate their capabilities and engage in their work, the company should provide appropriate rewards based on fair performance evaluations. Additionally, it is important to establish a talent nurturing system that enhances capabilities while supporting work-life balance, allowing members to pursue happiness. Furthermore, it is necessary to establish a safety and health management system within the workplace to ensure a safe working environment and prevent various accidents and hazards. Responding to the growing demand for supply chain ESG management, it is crucial to establish a system and engage in activities for supply chain ESG inspections. This report showcases SK chemicals' efforts in these areas.

➡ **Scope of reporting business sites:**

SK chemicals	Headquarters (ECO Lab), Ulsan plant, Cheongju plant (S HOUSE)
SK multi utility	Ulsan plant
SK bioscience	Andong plant (L HOUSE)

Approach

SK chemicals aims to develop strategic human resources by establishing and implementing a competency and performance-based nurturing system. We are also striving to establish a human rights management culture by formulating human rights management policies and conducting human rights impact assessments. Furthermore, in order to create a safe working environment for all employees, we launched a corporate-wide SHE dedicated organization, and facilitate communication with the Safety Reporting System. In response to the increasing demand for ESG management in the supply chain, SK chemicals has established a supply chain ESG policy and supports the enhancement of ESG capabilities of business partners through on-site inspections when necessary.

2022 ACHIEVEMENT & PROGRESS

Key Areas	Key Agenda	2022 Targets	2022 Achievements	Mid- to Long-term Plans	page
Strategic Human Resource Development	Human resource development	Build and implement a competency and performance-based nurturing system	· Organize education by levels · Strengthen job capabilities	Talent fostering roadmap · 2023-2025: Nurture capabilities based on the business strategies · 2025~ : Nurture based on segments	58
	Internalize ESG with environment education	Expand environmental education for employees	· 60% of employees completed the environmental education program (ESG Essential/Environment Literacy/Hydrogen energy process)	· 2023: At least 70% of employees participate in the environmental education program · 2024: At least 80% of employees participate in the environmental education program	60
	Active communication with employees	Identify and implement Happy Management tasks	· 25 sessions of "Save Our Happiness!" where CEO and employees communicate (150 participants)	· Enhance happiness perceived by the members and strengthen awareness of happiness management	60
Strengthening Human Rights-centered Management	Build and share human rights management system	Build a human rights management system	· Build Human Rights Management policies and launch the Human Rights Management Committee · Human Rights Impact Assessment and audit (2023.1Q)	Human rights impact assessment for all business sites · 2023: Headquarters, Ulsan Plant, business partners, community (Ulsan) · 2024: Cheongju Plant and community (Cheongju) · 2025: Overseas headquarters	63
Making Safe Workplaces	Build a safe management governance	Build a SHE organization for business sites and enhance SHE management capabilities	· BoD approved safety and health plans · Launched SHE organization for the company	· Achieve zero SHE accidents(Safety/fire/explosion/leaks/environmental accidents/ violations)	75
	Spread safety culture	Expand safety culture and encourage employees to participate	· Held 15 Industrial Safety Health Committee meetings · Introduced the safety report system		76
	Build safety health management system	Expand coverage for business sites that are certified for safety management	· Obtain ISO 45001 certification for business sites accounting for 92% of total revenue	· Obtain ISO 45001 certification for all business sites by 2024	75
	Manage safety accidents	Achieve Lost Time Incident Rate (LTIR❶) of 0.41	· Lost Time Incident Rate (LTIR❶) of 0.12	Improve 3-year average performance by 20% · 2023: LTIR of 0.21 or less	77
Responsible Supply Chain Management	Build ESG on-site evaluation system for business partners	Establish supply chain ESG policies and activation measures	· Engaged business partners to sign Code of Ethics · Conducted on-site evaluations for 10 high-risk companies	· 2023: Expand and improve the supply chain ESG evaluation · 2024: Assess the results of the supply chain ESG policies	80
Realizing Social Value	Participating and developing the community	Develop social contribution programs related to the business and encourage members to participate	· Eco-friendly education for elementary school students (35 members) · Support programs for dementia patients and rare and intractable disease patients · Increased participation in social contribution programs (participation from 780 members)	· Use 3% of profit for social contribution by 2024	84

❶ Including SK chemicals business partners, excluding subsidiaries (SKMU, ENTIS, SK chemical daejung)

1. STRATEGIC HUMAN RESOURCE DEVELOPMENT

Fostering Talents

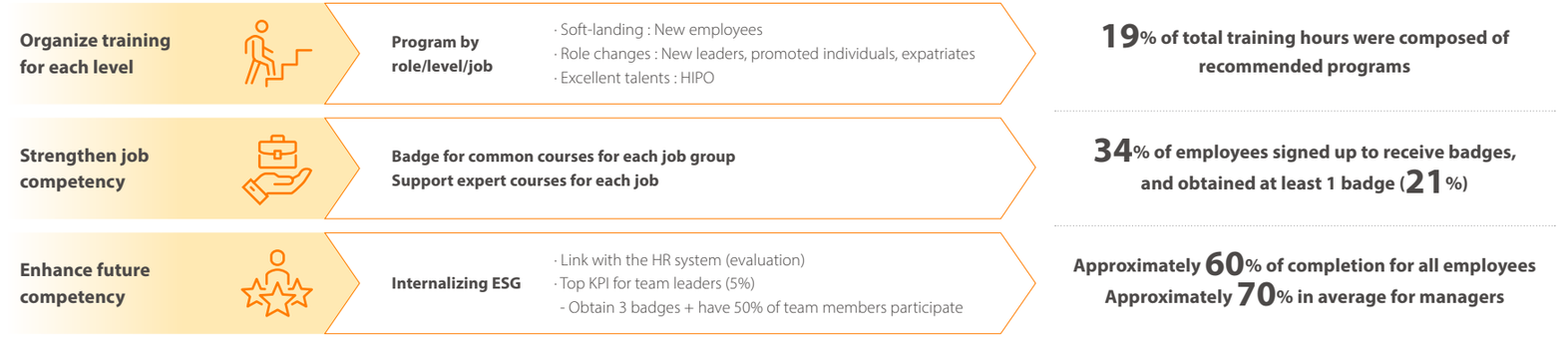
Fostering Talents Roadmap

With the purpose of developing "warm professionals," SK chemicals encourages competency, 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.

Up to 2022, as the first step, to support the growth of our members based on their capabilities and achievements, we first established a job competency framework to develop individuals' competencies. Building upon this framework, we provided specific training to enable members to perceive changes according to their respective targets. From 2023 onwards, we will not only support members in self-directed learning but also engage in activities to foster competencies based on business strategies. Furthermore, starting in 2025, we will define segments for members with similar characteristics in terms of business, functions, and tasks. Through segment-specific development systems, we plan to tailor our approach to individual growth needs of members.

Fostering Talents Roadmap

Talent Fostering Program and Achievements



Competency Building Program for Members

SK chemicals offers various competency building programs to support global expansion, technology advancement, partnership execution, and growth in order to achieve our eco-transition strategy. Our fostering strategy focuses on six key areas, including creating a self-directed continuous learning culture to proactively respond to internal and external environmental changes, enhancing leadership competencies, strengthening job expertise, fostering key talents, providing onboarding support, and enhancing DX capabilities (future skills).

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.

Career Development Program (CDP) | SK chemicals offers a Career Development Program (CDP) to support members who wish to move to a different position or enhance their expertise. Members can choose their desired job-related competency development program and design and implement it themselves. In particular, when announcing job postings for members who wish to change positions, education is one of the criteria to determine if they meet the requirements for the desired position. Since 2022, certification training courses have been used to assess the eligibility of applicants for job transfers.

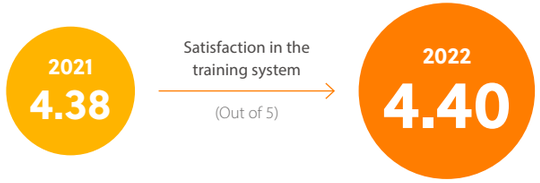
Classification	Training Name	Details
Self-directed learning	mySUNI	Learning platform for the entire group that provides various content on diverse topics; to allow individuals to autonomously choose courses based on their competency levels and enable selective competency development under coaching from the leaders, the platform is provided on an online environment.
Leadership training	Leadership training	Offered to foster coaching leadership by performance, organization, and talents
	New leader program	Offered to help new leaders perceive their new roles as team leaders and foster leadership and management competencies needed as leaders
	Promoted individual training	Offered to strengthen expertise related to relevant competencies and help individuals perceive their new roles after being promoted
Job training	Strengthening job competency (Upskilling)	Provide various educational opportunities that are linked to job and competency systems to develop the knowledge and skills required for job performance; in addition to internal training, we actively support employees who wish to participate in external training opportunities necessary for enhancing job competencies.
	Language training support	Provide training programs and self-development costs for possible expatriates, key talents, and general employees to foster global communication skills
Fostering key talents	Fostering key talent program	Provide customized programs for possible key leaders for the future generation; we foster key talents needed to implement a deep change by providing upskilling programs needed to face changes in the business environment and help them enhance their competencies needed for the future and leadership skills in advance.
	Support academic degrees	We provide educational opportunities for selected employees who have been chosen as outstanding talents through fair procedures and in-depth discussions. These opportunities allow them to develop job competencies at domestic and international schools as well as professional educational institutions. During the training period, we provide financial support to enable employees to focus solely on their studies.
	Support licenses	To help members enhance their job competencies, we support employees who wish to obtain licenses. We provide an environment where employees can become experts recognized by the job market with self-directed learning.
On-boarding	New employee training	Offered to help employees understand the business philosophy, industry, and products of the group and SK chemicals, and help them develop basic business competencies
	Recruited employee training	Offered to help employees understand SK chemicals and get a soft landing to adapt to the company early
Strengthening DX competencies	AI/DT Literacy (Reskilling)	Offered to help employees understand how to work in the new digital era and develop basic competencies needed, including digital citizenship, data analysis skills, AI/DT basic knowledge
	CDS (Reskilling)	Focused training program that combines on-hands practice and learning to foster human resources with knowledge in the business domain and data analysis skills

Expanded Training for Competencies Needed for All Jobs I To support employees' self-directed learning, SK chemicals has established competency development plans based on position-specific competency indicators in 2022. We certify position-specific core competencies by implementing certification programs for each job category. We have opened 10 certification programs, and 34% of all employees have challenged themselves to acquire badges. As a result, 21% of the total employees have obtained one or more badges. We plan to support over 30% of all employees to obtain one or more badges.

Supporting Training for Each Level I At SK chemicals, we provide not only position competency training, but also provide additional training for different levels of employees who need new competencies including new team leaders, those who are promoted, expatriates, and those who changed their jobs. In addition, we offer soft-landing training for new employees.

Fostering Excellent Talents I SK chemicals provides all employees with various opportunities for knowledge and skill development required for job performance. Through fair processes and in-depth discussions, selected outstanding individuals have the opportunity to develop job-related competencies through high-level education provided by domestic and international universities and specialized educational institutions. We also provide financial support during the education period to ensure that employees can fully focus on their studies.

Training Satisfaction



* Based on a satisfaction survey for participants of major competency development programs

Supporting Degrees and Licenses I We support employees who wish to obtain academic degrees or licenses to enhance their task competencies. To help our employees grow as experts recognized in the industry, we provide education costs for selected employees to obtain academic degrees or licenses related to their jobs.

Environment Training to Internalize ESG I SK chemicals integrates ESG education with HR systems to internalize ESG management across the organization. With MySuni, SK Group's online education platform, we offer ESG-related education programs. The completion of ESG education programs is linked to the key performance indicators (KPIs) of managerial positions. Team leaders are required to obtain three badges (weighted at 5% of their performance) while ensuring that 50% of team members complete the program, thus encouraging more employees to participate.

By the end of 2022, approximately 60% of all employees have completed the education, with an average completion rate of around 70% among managerial positions. Moving forward, we plan to develop additional tailored ESG internalization badges and aim to improve the completion rate to approximately 65% for all employees and around 75% for managerial positions.

Training Hours by Type in 2022

(Unit: hours)

Education type	total training hours	Training hours per person
Environment education	4,940	14
Fair trade/ethics education	916	1
Human Rights/Sexual Harassment Prevention education	1,956	2
Industrial safety education	8,637	8
Job-related education	72,812	60

Participation and Communication with Employees

Employee Communication Program I SK chemicals fosters a happy organizational culture by promoting smooth communication among all employees through various communication programs in each business division.

These programs include "G+" and "L+" where the CEO and employees share important management matters, "Happy G" and "Team Leader Tea-time" for open discussions between the CEO and team leaders, "Save Our Happiness!" where the CEO and a group of 5-6 employees directly discuss happiness-related topics, "Town Hall Meetings" where department heads and employees communicate and share current issues at the headquarters & divisions, and "Happiness Executive Workshop" where the CEO and executives identify and monitor happiness initiatives. These programs are conducted regularly. Efforts are also made to create promotional materials such as posters and letters to increase employee interest and participation in these programs.

SK chemicals Organizational Culture Survey I SK chemicals conducts an annual "Culture Survey" targeting its employees. Through this survey, we examine the level of organizational culture, and identify and implement improvement tasks based on the results. This is how we set the direction of organizational culture for employee happiness. The Culture Survey, conducted in August and September 2022, targeted all employees, subsidiaries, and affiliated companies. It included improvements in the management environment and sustainable community aspects based on the New SKMS, and added the category for a sense of belonging. Out of 1,822 respondents, 1,455 valid responses were received, resulting in an 80% response rate. (valid response rate: 2020 63%, 2021 74%)

Save Our Happiness Letter (Happiness letter), sent three times in 2022

Human Resource Development

Human Resource Development Process

HR Strategy → Recruit → Competency Development → Performance Evaluation → Communicate

Strategic HR plans

We build workforce plans tailored to each job position and function in line with the eco-transition business strategy. We define the required competency levels and experience for each role and carry out recruitment and deployment of suitable personnel accordingly. We develop a workforce classification model based on the business structure and characteristics, and implement workforce recruitment, management, development, and reward strategies aligned with it. Additionally, we support business performance and strive to create an optimal workforce structure through short-term and long-term planning for each workforce segment.

Develop competencies and skills with competitors' information

SK chemicals is piloting the operation of a Skill Platform in 2023. Firstly, we are assessing the required competencies and skill levels of our internal employees. Secondly, we are comparing the competencies and skill levels of our employees with those of competitors in the same industry to identify any gaps. Based on the information gathered, we are implementing a common Digital Transformation (DX) competency development system for all employees. In the future, we plan to establish competency and skill development systems focusing on areas where we may have deficiencies compared to our competitors.

Better communication among employees

With various IT cooperation system within the company, SK chemicals encourages communication between organizations and teams to share information. To ensure efficient communication between employees, we host regular meetings by organizations led by the manager. The purpose of the meeting is to listen to the opinions of employees and find areas of improvement related to the happiness of our members, business performance, organizational culture, and the HR system.

Recruitment strategy and process

To select talents who align with SK chemicals' organizational culture and talent profile, we place a strong emphasis on securing recruitment competencies based on data. We are in the process of building a system that utilizes AI competency assessments to increase the accuracy of competency evaluations. Additionally, we conduct interviews with team leaders and members at various levels to assess their professional expertise from different perspectives. In order to secure talents in a timely manner, we utilize various recruitment methods, including official recruitment websites, chemistry-related conferences, communicating with labs, internal referrals, and direct sourcing.

Turnover risk management

Through regular meetings at the corporate/headquarters level and the operation of a Junior Board, as well as channels for anonymous feedback, we aim to identify improvement areas requested by our employees and make efforts to incorporate them into our HR system. Furthermore, we proactively assess the risk of turnover among high-performing individuals and establish separate development plans to help them grow their competencies. We also offer mentoring programs by matching executives with mentees to further develop the expertise of our employees.

Evaluating performance of employees

SK chemicals implements a performance evaluation system to ensure fair assessment of employees' competencies and achievements. We operate a systematic and objective performance management process to verify whether individuals possess the required competencies according to each evaluation criterion. Through goal setting and four regular check-ins per year, we provide records and feedback on the progress of employees realizing their goals. Based on the accumulated data, final evaluation sessions are conducted at the organizational level. We also have a process for requesting adjustments to evaluation results. By establishing a system that allows discussions on processes and outcomes based on data, we strive to ensure fairness in performance management.

Identifying competency gaps among employees

SK chemicals conducts separate evaluations for performance and competencies without an overall composite rating. The results of the performance evaluation are linked to the payment of incentive bonuses based on business performance, while the results of the competency evaluation are linked to individual annual salary increases. The competency evaluation consists of company-wide core competencies and job-specific required competencies, enabling the identification of competency gaps within the organization and among employees in the same job category based on individual evaluation results. To address these competency gaps, we develop and implement annual job-specific training plans based on evaluation data. Starting from 2023, we plan to further enhance our competency development system by identifying the necessary competency items and levels to create an agile organization capable of adapting to internal/external environmental changes.

Ensuring Work-life Balance

To ensure work-life balance and provide an efficient & autonomous work environment for our employees, we offer programs that consider various aspects and make efforts to provide an environment where our employees can focus on their tasks.

More Flexible Work Schedule I SK chemicals has introduced a new work management system called 'Flex' to support autonomous scheduling for our employees. We highly encourage flexible working hour systems on a monthly basis, which allows balancing work hours between peak periods and relatively less busy periods. Employees have the freedom to adjust their working hours within a one-month timeframe according to their own work schedules.

Supporting Family-friendly Activities I SK chemicals is implementing various policies to foster a culture of work-life balance. We provide a range of benefits to support employees in balancing work and family life. For employees who are pregnant or have children in their infancy stage, we offer a one-year shortened work hours program and up to one year of childcare leave. Additionally, we guarantee 10 days of childbirth leave for spouses. To prevent career gaps and support employees, we operate workplace daycare centers. We also aim to reduce the burden of childcare and promote economic stability for each family by providing support for housing loans, children's educational expenses, and congratulatory grants for children's admission to school. Furthermore, we offer resort rooms, allowing employees to enjoy leisure time with their families.

Childcare Leave I SK chemicals is addressing the social issue of low birth rates and supporting the work-life balance of its employees by implementing and operating childcare leave policies. We have institutionalized childcare leave to alleviate the burden of childcare and support employees in balancing work and family responsibilities. This policy is not limited to female employees but also extends to male employees. We have seen a continuous increase in the number of male employees taking childcare leave, with the count rising from four in 2021 to twelve in 2022.

Welfare Benefits

Financial support
Transportation costs, welfare points

Health management support
Regular health checkups, medical costs (including spouses), organic food, health management room/dentist in the company, psychological counselling program

Housing support
Subsidies for purchasing and renting homes, housing costs for employees living in rural areas

Family and childcare support
Congratulatory leaves and expenditure, childbirth and childcare leave, daycare, tuition for children

Hobbies and leisure activities
Resort rooms, fitness center, company clubs

Other
Rewards for long-term working employees

Encouraging the Use of Leaves I At SK chemicals, to ensure work-life balance for our employees, we encourage members to jointly and freely take leaves. We boast a diverse and flexible leave system to ensure that individual employees can maintain their immersive work environment. As a result, the utilization rate of leaves increased by 1.5 times from 24% in 2010 to 36% in 2022. also, 38% of those who are eligible for the long-term vacation policy that was implemented in 2021 took advantage of the policy. The rate is on an increasing trend, with 45% of those who are eligible using the policy in 2022.

Welfare Benefits I SK chemicals implements various welfare programs to ensure that employees can work happily and live conveniently. Since 2021, we have been actively working on improving employee happiness by addressing the psychological stress caused by the COVID-19 circumstance. To manage personal and job-related stress among employees, we operate a psychological counseling program in collaboration with an Employee Assistance Program (EAP) provider. This program aims to provide support and assistance to employees in managing their psychological well-being.

Guaranteed Benefit Plan for Retirees I SK chemicals runs a retirement pension (DB, defined benefit) policy for its retirees. As of 2022, 1,072 retirees are subscribed, with the total operating funds of KRW 123.7 billion (separate standard by SK chemicals).

2. HUMAN RIGHTS MANAGEMENT

Human Rights Management Principles and System

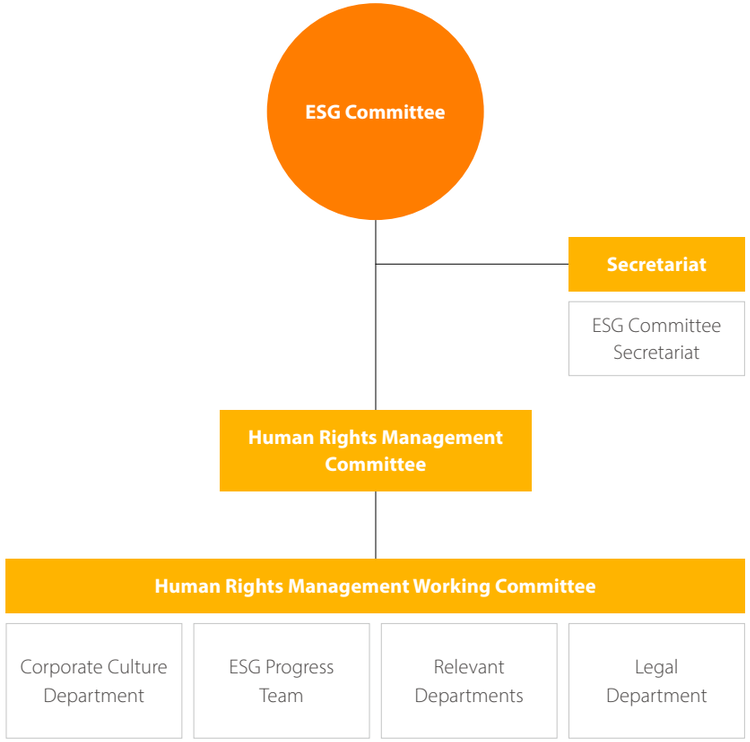
Strengthening Human Rights Principles

SK chemicals supports the United Nations Global Compact (UNGC) by endorsing the 10 principles in the areas of human rights, labor, environment, and anti-corruption. In 2022, SK chemicals declared its commitment to Human Rights Management and established implementation guidelines. We also formed a Human Rights Management Committee to prevent and address human rights violations among stakeholders and to disclose human rights-related issues in accordance with the UNGP reporting framework, thereby fulfilling our responsibility to respect human rights. Various HR regulations, Safety and Healthcare Environment (SHE) policies, ethical standards, and codes of conduct for business partners have been established to ensure that there are no direct or indirect human rights infringements or damages caused by business relationships within the workplace. These policies are strictly enforced in the company's management activities.

Strengthening Human Rights Management Governance

SK chemicals strengthened our systematic human rights management governance in 2022. In June 2022, we proclaimed a declaration on Human Rights Management and established implementation guidelines. In December 2022, the Human Rights Management Committee was formed to establish a system for protecting and promoting the human rights of employees and stakeholders. The Human Rights Management governance structure consists of an ESG Committee, a Human Rights Management Committee, and a Human Rights Management Working Committee. The Human Rights Management Committee, chaired by the CEO, includes leaders from the Management Support Department, Corporate Culture Department, and Legal Team. It is responsible for managing, improving, and monitoring substantial risks related to human rights. In addition, the Human Rights Management Working Committee establishes evaluation indicators, assesses risks, and drives company-wide improvements in human rights management. The working committee consists of the Corporate Culture Department, ESG Progress Team, relevant departments, and the Legal Department, which are involved in human rights management.

Human Rights Management Committee



Role of the Organization

Organization Name		Role
ESG Committee		· Deliberation on human rights management and making final decisions
Human Rights Management Committee		· Pre-deliberation on human rights management and making decisions
Working Committee	Corporate Culture Department	· Implementation of company-wide human rights management education and reporting of results · Promotion of human rights respect policies and systems · Evaluation and assessment of human rights risks · Enhancement of the human rights assessment framework
	ESG Progress Team	· Establishment of a human rights management system · Formulation and external disclosure of a human rights management declaration · Evaluation and assessment of human rights risks · Enhancement of the human rights assessment framework · Public disclosure of the implementation status of human rights management
	Relevant Departments	· Participate in human rights management education and improve awareness
	Legal Department (Compliance Team)	· Receive/process reports on infringements of human rights · Monitor human rights infringement and protect victims · Take part in the human rights relief process

Strengthening Human Rights Management Process

SK chemicals has strengthened our processes to review human rights issues and effectively manage risks throughout the value chain. Firstly, a comprehensive assessment method consisting of six stages was established for systematic assessments. We developed an assessment guide, and employees were provided with training to enhance internal expertise. We also enhanced communication with internal and external stakeholders by reporting from the ESG Committee and Human Rights Management Committee and providing external disclosures. The revised Human Rights Management indicators cover a total of nine areas: Human Rights Management system and relief procedures, prohibition of child labor and forced labor, freedom of association and collective bargaining, humanitarian treatment, responsible supply chain management, industrial safety and healthcare, guarantee of environmental rights, protection of the rights of local communities, and consumer rights protection. These indicators allow us to identify human rights impacts on different stakeholders. The human rights indicators incorporate international guidelines, including the K-ESG Guidelines of the Korean government, key ILO conventions, the Universal Declaration of Human Rights, EU Supply Chain Due Diligence Guidelines, and German Supply Chain Due Diligence Law.

Human Rights Education

SK chemicals is conducting human rights education to establish a systematic human rights management system within the organization and enhance the capacity of employees. We conduct regular trainings on preventing workplace harassment, preventing sexual harassment, and promoting ethical management, and 100% of our employees have completed these trainings.

Evaluation Process

Build plans to evaluate impacts

- Establish objectives, principles, participants, and timeline for human rights impact assessment
- Create a human rights impact checklist tailored to the company's situation, followed by conducting assessments

Education on guidelines and checklist

- Offer training on the human rights management guidelines and the developed checklist for each responsible person in the department

ESG Progress Team makes checklist

- Each department conducts its own self-assessment of human rights impacts (Providing sufficient supporting evidence for the detailed evaluation criteria on the checklist)
- Coordinating department (ESG Progress Team) brings together the assessment materials

Report to top management and disclose results

- Report the assessment results to top management and disclose the results to the public on the company website

Report results to the Human Rights Management Committee

- Gather opinions from each department related to the evaluation results and finalize results
- Identify improvement tasks and build department-specific implementation plans
- Review assessment results from the previous year's human rights impact assessment and check progress

On-site assessment by an external evaluator

- On-site evaluation by an external evaluator regarding the collected assessment results and evidence
- Interviews with internal assessment departments and stakeholders

Human Rights Impact Assessment and Alleviation

Human Rights Impact Assessment and On-site Assessment Results

SK chemicals conducts assessments to determine the impact of its business activities on human rights, focusing on the headquarters and Ulsan Plant. These assessments cover Human Rights Management Systems, employment, labor rights, industrial safety, supply chains, and local communities. To ensure the reliability and expertise of human rights impact assessments, external organizations are involved, and human rights audits are conducted. With these audits, we identify employee human rights issues, and make efforts to align with global guidelines for Human Rights Management . Starting from 2023, a three-year medium-term roadmap has been established to conduct human rights impact assessments across all business sites. In 2023, assessments will be conducted at the headquarters, Ulsan Plant, business partners, and the local community in Ulsan. In 2024, assessments will be expanded to include the Cheongju Plant and the local community in Cheongju. By 2025, assessments will encompass overseas headquarters as well.

Human Rights Impact Assessment and On-site Assessment Results

Area	Major Stakeholders				Impact Assessment Scope and Risk Level		Major Human Rights Activities and Issues	Reduction Activities	
	Employees	BP	Community	Customers and Other Stakeholders	Scope	Risk Level		Reduction Implementation	Major Activities
Human rights management system and relief process	●	●		●	100%	middle	· Establishing a human rights management system, establishing committees, and implementing monitoring and risk assessment procedures. · Developing guidelines for human rights management: establishing principles such as ensuring the rights of children and freedom of association and collective bargaining, as well as promoting humanitarian treatment. · Operating practical consultation bodies, including an ESG committee under the board of directors and a human rights management committee. · Expanding human rights management throughout the value chain through human rights audits involving internal and external experts, as well as conducting supply chain ESG checks.	100%	· Strengthening human rights principles and governance 63 · Human rights management process, human rights education 63-65 · Grievance processing system 74 · Report and disclosure regarding human rights impact 74
Prohibiting child and forced labor	●	●	–	–	100%	low	· Ensuring the absence of child/forced labor issues during the recruitment and separation processes: verifying the work history of minors, deposits, and voluntary retirement options. · For overseas business sites, subsidiaries, and business partners, monitoring is necessary to ensure that no forced labor takes place by providing human rights education and guidelines.	100%	· Management of human rights by area 68-73
Guaranteeing freedom of union and association	●	●	–	–	100%	low	· Establishing labor unions and conducting collective bargaining and agreement negotiations with labor representatives annually. · Prohibiting adverse treatment due to labor union activities and engaging in regular communication activities.	100%	· Management of human rights by area 68-73 · Labor Union and Joint Labor-Management Committee 144
Humanitarian treatment	●		–	–	100%	low	· Ensuring compliance with labor standards, preventing workplace harassment, prohibiting workplace sexual harassment, and providing protection for employees with disabilities/ Conducting regular inspections and training on humanitarian treatment. · Conducting regular inspections and training on employment discrimination, including discrimination based on employment status, gender, and nationality. Note: There are no employees with severe disabilities. · Promoting the free and expanded utilization of vacation, maternity leave, and childcare leave, as well as ensuring equal return to the same position after taking leave, and eliminating discriminatory factors.	100%	· Management of human rights by area 68-73 · Diversity and prohibiting discrimination 74 · Active use of childcare leaves and general leaves 62
Responsible supply chain management		●	–	–	100%	high	· Conducting ESG supply chain assessments and establishing a system to support ESG compliance among business partners, including a three-year roadmap for implementation and periodic inspections covering human rights issues. · Promoting ESG criteria, including human rights considerations, in purchasing management regulations, and supporting human rights management education to prevent human rights violations caused by security personnel.	100%	· Management of human rights by area 68-73 · Responsible supply chain management 80

Area	Major Stakeholders				Impact Assessment Scope and Risk Level		Major Human Rights Activities and Issues	Reduction Activities	
	Employees	BP	Community	Customers and Other Stakeholders	Scope	Risk Level		Reduction Implementation	Major Activities
Industrial safety and health	●		–	–	100%	low	· Establishing safety and health management systems, emergency response management systems, and chemical accident prevention systems. · Achieving advanced safety management through workplace safety measures, protection of pregnant women and disabled individuals, essential equipment, and conducting training, and providing support to workers affected by work-related accidents.	100%	· Management of human rights by area 68-73 · Making a safe workplace 75
Securing environmental rights	●		●	–	100%	low	· Establishing and maintaining an environmental management system, including disclosing environmental information, adopting a preventive approach to environmental issues, and developing emergency plans. · Implementing systematic environmental management with a comprehensive environmental information management system and minimizing environmental impacts through regular environmental impact assessments and life cycle assessments (LCA).	100%	· Management of human rights by area 68-73 · Environmental management strategies and system 36
Protection of human rights of local residents	–	–	●		100%	low	· Promoting respect and protection of human rights for local residents and protecting intellectual property rights. · Engaging in ongoing communication and consultation with residents affected by business operations and conducting activities to protect their property rights and intellectual property rights.	100%	· Management of human rights by area 68-73 · Stakeholder participation 148
Protection of consumer human rights	–	–	–	●	100%	low	· Ensuring compliance with regulations for product liability and consumer protection, taking appropriate measures in the event of product defects, and protecting consumer privacy to safeguard consumer rights. · Conducting pre-evaluation from product design to manufacturing, labeling, and pre-shipment inspection. · Providing clear information about products and prohibiting misleading advertising activities.	100%	· Management of human rights by area 68-73 · Organized management and replacement of hazardous chemicals 42-43

Management of Human Rights by Areas

Area	Major Issues	Key Stakeholders					Risk Level	Management and Identifying Major Human Rights Issues
		Employees	BP	Community	Customers	Note		
Human rights management system and relief process	**Disclose human rights policies, measures, and information**	●	●		●		Middle	· Declare Human Rights Policy and Human Rights Management in 2022. · Establishment of a human rights management system and committees, establish company rules, and establishment of procedures for monitoring and risk assessment. · Disclosure of human rights management performance, issues, and measures in the Sustainable Management Report.
	Human rights governance and participation of stakeholders	●	●		●		Middle	· Establish an ESG Committee and a Human Rights Management Committee under the Board of Directors. · Establish a practical consultation body for human rights management (Corporate Culture Department, ESG Progress Team, relevant departments, Legal Division). · Identify stakeholders and conduct regular human rights impact assessments each year to identify stakeholder issues.
	Human rights monitoring and education	●	●		●		Middle	· Human rights management assessments are conducted annually with internal and external experts. · Cooperation with suppliers is assessed based on ESG criteria, and the situation of vulnerable groups in terms of human rights is identified with supplier assessments and FGIs. · The guidelines for human rights management, including their revision history, are maintained, and periodic reviews are necessary. · Human rights education is conducted with a focus on preventing sexual harassment and improving awareness of disabilities, including mandatory legal education. · It is necessary to promote human rights education throughout the organization, including the management.
	Reporting channel and relief measures	●	●		●		Middle	· Various reporting channels are available, including the SK Ethics Management counseling and reporting channel, as well as email, telephone, and fax. · The guidelines for human rights management specify remedial measures and protection for whistleblowers. · Although there is a system with SK Ethics Management, there is a need for future improvements in the form of an independent body and process. · Regular monitoring is conducted through annual surveys and FGIs, and improvement measures are implemented accordingly.

Management of Human Rights by Areas

Area	Major Issues	Key Stakeholders					Risk Level	Management and Identifying Major Human Rights Issues
		Employees	BP	Community	Customers	Note		
Prohibiting child and forced labor	**Prohibition of labor for minors**	●	●			Foreign employees/ On-site employment	Middle	· The guidelines for human rights management establish principles prohibiting child labor and providing protective measures when employing minors. · The recruitment process includes restrictions on hiring individuals with less than a 4-year bachelor's degree or high school diploma, and it ensures that no minors are employed. · Separate management is being carried out for local recruitment.
	Measures in case of being aware of employing minors	●	●				Low	· The guidelines for human rights management include provisions for protective measures when employing minors. · There is no history of employing minors, and compliance with employment regulations and local laws is ensured.
	Prohibiting forced labor	●	●				Low	· The guidelines for human rights management, employment regulations, and principles prohibiting forced labor are established. · There are no coercive binding clauses or deposit requirements in job postings, employment regulations, or personnel regulations. · Overtime work is conducted with the agreement of the employees, and a flexible system is implemented, such as expressing the intention to retire up to one month before retirement.
	Prohibiting forced labor from subsidiaries and business partners	●	●				Middle	· When receiving the ESG Code of Conduct agreement, we require documentation regarding the prohibition of forced labor. However, future measures are necessary for overseas business partners and subsidiaries. · Ongoing monitoring is necessary to ensure that forced labor does not occur in business partners through activities such as human rights education and providing guidelines.
Guaranteeing freedom of union and association	**The freedom of assembly and collective bargaining**	●	●				High	· Ensuring the freedom of association and collective bargaining in the human rights management guidelines. · Establishment of labor unions and annual collective bargaining and agreement by labor and management representatives. · Providing facilities for labor union convenience according to the collective agreement.
	Prohibition of adverse treatment in relation to labor union activities	●	●				Low	· The collective agreement explicitly recognizes the right of association, the right to collective bargaining, and the right to collective action, and ensures that they are respected without interference. · The collective agreement guarantees the freedom of union activities and prohibits any adverse treatment resulting from union activities.
	Guarantee and take part in collective bargaining	●	●				Low	· The principle of guaranteeing the freedom of association and collective bargaining is stipulated in the guidelines for human rights management. · Collective bargaining is conducted annually with the labor union to negotiate and conclude collective agreements.
	Alternative measures in case of absence of a labor union	●	●				Low	· It is necessary to establish a separate communication mechanism for non-unionized employees and employees at the headquarters who do not have eligibility for union membership.

Management of Human Rights by Areas

Area	Major Issues	Key Stakeholders					Risk Level	Management and Identifying Major Human Rights Issues
		Employees	BP	Community	Customers	Note		
Humanitarian treatment	**Follow labor standards**	●	●				Low	· Include provisions in the Human Rights Management Guidelines to ensure that the physical and mental well-being of individuals is not compromised, and their human dignity is preserved. · Ensure regulations regarding annual leave and aim for an average annual leave utilization rate of over 50%; implement a long-term leave system.
	Non-discrimination during employment	●	●				Low	· The principles of non-discrimination are stipulated in the Human Rights Management Guidelines and Code of Ethics. The employment rules and personnel regulations are equally applied to all employees, regardless of their salary system (e.g., annual salary or salary scale). · There is no discrimination in employment, and we comply with relevant laws to ensure fair recruitment processes. · No elements that discriminate against employees have been identified regarding wages, benefits, welfare systems, education, promotion, retirement age, or dismissal.
	Non-discrimination between genders during employment	●	●				Low	· No gender-based discriminatory factors have been found regarding wages, welfare benefits, education, promotion, retirement age, and dismissal conditions. · Female workers are allowed to freely take maternity leave and childcare leave, and they have the right to return to the same position after their leave.
	Non-discrimination between regular and contracted workers	●	●				Low	· For special positions, separate employment rules apply, and certain welfare benefits may be limited. · Contract workers, excluding special positions, are subject to the same employment rules and wage scale as regular workers.
	Non-discrimination for foreign workers	●	●				Low	· There is no unfair treatment or discrimination against foreign workers, and employment conditions such as wages and retirement age are applied equally to both domestic and foreign workers.
	Prohibit harassment at the workplace	●	●				Low	· Conduct prevention education based on guidelines for preventing workplace harassment and ensure the operation of channels for reporting ethical management concerns. · Monitoring is conducted through surveys, exit interviews, and the ethical management reporting channel.
	Block sexual harassment within the workplace	●	●				Middle	· According to guidelines to prevent workplace harassment, we have provisions on prevention education, investigations, victim protection, and confidentiality. However, there is a need for improvement in the provisions related to monitoring. · It is necessary to enhance the expertise of counselors and investigators in addressing workplace sexual harassment.
	Protect disabled employees	●	●				Middle	· Provide training programs to improve awareness and understanding of disabled workers, and conduct discrimination diagnosis investigations in the future. · Currently, we do not have any employees with severe disabilities.

Management of Human Rights by Areas

Area	Major Issues	Key Stakeholders					Risk Level	Management and Identifying Major Human Rights Issues
		Employees	BP	Community	Customers	Note		
Responsible supply chain management	**Prevent human rights violation of business partners**		●				Low	· We conduct ESG supply chain audits and establish a roadmap for a 3-year plan to build a support system for ESG initiatives among business partners. · The ESG audit includes the area of human rights management as one of its assessment criteria.
	Monitoring audits		●				High	· Assess and inspect business partners with the 3-year roadmap to support building ESG systems
	Consider cuts in business relations		●				High	· Need to include management regulations including ESG standards in procurement management regulations
	Prevent human rights violations by security personnel		●				High	· Requiring an ethics and security pledge from security personnel of our business partners; will promote human rights education for security personnel of business partners in the future.
Industrial safety and health	**Industrial safety protection measures**	●					Low	· Promoting occupational safety and health through the implementation of a safety and health promotion system, emergency response management system, and chemical accident prevention system to ensure industrial safety measures and workplace safety and health activities.
	Workplace safety	●					Low	· Ensuring workplace safety with the management of safety facilities and protective equipment, emergency exit management, and workplace environmental measurements.
	Protection of pregnant women and the disabled	●					Middle	· Protection of pregnant workers, vulnerable workers, and persons with disabilities is specified and implemented in employment rules and personnel regulations.
	Providing essential equipment and offering training	●					Low	· Essential equipment and training systems will be provided in relation to industrial safety and health. · Protective equipment, such as safety helmets, safety shoes, goggles, safety harnesses, etc., will be provided for workers in specialized tasks. · Information regarding job hazards will be provided to workers, and regular risk assessments will be conducted to ensure worker safety.
	Supporting employees suffering from workplace disasters	●					Low	· In the event of an employee being injured or falling ill, support programs will be provided in accordance with employment regulations and collective agreements.

Management of Human Rights by Areas

Area	Major Issues	Key Stakeholders					Risk Level	Management and Identifying Major Human Rights Issues
		Employees	BP	Community	Customers	Note		
Securing environmental rights	**Build and maintain the environmental management system**	●		●			Low	· With our comprehensive environmental information management system, we manage data related to resources, raw materials, air pollutants, water pollutants, energy, greenhouse gases, and more. We built an environmental management system and received ISO 14001 certification.
	Disclose environment information	●		●			Low	· We regularly provide environmental information to our employees. · With sustainability reports and other means, we disclose various environmental emission information to internal staff as well as external stakeholders.
	Preventive approach for environmental issues	●		●			Low	· We consider the environmental impact of our entire business operations and establish a proactive approach through regular environmental impact assessments. · When producing plastic materials, we follow the Cradle-to-Gate principle, conducting Life Cycle Assessments (LCA) from raw material extraction to product manufacturing.
	Build emergency plans	●		●			Low	· We establish emergency plans to prevent environmental damage and disasters. · We conduct regular emergency drills to prevent, mitigate, and control serious environmental damage that may arise from our business activities.
Protection of human rights of local residents	**Respect and protect the human rights of local residents**			●			Low	· We engage in dialogue and consultation with the local community directly affected by our business activities (with events including resident meetings). · We conduct consultations with stakeholders, including landowners, who are affected by our business operations. · We respect local laws and regulations and do not resort to coercive measures in order to secure the property rights of local residents.
	Protect intellectual property of local residents			●			Low	· Our Patent Team protects the property rights of local residents in accordance with patent laws. · Regarding the protection of intellectual property rights, we respect international agreements and customary protections, and we provide sufficient consultation and compensation when negotiating with intellectual property rights owners.

Management of Human Rights by Areas

Area	Major Issues	Key Stakeholders					Risk Level	Management and Identifying Major Human Rights Issues
		Employees	BP	Community	Customers	Note		
Protection of consumer human rights	**Product responsibility**				●		Low	· We meet the legal requirements regarding consumer health and safety by providing information on ingredients, safe usage, environmental impact, maintenance, storage, and disposal. · We conduct technical seminars and customer consultations to educate consumers. · We prevent false or exaggerated advertising based on voluntary compliance regulations for fair trade.
	Comply with the laws for protecting consumers				●		Low	· We conduct preliminary evaluations to ensure compliance with laws and regulations, including product design, manufacturing, and labeling, as well as pre-shipment inspections. · We strictly prohibit false or exaggerated advertising based on internal RED system SOP and voluntary compliance regulations for fair trade in marketing. · Product information is presented in an easily understandable manner, and information specific to each region is provided in the local language.
	Response in case of product defect				●		Low	· We operate the S-Square system and respond to product defects based on the customer service SOP: Collect and compensation system.
	Protect consumer privacy				●		Low	· We have established guidelines for practicing ethical standards and regulations for information collection and management, including security management regulations. Based on these guidelines, we ensure compliance with personal information legislation, designated responsible personnel, consent for consumer information collection, and accountability. · We have implemented a robust security system to prevent the leakage of consumer personal information.

Diversity and Banning Discrimination

Grievance Handling System

SK chemicals operates an internal grievance handling channel and an SK Ethics Management counseling and reporting channel for external stakeholders, with the Corporate Culture Department and Compliance Team taking the lead. Through these channels, various opinions are collected to allow stakeholders to express their views on human rights. The grievance handling channel and SK Ethics Management counseling and reporting channel ensure the anonymity of whistleblowers, and in the case of human rights issues, measures are in place to separate the victim and the perpetrator, along with processes to address problems.

Report and Disclosure of Human Rights Influence

As the significant risks and impact assessment of Human Rights Management have a profound influence on SK chemicals' business operations, SK chemicals reports on human rights impact assessments and key findings through the ESG Committee and Human Rights Management Committee, reflecting key issues in its management. Furthermore, SK chemicals discloses its Human Rights Management processes, impact assessment results, and major risks annually through its Sustainability Report and website. For more detailed information, please refer to the company's website.

Diversity and Inclusivity Approach

SK chemicals does not discriminate against its employees based on gender, religion, social status, nationality, disability, or any other unjustifiable reasons. The company strives to foster an organizational culture that embraces diversity within the boundaries guaranteed by the Constitution and the Labor Standards Act. Recognizing the importance of gender equality, SK chemicals makes efforts to eliminate gender discrimination by providing equal remuneration to both male and female employees.

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.

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 2022, it was discovered that the pay difference of female employees compared to male employees was 1.43 times in managerial positions and 1.26 times in non-managerial positions. Pay is decided based on organizational and individual performance within the same level. There is no difference in pay that comes from gender.

Fair Evaluation and Reward System

SK chemicals strives to grow together with its members through fair and reasonable performance evaluation. Regular performance evaluations are conducted annually for regular employees, and in 2022, 96.8% of the members received regular performance evaluations, which slightly increased compared to the previous year.
At the beginning of each year, members establish Key Performance Indicators (KPIs) based on Management by Objectives (MBO) to set goals related to the organization and business. With four regular performance check-ins throughout the year, individuals share their progress with their leaders, receive feedback to achieve their goals, and ongoing feedback is provided to operate a data-driven performance management process. Once a year, mid-level managers and above undergo a 360-degree assessment to identify strengths and areas for improvement in their competencies. Based on the assessment results, leadership and competency development activities are carried out.

Grievance handling process

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Receive reports	Classify reports	Start investigation	Report results	Follow-up measures
Website/phone/e-mail/mail/ interview	Determine entity responsible for investigation based on the employee's level and the materiality of the matter (Autonomous Responsible Management Support Group or affiliated companies)	Participation from relevant departments if needed	Review investigation results, report and approve recommended actions, additional investigation if needed	Feedback on the results (if requested), request implementing disciplinary action if needed

3. IMPLEMENTATION OF A SAFE WORKPLACE

Safety and Health Principles and System

SHE Management System

SK chemicals recognizes safety, health, and environmental (SHE) management as key elements of its business under the principle of Human-centric Management. To achieve this, SK chemicals has defined three key elements: "Pursuing Values," "Operating Principles," and "SHE Policies." Based on these foundations, SK chemicals has established and implemented a SHE management system. Furthermore, SK chemicals sets SHE missions and targets for continuous improvement and consistently measures the performance of the SHE management system, incorporating the results to drive ongoing development and progress.

SHE Management System

SK chemicals prioritizes environmental protection and safety and health as its core values. In line with this commitment, the company has obtained ISO 45001 certification for its two plants in Cheongju and Ulsan. Additionally, our subsidiary, SK bioscience, has also obtained ISO 45001 certification for its Andong plant. As a result, SK chemicals has achieved ISO 45001 certification for 92% of its business sites based on revenue. This certification recognizes the company's adherence to international standards for Environmental Management Systems and Safety and Healthcare Management Systems, affirming SK chemicals' dedication to sustainable management.

To prevent safety accidents that could occur when working, we have built a Safety and Health Management System for our subsidiary SK multi utility and strengthened their capabilities to follow the system. Also, we strongly recommended the subsidiary to obtain international certifications, and so SK multi utility aims to receive ISO 45001 certification by 2024.

SHE Business 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 needs of various stakeholders.

Target

· The company shall have "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

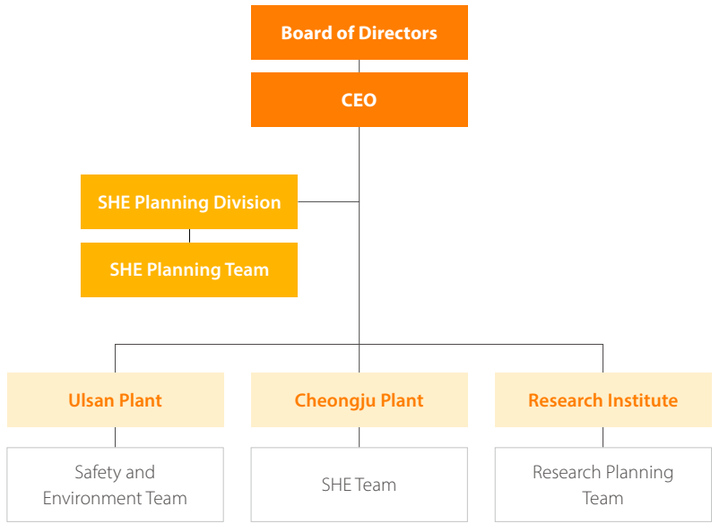
1. Members consider safety as the top priority in their work and must comply with SHE regulations/procedures
2. Members have a sense of ownership in all unsafe conditions and actions on site and take action on their own
3. Taking the initiative and set an example in regard of SHE, leaders give education 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 business partners
8. Suggesting SHE-related improvements in the field at any time, followed by immediate action by the company

SHE Governance

To promote systematic SHE (Safety, Health, and Environment) Management, SK chemicals established the SHE Planning Division in November 2021 as a dedicated organization for company-wide SHE initiatives. The SHE Planning Division serves as the control tower for SHE matters, establishing standards and procedures, and supporting on-site supervision and accident prevention at various business sites.

Furthermore, SK chemicals operates separate SHE teams for each business site. In 2022, the company strengthened the manpower of the Safety and Environment team in Ulsan and established a new SHE team for the Cheongju plant to enhance the execution capabilities of the business sites. In the future, we will increase the workforce at each business site, as well as enhance compliance with various regulations and the process of identifying and resolving issues within the facilities.

SHE Governance



In March 2022 and February 2023, annual safety and health plans were approved by the Board of Directors. A performance-based reward system was established, incorporating SHE management indicators into the Key Performance Indicator(KPI) goals of the CEO, SHE executives, and the production team leader of the Ulsan plant.

10 SHE Tasks for 2022

Classification	2022 Safety and Health Plans (Approved by the Board of Directors)	Major Detailed Tasks
Existing 6 tasks	Response to regulatory changes	· Acquire permits related to regulations
	Reestablishment of internal SHE system	· Build SHE system · Strengthen accident penalties, enhance SGC management, and implement habits to protect the safety of colleagues
	Improvement of SHE capabilities	· Education for each employee level
	Management of construction and process risk factors	· Risk assessment for all processes in the plants
	Securing soundness of facilities	· Test major devices and apply the DT system
	Establishment of emergency response system	· Prediction modelling to identify scope of damage in case of leaks of major chemical substances · Emergency response training
New 4 tasks	On-site SHE management	· Expand the weight of SHE KPI for the Production Team Leader
	Safety measures for construction/ on-site processes	· Manage risk factors · Strengthen management standards for business partners (Regular business partner evaluation system – Rewards/Penalty)
	Improve chemical substance management	· Ensure soundness of chemical substance equipment/ prevent hazardous chemical leaks · Strengthen risk management when dealing with chemical substances
	Improve health management	· Manage those who have occupational diseases (Noise-induced hearing loss) · Manage those who have personal diseases

Industrial Safety and Healthcare Committee

SK chemicals has an Industrial Safety and Healthcare Committee to gather input from employees and explore improvement measures. The committee consists of an equal number of representatives from labor and management, and there is a committee at each business site: Ulsan Plant, Cheongju Plant, and ECO Lab. In 2022, a total of 15 committee meetings were held, with quarterly meetings at the Ulsan and Cheongju plants and monthly meetings at the ECO Lab. Starting from 2023, we will have more action from the Industrial Safety and Healthcare Committee. At the Ulsan and Cheongju plants, the labor union will take the lead in promoting a safety culture and expanding employee participation. Additionally, at the ECO Lab, the SHE committee will discuss specific implementation possibilities for SHE tasks, key safety rules, and experimental permit systems to enhance their effectiveness.

Industrial Safety and Healthcare Committee

Business Site	Meeting Date	Participants	Major Items
Ulsan Plant	December 26, 2022	10 people · Employees: 5 people including the head of the labor union · Users: 5 people including the plant head	· Results of PSM rating in 2022 · Work cessation rights system · Assessment of musculoskeletal disorders from work: Not applicable (24 cases from 11 categories are related to heavy objects) · Results of health promotion programs · Results of cardiopulmonary resuscitation training · Opinions related to changing safety gear · Sharing roadmap to reduce major disasters · Introducing hazardous and risky machinery and equipment
Cheongju Plant	December 20, 2022	14 people · Employees: 7 people including the head of the labor union · Users: 7 people including the plant head	· Composition and operations of the Joint Labor-Management Risk Assessment Committee · Discuss and share CCTV operations · Share SHE IT progress updates
Research Institute	November 30, 2022	9 people · 8 members of the SHE Committee of the research institute (Team leader and responsible person at the research institute) · 1 SHE Committee director(Head of the Basic Technology Research Division)	· 2022 SHE performance and 2023 plans · Results and improvement measures according to the 2022 lab precise safety assessment · Establish key safety rules for Eco Lab and applying individual penalties for non-compliance · Develop and implement laboratory tidiness and organization standards

Safety Activities and Accident Prevention

Safety Diagnosis and Preventing Environmental Accidents

To prevent Safety, Health and Environment (SHE) related accidents, SK chemicals establishes and implements SHE Upgrade tasks annually. In 2022, we formulated and executed 10 SHE Upgrade tasks, including six ongoing projects from the previous year and additional new projects. Each site derives sub-tasks to make improvements.

To facilitate real-time emergency response, we have established "SHE Situation Rooms" in Eco Lab and Ulsan Plant. We conduct legal and specialized training for employees and business partners, and regularly carry out evaluations and swift response training based on preventive measures such as Emergency Response Plans and Process Safety Management (PSM). Based on these efforts, we aim to control potential risks and enhance comprehensive information management of SHE and facilities.

In 2023, we will strengthen the program for identifying and eliminating potential hazards to prevent accidents, and aim to train accident investigation experts at each site. Additionally, SK chemicals will enhance accident management and prevent recurrences by increasing the utilization of the "SHE Situation Rooms" and exploring diverse training methods for emergency response.

Safety Diagnosis and Preventing Environmental Accidents

Safety and environmental risk diagnosis	To assess compliance with obligations set forth in relevant regulations, SK chemicals has established a corporate-wide SHE management system and conducts site-specific diagnostic assessments to assess implementation levels every six months
Safety inspection	Regular inspections to prevent safety accidents at construction sites and hazardous work areas
Safety audit	Regular self-audit regarding ISO and PSM
Safety/Health/ Environment performance evaluation	To evaluate the performance of SHE in the workplace, clear guidelines for company-wide Key Performance Indicators (KPIs) are established, and objective evaluations are conducted based on standardized data
Safety Green Card system	Give out green, red, and yellow cards at the Ulsan plant according to safety management levels that are applied to regular maintenance and construction site related companies
Safety 7 Rules	Seven safety rules are applied to all members before entering the Ulsan plant to ensure the elimination of accidents

SHE Education Program

SK chemicals provides reasonable responsibilities and roles to ensure smooth SHE operations for SHE members. And we plan to expand the participation of all members in SHE activities by incorporating detailed SHE tasks into the essential KPIs.

Furthermore, in order to adapt to evolving SHE management and regulations, we conduct various educational activities. At the Ulsan plant, safety and environmental personnel meetings, informal gatherings, PSM (Process Safety Management) practitioner workshops, and plant manager workshops are held to discuss improvement measures for safety and environmental conditions and share best practices among the plants. The plant manager workshops focus on discussing best practices and improvement areas in each department to ensure safety within the processes, resulting in improvements such as safety enhancements, prevention of asphyxiation accidents, installation of anti-slip stair treads, improvement of process monitoring CCTV, and enhancement of wastewater identification and management.

Additionally, we provide comprehensive training to newly hired employees to enhance their understanding of the SHE management system. For office workers who may have a limited awareness of SHE compared to manufacturing and research positions, guidance is provided on coping methods for prevalent diseases and natural disasters to increase awareness of safety.

Risk Assessment

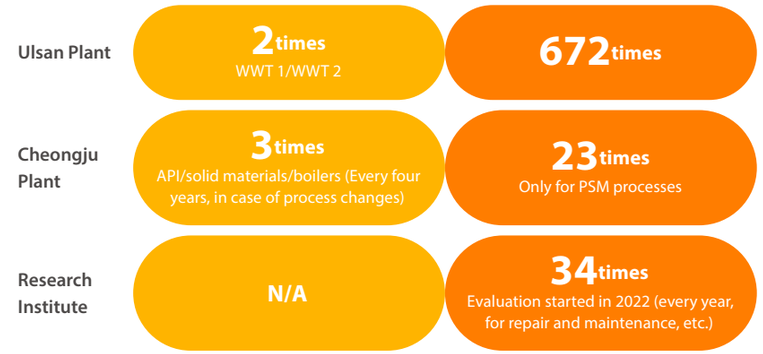
SK chemicals identifies and examines hazards within the workplace and assesses the implementation status of risk assessments. To achieve this, we have established a risk assessment procedure that includes risk grading, evaluation timelines, stakeholders, and final approvers. We also have the 'SHE IT system' to improve and standardize assessment forms.

At the Ulsan plant, we diagnose the risks associated with all operations, while ECO Lab has established a risk assessment procedure specifically for high-risk experimental tasks. Additionally, at the Cheongju plant, we conduct risk assessments for processes that are not covered by experimental permits and Process Safety Management (PSM). In 2023, we will establish a self-regulation prevention system for major accident reduction by implementing various evaluation techniques such as OPS (One Point Sheet). We also aim to strengthen customized risk assessments for each facility to identify and prevent key risk factors.

Emergency Situation Response System

SK chemicals' Ulsan plant conducts emergency response training in coordination with the SHE Situation Room. There are a centralized control center and a 24-hour monitoring system to track the training progress. Furthermore, based on the emergency organizational chart for different situations, we have developed emergency response plans by creating scenario-based training in groups.

Risk Assessment History/Results



Process risk assessment

Activities that are carried out to analyze the risks associated with PSM processes, evaluate and manage potential hazards and issues within the processes, with the aim of preventing incidents that could pose risks to life and property

Work risk assessment

Activities that are carried out to identify the hazards associated with each work process within the workplace, assess the frequency and intensity of occurrence, and establish safety measures to reduce them to an acceptable level

Safety Activities with Business Partners

SK chemicals' safety activities are not limited to our employees but are being expanded to encompass the entire value chain, including business partners. Our Ulsan plant has various safety and health programs such as risk assessment education and joint safety inspections with seven in-house business partners and 30 external business partners.

Review for the Evaluation of Qualified Suppliers I According to the SHE management procedures for business partners, a self-assessment is carried out on seven safety and healthcare criteria to select the supply contractors. As of 2022, a total of 1,919 out of 2,271 construction orders have been completed with the self-assessment process.

Management of Safety Management Cost I We are conducting inspections to ensure compliance with the expenditure of safety management costs for subcontracted projects with a value of over KRW 20 million. Starting from 2023, we plan to implement pre-inspections with self-checks.

Safety Report I We operate a safety reporting system, including an anonymous reporting channel, to gather opinions and facilitate communication among internal members and stakeholders, including subcontractors. We strive to discover unsafe elements in the workplace and activate the system by freely collecting opinions on safety and health through smartphones without time and space limitations.

Identify and Improve Workplace Risk Factors at Construction Sites of Business Partners I We have been actively identifying and addressing hazardous and risky factors in the workplaces of our subcontractors. Through this initiative, we have identified a total of 178 risk factors, including the risk of musculoskeletal disorders during product loading and hazards related to forklifts and pedestrian traffic in the product warehouse. We have successfully resolved 145 of these risk factors, which accounts for 81% of the total identified. Moving forward, we plan to expand the coverage to more subcontractors and further increase the resolution rate of identified risk factors.

Safety Report Activities (As of the end of Dec. 2022)

Facility	Safety	Health	Environment	Others	Total
Ulsan Plant	56	3	9	13	81
Cheongju Plant	8	1	-	3	12
Research Institute	4	-	7	4	15
Total	68	4	16	20	108

Identifying and Improving Workplace Risk Factors

Risk factor	Risk of musculoskeletal disorders when loading products	Improvement measure	Install Air Type hoist
Risk factor	No segregation between forklifts and worker pathways within the product warehouse, posing a risk of collision and potential injuries	Improvement measure	Make segregated worker pathways
Risk factor	Risk of collision between forklifts, vehicles, and equipment in the traffic area	Improvement measure	Install safety guide bars

Health Management Programs

Health Management Programs for Employes

Health Promotion Programs I SK chemicals is dedicated to promoting the health of its members. We support physical fitness and disease prevention through various programs such as smoking cessation, step-counting programs, and obesity management programs. By doing so, we aim to assist our members in leading healthy lives. In the future, SK chemicals plans to introduce a variety of health promotion programs at each site to further increase participation among our members.

Health Screening for Employees I To ensure healthy lives for all members, we offer regular health screenings for all members, including contract workers, regardless of employment status. Specialized health screenings for hazardous chemicals are provided to research institute members to prevent safety accidents and diseases. Our Ulsan plant carries out regular assessments of noise levels for each process and manages individuals with occupational diseases, such as noise-induced hearing loss. The results are reported to the BoD once a year. Furthermore, we have health management offices at each site to ensure workplace health and safety by managing stress and hazardous chemicals. If necessary, job reassignments are made to support the healthy living of the members.

Habits to Protect the Safety of Colleagues I "Habits to protect the safety of colleagues" is a program designed to raise awareness of safety and encourage members to voluntarily participate in working safely. The purpose is to establish a safety culture based on mutual dependency by carefully observing colleagues and praising their safe behaviors while encouraging self-improvement through dialogue when unsafe behaviors are observed. In 2022, a total of 2,165 participation cases were recorded for the program, and we plan to strengthen it further to expand employee awareness of safety in the future.

Improve Welfare Facilities for Business Partners I We have improved the space at the Ulsan plant to enhance the welfare of the subcontracted members working there. By renovating outdated spaces such as offices, restrooms, break rooms, and showers used by subcontracted members, we aimed to reduce work fatigue and provide a healthier working environment.

4. QUALITY MANAGEMENT & CUSTOMER SATISFACTION

Green Chemicals (GC) Quality Management

GC Business Quality Management Policies and Results

SK chemicals established the QA team in October 2018 to enhance quality management capabilities with the integration of Quality Assurance (QA) and toll processing management for the entire plant. Under the leadership of the QA team, the quality management process at the Ulsan plant has been systematically reviewed and reorganized since 2019, and we have maintained the quality management system (ISO 9001) certified in 1994 and renewed in 2021. We utilize barcode systems and automated shipping systems to trace and manage products, which are also utilized in process and quality management to minimize customer complaints. The Ulsan plant strives to maintain quality management with the goal of zero claims and complaints.

GC Business Customer Satisfaction Management System and Results

We conduct regular quality evaluation sessions with our customers to derive directions for quality management and improvement, apply them to the production system and improve to improve customer satisfaction. With Digital Transformation (DT), we streamline the production and delivery process of our products and services, practicing quality management. We have regular customer satisfaction surveys to analyze customer satisfaction by consumer type, which helps us improve and develop our products and services, ultimately creating new customer value.

Customer Satisfaction Survey | Starting from 2022, we have been conducting customer satisfaction surveys through a professional research institution KMAC, to identify and improve the service level of our Green Chemicals business. The survey targets companies within the top 70% in terms of sales, and overall satisfaction level has reached 84 out of 100, indicating a favorable level of satisfaction. Also, to enhance customer satisfaction, we have included "customer satisfaction" as a key performance indicator (KPI) in the business unit head's KPIs, making it a collective challenge and management goal for the entire business unit. Through these efforts, we strive to drive customer satisfaction improvement.

	2021	2022
Comprehensive Satisfaction (CSI)	86.6	84.0
Investigation Details	· Satisfaction by key areas (Product exploration/proposal, Design/development, Order/contract, Supply/delivery response, Quality management) · Satisfaction by key competencies (Responsiveness, Supply management, Excellent quality, Development capabilities, Human expertise) · Perception of relationships · ESG management activities of SK chemicals	

Life Science (LS) Quality Management

LS Business Quality Management Policies and Results

SK chemicals' Cheongju Plant, S HOUSE, responsible for pharmaceutical production, has been complying to the Good Manufacturing Practice (GMP) since 2015. We have established a quality management system that allows for quality improvement considering product life cycle based on risk analysis. We strictly manage the entire product manufacturing process, including internal and external audits, non-conformance management, periodic product reviews and specification control, customer complaint handling, and deviation management, in order to meet GMP requirements. Furthermore, we have implemented the Safety Information Reporting System (SIRS) since June 2021, which collects all safety-related information regarding regulations and products. We report relevant information to regulatory authorities and business partners. SK bioscience, after constructing its vaccine plant, L HOUSE, in Andong, Gyeongbuk, obtained GMP certification from the Korea Ministry of Food and Drug Safety in September 2014. In 2021, we obtained the EU-GMP (European Medicines Agency Good Manufacturing Practice) certification, establishing a foundation for entering the European market.

LS Business Customer Satisfaction Management System and Results

SK chemicals' Life Science Business strives to incorporate customer complaints to improve actual quality, ultimately achieving customer satisfaction. With our customer service center, we promptly receive real-time feedback on any difficulties or abnormalities experienced by customers regarding our pharmaceutical products. We follow the customer feedback resolution process in accordance with complaint handling regulations, ensuring reasonable handling and resolution.

All customer inquiries and complaint handling records are thoroughly documented and managed in a complaint database. Additionally, detailed information is reported to marketing, production, research and development, quality management responsible persons, and top management on a monthly basis, following the consultation statistics reporting system. This allows us to actively incorporate customer feedback into quality improvements such as sanction enhancements and packaging changes.

5. RESPONSIBLE SUPPLY CHAIN MANAGEMENT

ESG Management Policies and Systems of Business Partners

ESG policies for business partners

ESG Policies of Business Partners

SK chemicals has established a collaborative ESG policy for business partners in 2022, aiming to pursue sustainable business practices that contribute to solving social and environmental problems. The business partner ESG policy encompasses the business partner ESG management policy, a code of conduct for business partners, a 3-year roadmap for supply chain ESG management, and a timeline for business partner ESG evaluation. In particular, the code of conduct for business partners includes labor and human rights, environment, ethics, safety, and health. We have distributed the ESG code of conduct for business partners to ensure they will comply with and agree to the labor and human rights, environment, ethics, safety, and health regulations before signing contracts. Also, we make decisions on key agenda, including business partner ESG and win-win growth with the ESG Committee. To strengthen internal ESG expertise for business partners, we offer regular education with the SK group.

ESG System for SK chemicals Business Partners

Mid- to Long-term Business Partner ESG Management and Roadmap

SK chemicals recognizes the importance of managing business partner ESG in maintaining and increasing the organization's competitiveness. We have taken significant steps such as formulating the business partner ESG policy and conducting self-assessments in 2022. By 2024, we aim to develop a long-term strategy to establish a systematic plan for managing business partner ESG risks. In the future, as regulations like the EU Supply Chain Due Diligence Directive come into effect, we plan to expand the scope of assessments and evaluations to support improvements in business partner ESG performance.

Furthermore, SK chemicals has defined cooperation-based responsibilities and roles with the Purchase Team and others, to ensure systematic management of business partner ESG. We are accelerating the implementation of supply chain ESG with the ESG Committee. Additionally, we are providing more education for relevant departments such as the Purchase Team and ESG teams to adapt to external environmental changes.

SK chemicals Business Partner ESG Roadmap

	2022: Build ESG policies and measures to encourage ESG for the supply chain	2023: Expand ESG evaluation in the supply chain and make improvements	2024: Review the performance of ESG policies in the supply chain
STEP 1 Establish policies	Establish and disclose supply chain ESG policies · GC: Transactions of KRW 500 million or more and having 10 or more employees, BP with manufacturing facilities in Korea · LS: Transactions of KRW 1 billion or more, Possesses ESG performance capabilities	Establish and disclose supply chain ESG policies · GC: Transactions of KRW 300 million or more and having 10 or more employees, BP with manufacturing facilities in Korea · LS: Transactions of KRW 300 million or more, Possesses ESG performance capabilities	Establish and disclose supply chain ESG policies · GC: Transactions of KRW 100 million or more and having 10 or more employees, BP with manufacturing facilities in Korea · LS: Transactions of KRW 100 million or more, Possesses ESG performance capabilities
STEP 2 Diagnosis and assessment	**Diagnosis/evaluation for priority management companies of the year (Provide ESG guidelines and education, support diagnosis)**		
STEP 3 Improve and support performance	Build action plan to make improvements based on diagnosis - Build improvement measures for high-risk BPs and request improvement plans Establish supply chain ESG activation measures - Design purchase processes that incorporate ESG - Develop reward programs for top-performing suppliers and improvement support programs for high-risk suppliers - Implement ESG commitment agreements	Improvement activities based on diagnosis - Support and monitor first group of companies subject to focused management Implement supply chain ESG activation measures - Expand purchase processes that incorporate ESG - Verify effectiveness of improvement support programs for high-risk suppliers - Implement support programs for excellent ESG suppliers	Improvement activities based on diagnosis - Identify and share best practices Implement supply chain ESG activation measures - Expand purchase processes that incorporate ESG - Expand improvement support programs - Expand support programs for excellent ESG suppliers

Sustainable Purchases

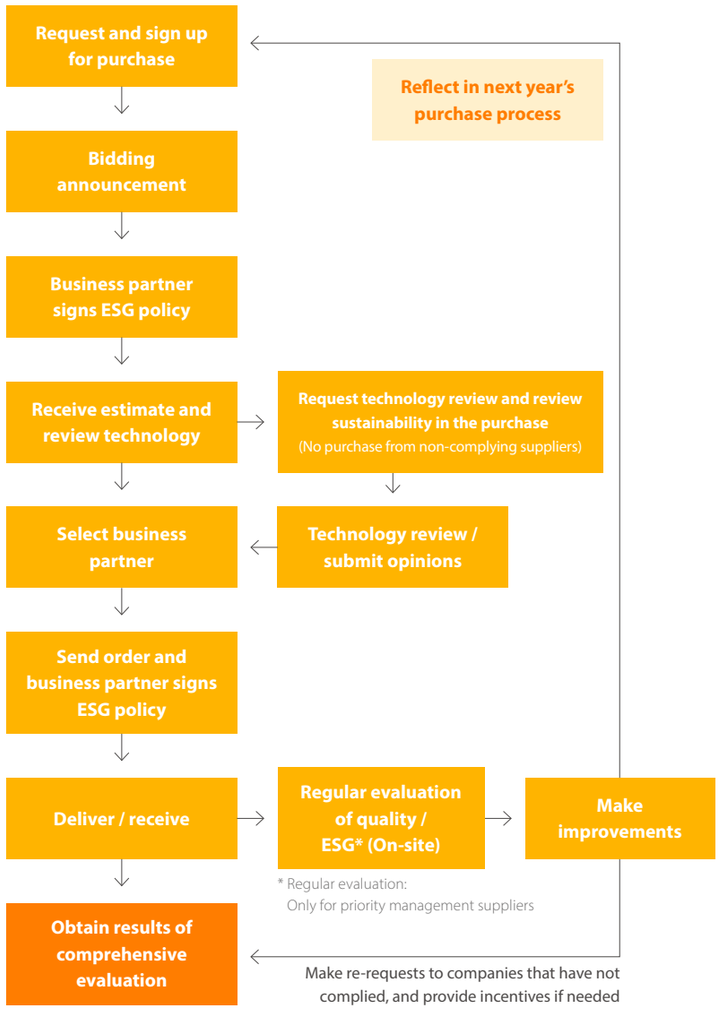
Sustainable Purchase Policies

SK chemicals evaluates the ESG management level, including environmental friendliness, when procuring raw materials and signing purchase contracts. We have implemented supplier evaluations since 2021. Among the suppliers that were recognized for their efforts for quality and service, we have selected excellent ESG suppliers and provided various incentives to strengthen cooperation with such suppliers. In addition, we are actively implementing green purchasing activities and green partnerships to enhance product competitiveness.

Based on the newly established business partner ESG policy in 2022, starting from 2023, SK chemicals plans to continuously review suppliers' ESG risks and reflect them in the procurement process and qualification requirements. Suppliers who fail to meet SK chemicals' ESG requirements within the specified period or have significant legal risks may be excluded from procurement.

In 2022, 195 companies entered into new contractual relationships, and among them, 28% of the business-related partners underwent ESG reviews. Other companies were for one-time purchases or purchases of low-relevance consumables. Additionally, during the transaction process, there was one supplier that was either temporarily or permanently suspended.

Sustainable Purchase Process



Purchases and Analysis

SK chemicals defines key suppliers as those that account for 70% or more of the purchase amount or are irreplaceable. In 2022, the total number of suppliers was 1,297, of which 32 were identified as primary key suppliers. In the future, the same ESG management policy will be applied to secondary and subsequent suppliers as well, following the practices applied to primary suppliers.

Supplier Status

Classification	Unit	2020	2021	2022
Number of total business partners	Number	1,426	1,477	1,297
Number of agents		334	333	313
Number of companies other than agents		1,092	1,144	984
Amount of purchase	KRW 100 million	6,993	7,658	6,738
Amount of purchase from agents		1,386	1,281	1,014
Amount of purchase from other than agents		5,607	6,378	5,724

Key Supplier

Classification		Unit	2022
Tier 1 (Primary business partners)	Number of primary key supply chain business partners	Number	32
	Amount of purchase from primary key supply chain business partners	KRW 100 million	4,726
	Proportion of purchase	%	70

ESG Risk Screening and Monitoring, Evaluation

ESG Screening Process of Business Partners

SK chemicals plans to manage key ESG risks in the following areas: environment, human rights/labor, governance, ethics, local/production activities, and product risks. Furthermore, we will monitor national risks, risks related to the chemical and pharmaceutical industries, and raw material risks, including conflict minerals, focusing on suppliers located in Korea where the headquarters and key facilities are located. We will also consider including business partner ESG screening in revising purchasing management regulations. The majority of our suppliers are located in South Korea, where SK chemicals' main business facilities are situated. However, as some raw materials and certain items are sourced from overseas locations, we will have to expand the scope of risk assessments with regular audits in the future. Among these suppliers, some are SMEs or middle-market companies, which may have relatively lower risks in environments that are highly regulated by the Korean government. However, these companies may have relatively higher risks concerning human rights, labor practices, ethics, and governance.

ESG Assessments of Business Partners

Business Partner	2022		2022 Goal (%)	Number of suppliers identified to be high-risk	Percentage of suppliers identified to be high-risk among all suppliers
	Number of suppliers	Purchase proportion			
Number of companies that have conducted self-assessments	40 companies	63%	40 companies (100%)	26 companies	2%
Number of companies that have conducted self-assessments from the primary key supply chain	8 companies	25%	-		

ESG Evaluation Results of Business Partners

To establish a competitive supply chain, SK chemicals has been conducting regular evaluations since 2021 targeting suppliers with a certain level of transaction performance. Minimum criteria that each member of the supply chain must adhere to have been established, and based on these criteria, we evaluate the ESG suitability of the business partners. To ensure objectivity, reliability, and fairness in the evaluations, independent third-party organizations conduct the assessments. In addition to the pre-evaluation with the system, we conduct on-site inspections for larger-scale companies.

We conducted a pre-evaluation for business partners in 2021, and conducted actual ESG evaluations in 2022. In 2021, in collaboration with Nice Information Service and Quantified ESG, an ESG research institution, ESG evaluations were conducted for 83 business partners to assess their understanding, interest, and execution level regarding partners' ESG. In 2022, we conducted business partner ESG self-assessments and evaluations for our suppliers, focusing on those engaged in Green Chemical business with transaction amounts exceeding KRW 500 million and employing 10 or more workers, as well as suppliers involved in Pharma business with transaction amounts exceeding KRW 1 billion and those with ESG capabilities. This assessment covered 63% of the total purchase amount from our suppliers. In May 2023, an on-site inspection is planned for the top 10 business partners based on transaction amounts, excluding large corporations, among the 26 companies classified as high-risk in the 2022 ESG self-assessment.

Detailed Inspection Results

Low Moderate Medium High High

Area	Detailed Area	Risk Level	Major Issues
Human rights and labor	Human rights/labor standards and practices	Moderate	Management of potential issues such as exceeding legal working hours
	Workplace safety and health	Medium High	Demand for managing the frequency of industrial accidents in small and medium-sized manufacturing companies
	Work-related diseases	Medium High	Disease prevention by managing special examination subjects and those with medical opinions
	Supply chain human rights/labor policies	High	Need to establish human rights policies based on ILO principles
Environment	Environmental management system	Moderate	Expansion of companies obtaining ISO 14001 certification and implementing equivalent management practices
	Greenhouse gases	High	Inadequate management of Scope 1/2 emissions, need for clear energy management
	Air quality	Moderate	Low number of companies emitting air pollutants with reduction plans
	Water and wastewater	Moderate	Implement water and wastewater management according to regulations, low recycling rate
	Waste	Moderate	Develop waste management in accordance with laws, low recycling/ reduction
Ethics and governance	Governance	Medium High	Potential risk considering company size and other factors
	Ethical management	High	High need for code of ethics and principles of fair competition
	ESG management and information disclosure	High	Need to improve ESG information and data management levels
Products and services	Protection of personal information	Medium High	While the amount of personal information handled is low, need to manage in the future
	Recalls	Low	Direct defect rate is low, but high financial impact
	Biodiversity and land protection	Moderate	High demand for biodiversity management throughout the supply chain
	Renewable energy opportunities	High	Potential risks due to increased demands for Scope 3 management and reduction
	Raw material sourcing	Medium High	Management is required as regulations on raw materials and substances are strengthened
	Eco-friendly certifications for products/services	High	Expand certifications due to increased consumer awareness and regulatory enforcement
	Packing materials and packaging	High	Develop reduction plans due to high proportion of packaging waste in the total amount of waste
	Chemical substance safety	Medium High	Potential risks due to strengthened consumer safety and various regulations

Corrective Measures and Empowerment

Corrective Measures and Incentives

SK chemicals will evaluate high-risk companies and establish improvement measures based on the analysis of results of the supply chain ESG assessment. We also aim to explore compensation options for excellent companies. Upon identifying any issues during self-assessment or on-site evaluations, we verify the implementation of improvement plans. The implementation plans are based on documented evidence, and the actual improvement activities will be reflected in the next year's assessment of our business partners' ESG performance.

To this end, we plan to award ESG assessment certificates to our business partners that underwent ESG assessments in 2022. Additionally, we will provide incentives such as education and interest support to outstanding business partners in ESG performance, aiming to increase their awareness of ESG and promote ESG capability improvement. On the other hand, we have plans to take measures such as contract restrictions for business partners that do not meet the minimum ESG criteria.

Empowerment Programs for Business Partners

SK chemicals strives to pursue happiness with stakeholders and make efforts to establish a fair and safe supply chain. To this end, we are implementing systems to improve the ESG performance of our business partners. We are strengthening financial support, such as operating the SK Win-Win Growth Collaboration Fund, to enhance the ESG performance of our business partners. Additionally, we conduct supply chain ESG program education, including CEO seminars for business partners, and provide individual coaching support after ESG assessments to enhance their understanding and awareness of ESG.

Furthermore, we are actively exploring various ways to support the capacity building of our business partners to improve their ESG performance. We are planning capacity building programs to achieve this goal. Going forward, SK chemicals will continue to pursue mutual growth with our business partners and lead as a company with an ethical corporate culture. We will do our best to fulfill this role.

Identification and Analysis Results of Supply Chain Risk for 2022

Classification	Business Partners	2022
Results of identifying and analyzing 2022 supply chain risks	Number of suppliers with significant actual/ potential negative impacts (identified as high-risk group after self-assessment in 2022)	26 companies
	Percentage of suppliers with corrective action plans	38%
	Percentage of suppliers where significant actual/ potential negative impacts have been completed	15%
Results of identifying and analyzing risk mitigation and support measures	Number of suppliers supported in implementing corrective action plans	26 companies
	Percentage of suppliers supported in implementing corrective action plans (%)	100%

Empowerment Program Details for Business Partners

Business Partner	2022	2022 Goals (%)
Number of suppliers participating in the empowerment programs	10 companies	-
Proportion of suppliers participating in the empowerment programs (%)	100%	-

Shared-growth Funds

Item	Unit	2020	2021	2022
Total amount of loans for partners	KRW 100 million	19	21	16
Number of partners who have received loans	Number	7	7	6

Win-win Growth

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 1.6 billion went to a total of six business partners to assist them. We will continue to make investments to ensure Win-Win growth with our business partners.

Subcontract Payment | SK chemicals places great importance on the relationship with our suppliers and strives to enhance their business stability. Efforts are made to minimize financial instability by implementing prompt payment of subcontracting fees. Additionally, cash payment is provided within 10 days of issuing tax invoices, enabling suppliers to engage in smooth business activities. These efforts alleviate job insecurity among supplier employees and contribute to creating a stable business environment, fostering a foundation for Win-Win growth and prosperity with suppliers.

Advanced and Interim Payment | To minimize financial instability among suppliers, SK chemicals operates an advance payment and interim payment system. In particular, for suppliers of equipment materials and construction, cash payment support is provided to those who apply for advance and interim payments, ensuring that suppliers do not encounter difficulties in delivering goods and progressing with construction. These efforts are aimed at establishing a foundation for Win-Win growth with suppliers and maintaining a stable partnership.

Building a Win-win Environment for Companies | SK chemicals is committed to generating both economic benefits and social value through sharing and utilization. We proactively establish collaborative relationships with small and medium-sized enterprises (SMEs) to enhance the competitiveness and sustainable growth of our company. For instance, we supply steam to SMEs located near our Ulsan plant at a lower cost than their production cost. This helps alleviate their burden of maintaining facilities, as well as reducing costs associated with manpower and resources. Additionally, we engage in selling excess steam to agreed-upon companies, which allows them to reduce fixed expenses. This mutual benefit approach addresses investment and fixed cost concerns. Moving forward, SK chemicals will continue to share and utilize our resources, technologies, and expertise with our business partners, aiming to generate both economic benefits and social value.

6. REALIZATION OF SOCIAL VALUES

Directions for Social Contribution and Participating in the Community

Participating and Developing the Community

Our corporate mission is "protect the environment and human health." Accordingly, we have been conducting social contribution activities centered around Green, Health, the marginalized, and Win-Win partnerships. In line with the United Nations Sustainable Development Goals (SDGs), we strive for global sustainable development. Starting from 2022 to 2024, we have set a goal to allocate 3% of estimated operating profit for social contributions. In collaboration with local community organizations, we identify the needs of the community and develop programs that support the healthy growth of children and youth from low-income backgrounds, enabling them to become productive members of society. In the field of environmental education, we actively collaborate with local educational authorities and social enterprises to jointly develop and implement educational programs.

To encourage our employees to participate, we collaborate with volunteer organizations to create autonomous and engaging volunteer activities. We also continue to carry out CSR (Corporate Social Responsibility) activities through both online and offline volunteer programs, adapting to the ongoing challenges posed by the COVID-19 situation. Moreover, we collaborate with social enterprises to provide online volunteering activities and online learning mentoring programs, aiming to reduce the educational gap and contribute to society.

SK chemicals Volunteer Group

SK chemicals has actively participated in community volunteering since the launch of the "SK chemicals volunteer group" in 2004. In 2022, the annual number of volunteer participants reached 780, with a total of 1,691 members and a cumulative volunteering time of 4,114 hours. The volunteer groups are organized by sites, including the headquarters, Ulsan, and Cheongju, with the CEO serving as the head of the volunteer group. The Social Contribution Office is responsible for providing guidance on volunteer activities, developing company-wide volunteer programs, and coordinating with external organizations. In 2022, due to the pandemic, instead of face-to-face volunteering, we carried out remote-centered volunteer activities in collaboration with social enterprises. These activities included eco-friendly KIT production, blood donation campaigns, and environmental education sessions, aiming to address social issues and make a positive impact. In 2023, we will open a community book café called 'Jigwanseoga,' offering various programs for humanities education and emotional well-being.

Social Contribution Policies

Social Contribution Mission: "Realize a sustainable society with green, health, marginalized group, and win-win growth measures"

Policy	Green	Health	Marginalized Group	Win-win Growth
	Contribute to a healthy and safe eco-friendly lifestyle in the local community through environmental management practices	Build a community safety net such as preventing diseases with social contribution activities	Support vulnerable groups in the local community to become healthy members of society	Lead win-win partnerships between large corporations and small and medium-sized enterprises to promote mutual growth and cooperation
Key Projects	· Build a PET eco-friendly circular economy · Happy Green School	· Cognition improvement program for dementia patients · Support for rare and intractable diseases · Jigwanseoga	· Hope Maker · Internalizing ESG (volunteer with members) · Support the local community (scholarship foundations, support for welfare groups)	· Support welfare services for members of business partners

Mid- to Long-term Goals for Participating in the Local Community

Community Participating Programs		Community	2022 (Results)	2023 (Goal)	2024 (Goal)	2025 (Goal)
Green	Happy Green School	Elementary schools near the business sites (Seongnam, Ulsan, Cheongju, Andong)	Provided education to 143 classes	Provide education to 160 classes	Provide education to 160 classes	Provide education to 160 classes
Health	Cognition improvement program for dementia patients	Daytime and nighttime care centers near the business sites (Seongnam, Ulsan, Cheongju, Andong)	Distribute cognition improvement programs to 74 centers	Distribute to 45 more centers	Distribute to 45 more centers	Maintenance and management of distributed devices (164 devices)
	Jigwanseoga	Suwon	Planning	Open 1	Open 1	Open 1
Marginalized Group	Hope Maker	Sponsor low-income children/youth in the community of or business sites (Seongnam, Ulsan, Cheongju, Andong)	70% participation from members	75% participation from members	80% participation from members	85% participation from members

Major Social Contribution Programs

Green Program

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 167 employees have become "eco-friendly teachers" after going through the internal training course for teachers, and the classes offered by the eco-friendly teachers have been well received with a total of 16,268 elementary school students in Seongnam, Ulsan, Cheongju, and Andong regions taking the classes.

Furthermore, SK chemicals employees have developed educational materials tailored to children's level of understanding to deliver information about environmental protection in an easy and enjoyable way. As online education became necessary due to COVID-19, SK chemicals has developed materials that could be used for both online and offline classes and game applications to allow children to receive environmental education anytime, anywhere. Additionally, we have been training external women who have experienced career breaks to become environmental education specialists, creating jobs. This program is scheduled to be implemented in 2023, targeting 200 classrooms across four regions.

Happy Green School Class of 2022 (Ulsan)

Health Program

Cognitive Skills Improvement Programs for Dementia Patients | SK chemicals is conducting a project to promote Artificial Intelligence-based cognitive improvement programs to prevent dementia, a social issue. In 2022, as the first project, we provided tablet PCs with cognitive improvement programs to 74-day and night care centers located in Seongnam, Ulsan, Cheongju, and Andong. Among the participants, we assessed the cognitive levels for a total of 1,147 individuals, and they showed an average increase of 3.2 points after using the program. When converted to the MMSE scale, this is an increase of 1.9 points. In 2023, we will select new institutions in the Seoul/Incheon metropolitan area and the Daejeon/Sejong region to further share the system. The day and night care centers supported in 2022 will also be managed continuously to enhance the effectiveness of the program.

Programs to Support Rare and Intractable Disease Patients | SK chemicals provides various programs to support the healthy daily lives of hemophilia patients. In collaboration with the GRC Foundation, SK chemicals offers programs for individual health management, provides newsletters to share up-to-date information, and offers programs to foster youth global leaders. Furthermore, in 2023, we will expand support for rare diseases, both domestically and internationally, to include network collaboration and educational support programs.

The practice of AI-based cognitive improvement program Soundmind

Support Programs for the Marginalized Group

Hope Maker | SK chemicals has been running a representative social contribution program called "Hope Maker" since 2012. This program is conducted in collaboration with nine local community welfare centers, providing economic and emotional support to a total of 134 children and youths from low-income families.

The recipients of the "Hope Maker" program receive regular monthly sponsorship funds, holiday gifts, winter hope kits, SK Happiness Kimchi, support for high school graduates, year-end gifts, and other practical support necessary for their daily lives. This allows the recipients to grow into responsible members of society. Additionally, since 2018, the program has included career mentoring through "Hope Maker School," which involves mentoring from college students. Every year, programs are developed in collaboration with local community welfare centers to reflect the needs of the students.

Even during the COVID-19 pandemic, we have provided Hope Maker School classes online and offline to help students enhance their academic capacities and develop career plans. As a result, the program has seen an 88.3% increase in the social support scale and a 67.5% improvement in self-efficacy among participating students. In 2022, 100% of the high school seniors involved in the program successfully gained admission to university. SK chemicals has been continuously contributing to the community with the Hope Maker program.

School support project of Hansol welfare center

Supporting Social Enterprises

SK chemicals is committed to fulfilling its social responsibility by fostering social enterprises and creating an ecosystem for them. Through the Project Lab, we provide technical know-how support to social enterprises, and through the EUUM platform, we collaborate with small and medium-sized enterprises and social enterprises. Through these initiatives, SK chemicals contributes to the increased sales and sustainable economic growth of these companies.

Project Lab

SK chemicals operates the Project Lab to support social enterprises aiming to commercialize plastic products. We offer various molding/injection-related know-how, industrial infrastructure, and collaboration networks with business partners. Since 2019, we have been operating the Project Lab website to identify social enterprises in need of support and establish a system to understand customer requirements and provide necessary solutions.

Plastic Circular Ecosystem Platform, EUUM

EUUM

SK chemicals has established the recycle plastic circular ecosystem business platform called EUUM, which is the first of its kind in Korea to connect producers, partners, and brands online. The EUUM platform provides tailored solutions for the entire process of waste collection, processing, and product manufacturing in the circular ecosystem. It helps SMEs transition to eco-friendly materials at the product manufacturing stage and facilitates collaboration with social enterprises.

EUUM Platform Project

Project 1907

Project 1907

Project 1907 is an eco-friendly lifestyle fashion brand of the social enterprise Only Sustainable World. The brand was launched in 2021 with the aspiration to recreate the primitive beauty of the world before the emergence of plastics in 1907. They produce and sell accessories made from recycle materials and eco-friendly fabrics. SK chemicals's EUUM supplies the "SKYPET CR" material required to produce fabric, and Project 1907 expands its portfolio of chemical-recycle materials and utilizes durable fabrics to create functional clothing, bags, hats, and various fashion products. Additionally, the brand will sell a wide range of upcycled fabrics and fashion items on the Project 1907 website for everyday use.

Art Impact

FabricQ

Art Impact is a social venture enterprise that produces and sells eco-friendly fashion materials and products. Since 2021, they have been operating an online platform called FabricQ to facilitate the purchase of eco-friendly fabrics for designers and brands. SK chemicals supplies the "SKYPET CR" required for yarn and fabric development to the Korea Textile Development Institute (KTDI), and KTDI produces various yarns using this material. Art Impact plans to not only sell fabrics developed by KTDI using chemical recycle fibers on FabricQ but also utilize them in the production of their own fashion brand products.

Virtuous cycle ecosystem for eco-friendly plastic

With Naver, the Korean IT Company, SK chemicals promotes the Green Empowering program, which aims to support SMEs in transitioning to eco-friendly materials. With SK chemicals' Sustainable Packaging Solution, we identify SMEs that seek to convert their products and containers into eco-friendly materials. Selected companies receive various support programs, including mold production, promotional support through Naver's shopping mall, and educational resources. Furthermore, SK chemicals plans to minimize environmental impacts throughout the value chain, including reducing waste generated during the distribution and consumption of products.

Launch of the KNK "6 Degrees Eco Toothbrush" made from eco-friendly materials

The first achievement of the Green Empowering program is the launch of eco-friendly toothbrushes. KNK, a company supported by the program, has launched the "6 Degrees Eco Toothbrush" made of recycle materials that have obtained the Global Recycled Standard (GRS) certification for both the bristles and the handle. This led to a 32% reduction in the use of petroleum-based plastics. The product has also passed the testing for harmful substances conducted by Societe Generale de Surveillance (SGS), an accredited certification body, ensuring its safety. Additionally, the packaging materials used have been certified by the Forest Stewardship Council (FSC), utilizing environmentally friendly paper to minimize environmental impact.

GOVERNANCE

Context

Transparent corporate governance impacts not only financial performance but also non-financial performance. Therefore, it is necessary to strengthen the responsibilities of the ESG committee and strive to establish sustainable management by building an integrated company-wide risk management system. Furthermore, in order to fulfill Corporate Social Responsibilities and build trust among various stakeholders, it is required to raise the awareness of employees with high standards on ethical management and the need to manage it through the Board of Directors. This report describes SK chemicals' efforts to establish responsible governance.

➡ Scope of reporting business sites:

SK chemicals	Headquarters (ECO Lab), Ulsan Plant, Cheongju Facility (S HOUSE)
SK multi utility	Ulsan Facility
SK bioscience	Andong Facility (L HOUSE)

Approach

SK Chemical strengthens the authorities of the ESG committee by aligning between ESG performance and KPIs. In order to improve the level of ethical management within the organization, we conduct ethics/compliance/fair transaction programs and also operate the compliance program. The results of the compliance inspection is reported to the Board of Directors. For the company's sustainable management, we have established an integrated company-wide risk management system for preemptive risk management, established an annual risk management scheme for each organization, and strengthened our risk management capabilities by reporting and responding to the quarterly progress to the Board of Directors.

2022 ACHIEVEMENT & PROGRESS

Core Areas	Key Agenda	2022 Targets	2022 Performance	Long-term Plan	page
Responsible Corporate Governance	Strengthening the role of the ESG Committee	ESG decision makings by the ESG Committee	· Review the ESG investment feasibility · Report Materiality Assessment's Results and SBTi based NET ZERO Roadmap.	· Strengthen the BoD's approval/review authorities on ESG-related issues such as Climate Change, environment, human rights, and supply chains	92
	Aligning ESG performance to compensation	Align ESG performance with CEO and C-Levels' evaluation & compensation	· Set CEO & C-Levels' ESG KPIs	· Strengthen the align between ESG performance and compensation	91
	Shareholder-friendly management	Implementation of shareholder return policy	· Implement interim dividend (July 2022)	· Expansion and materialization of shareholder return policy	93
Risk Management	Strengthening risk governance	Build an integrated company-wide Risk management system	· Establishment of Risk Management Committee and appointment of CRO · Report the quarterly progress to the BoD (April 2023)	· Enterprise risk management by BoD Control and its internalization	94
	Establishing the risk management strategy		· Set the annual risk management scheme for each organization		95
Ethical Management	Setting the Ethical management system	Build an Ethical management system based on ISO 37001	· Report the results of the compliance inspection to BoD (March 2023) · Operation of Compliance Program	· Zero violations of anti-corruption laws · 2023 : Acquired Anti-Corruption Management System (ISO 37001) certification	98
	Improving the Ethical management		· Internal audit (9 investigations, 1 disciplinary action) · Implementation of ethics/compliance/fair transaction training programs		99
IT Security	Establishing the IT security system	Build a system based on ISO 27001	· Revision of Security Management Regulations and Designation of Chief Information Security Officer · Establishment of a three-year roadmap for information security	· 2023 : Acquired information security management system (ISO 27001) certification	101

1. RESPONSIBLE GOVERNANCE

Board of Directors and Field of Expertise

Board of Directors

The purpose of BoD meetings is to actively listen to the opinions of shareholders and stakeholders and reflect them in management decision-makings. The board reviews and approves various issues spanning social, environmental, and economic domains. As of March 2023, the board consists of two inside directors, four independent directors, and one nonexecutive director. To ensure the board can monitor and balance the management effectively, the chairman of the Board of Directors is separated from the CEO, and more than half of the directors are independent directors.

According to the Commercial Act, directors are allowed to hold only one concurrent position and are not allowed to work for companies with conflicting interests. The decision on whether to reappoint a director is based on an evaluation of their performance during their previous term at the end of the term.

Field of Expertise

SK chemicals prioritizes the candidates' experience and expertise when nominating directors. We disclose the qualification requirements, appointment background, and independence criteria of directors. Independent directors are composed of experts in various fields such as industry and economy, providing review opinions regarding their professional fields to facilitate rational decision-making. To enhance the expertise of the board of directors, the company operates four committees under the board of directors, including the Audit Committee, Independent Director Nomination Committee, ESG Committee, and Human Resources Committee. In addition, the company plans to appoint female Independent Directors with ESG expertise in the future to ensure diversity in the Board of Directors.

Board of Directors and Field of Expertise

(As of March 2023)

Classification	Name	Expertise				Career and Background for Nomination	Committees within the BoD			
		Industry	Accounting/ Finance	Management	ESG		Audit Committee	Independent Director Nomination Committee	ESG Committee	Human Resources Committee
Inside Director	Kim Cheol (CEO)	●		●		After joining SK Corporation, he served as the head of the Petroleum Development Division at SK Innovation and the head of the Resin Business Unit at SK chemicals before being appointed as the CEO of SK chemicals. At each company, he played a significant role in business growth, and based on this broad experience and ability, he will be of great help in executing new projects at the company.	–	–	–	–
	Ahn Jae-hyun (CEO)	●		●		As the CEO of SK Discovery, SK D&D, the head of SK Gas Management Support Division and Chairman of the New Growth Energy Committee, and the CEO of SK Ecoplant, he has led various investments and M&As. In particular, he successfully carried out the structural transformation of SK Ecoplant's eco-friendly and new energy businesses. Based on such experience, it is expected that he will contribute to building a green materials and bio-centered portfolio for the company and accelerating ESG management.	–	–	●	–
Nonexecutive Director	Jeon Kwang-hyun	●		●		After joining SK chemicals, he has served as the Director of the Life Science Biz and CEO of SK chemicals. He greatly contributed to the growth and performance improvement of each business sector.	–	–	–	●
Independent Director	Moon Sung-hwan (Chairman of the BoD)	●		●		As a business management expert who has served as CEO of two chemical companies, Samyang Corp.❶ and Huvis❷, for more than 10 years, he has extensive knowledge and experience in the chemical industry.	●	–	–	Chairperson
	An Yang-ho		●			As a personnel and financial/accounting expert, he has served as Director of Planning and Budget, Director of HR Development at the Civil Service Commission, and Second Vice Minister of the Ministry of the Interior and Safety.	●	Chairperson	●	–
	Cho Hong-hee		●			In addition to the knowledge and extensive experience gained as a tax expert who has performed tax duties for over 30 years at organizations such as the National Tax Service, he has served as an Independent Director and audit committee member of listed companies for several years.	Chairperson	●	–	●
	Park Jeong-soo				●	Currently a professor of Economics at Sogang University, he is also active as a policy advisor and evaluator for government agencies. In particular, he established the first ESG expert training course in Korea at the Graduate School of Economics at Sogang University.	●	●	Chairperson	–

❶ Samyang Corp: Founded in 1924 and engaged in the chemical and food industries, with major chemical products including engineering plastics, ion exchange resins, touch panel materials, and polymers
❷ Huvis: Polyester fiber manufacturing company that produces industrial materials and raw materials for bottles and films

Independence of the BoD

Amendment of the Governance Charter

In 2022, SK chemicals has revised its governance charter, which was established in 2021. As the Korea Institute of Corporate Governance and Sustainability's Corporate Governance Best Practices Standards was revised in August 2021 to reflect global trends, we fully revised the charter's text and also incorporated the revised SKMS management philosophy. The main changes include clarifying the role and responsibilities of the Board of Directors, adding the roles of committees within the board of directors, adding the appointment of directors at the general meeting of shareholders, enhancing communication with shareholders and stakeholders, pursuing the happiness of members, establishing a board-centric management, and establishing a transparent governance structure.

Independence and Diversity Guidelines

As the independence and diversity of the BoD has become more important, there has been a growing demand for the independence and diversity of the BoD from evaluation and investment institutions such as DJSI and the National Pension Service. In response, SK chemicals has established voluntary guidelines in 2022 to ensure the independence and diversity of independent directors and the Board of Directors. The Independent Director independence guidelines include legal requirements and strengthened recommendations, and the Board of Directors diversity guidelines specify general diversity requirements and comprehensive criteria for expertise. The guidelines have been posted on the company's website to allow stakeholders to check them at any time.

Independence of the Board of Directors

Requirements for the Independence of the Board of Directors	Moon Sung-hwan	Ahn Yang-ho	Cho Hong-hee	Park Jeong-soo
Independent Directors must not have been employed by the company as a member of management below the CEO level within the past five years.	●	●	●	●
Independent Directors and their family members must not have received $60,000 or more in any form from the company, parent company, or subsidiaries in the past three years.	●	●	●	●
Independent Directors and their family members must not have served as executives of the company, parent company, or subsidiaries within the past three years.	●	●	●	●
Independent Directors should not be a consultant or advisor of the company's top executives, and should not have an affiliated relationship with the company.	●	●	●	●
Independent Directors should not enter into partnerships with the company's major clients or partners.	●	●	●	●
Independent Directors should not engage in personal transactions or service contracts with the company or its senior management.	●	●	●	●
Independent Directors should not engage in any transaction or have any partnership with non-profit organizations (NGOs) receiving significant donations from the company.	●	●	●	●
Independent Directors must not have worked as a partner or employee of the company's auditor in the past three years.	●	●	●	●
Independent Directors must meet the independence and other criteria established by the board of directors, and there should be no conflicts of interest with the company or other stakeholders.	●	●	●	●

Performance Evaluation and Compensation

Performance Evaluation and Compensation

The remuneration of directors 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 inside directors while the remuneration for Independent 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 2022, the amount of remuneration approved was KRW 5 billion with a total of KRW 3.53 billion paid to seven registered directors including one nonexecutive director newly elected in the shareholders' meeting in March 2022. The average amount of wage per capita stands at KRW 505 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 annual reports.

Efficient Management of the BoD

Effectiveness of the BoD

SK chemicals convened a total of 16 board meetings in 2022, reviewed and made decisions on agendas taking into account home and abroad market conditions. The Board of Directors resolves matters specified by laws and regulations or the articles of incorporation, matters delegated by the general shareholders' meeting, and important matters related to company management and business execution. The average attendance rate of the board meetings is 98.7%. In addition, after evaluating the composition, responsibilities, and roles of Independent Directors in BoD activities, the score resulted in 4.7 out of 5.

Committees within the BoD

To increase the efficiency and expertise of the BoD, Audit Committee, Independent Director Nomination Committee, ESG Committee, and Human Resources Committee have been established and are operated under the board.

In particular, the ESG Committee considers policies for environmental and social responsibility management to set goals for ESG-related activities and reviews detailed execution plans. It also identifies risks and opportunities in business areas with the risk management framework and reviews strategies for financial and non-financial risks and opportunities. To activate the ESG Committee, the ESG Master Plan and ESG Key Performance Indicators were reported in the third quarter of 2021, and it was decided to split-up the utility corporation (SK multi utility) as part of achieving Net Zero 2040. In 2022, the Investment Deliberation Committee regulations were revised to add a procedure for reviewing the "ESG Review Results Report" when reviewing investment items. The regulations specify that ESG risks must be reviewed during investment reviews, and that there must be post-monitoring of environmental and social risk reduction measures according to the ESG Review Results Report to minimize the negative impact of investments on the environment and society. After the amendment, ESG risks were reviewed for the first time for the CHDM #5 investment. It was confirmed that the project had increased social value effects, such as job creation.

Committees within the BoD and Major Agenda

Name	Major Roles	Major Agenda in 2022
Audit Committee	Request for business report to the Audit Committee on the execution of directors' duties	· Operation status of the internal accounting management system and external audit firm's audit results · Policy report on the audit work of the Autonomous Responsibility Management Support Team · Discussion on the results of measuring ethical management level, exemplary leadership, and external auditor's review results
Independent Director Nomination Committee	Nomination of Independent Director candidates	· Nomination of Independent Director candidates
ESG Committee	Decision making of major ESG items throughout the management	· Evaluation and publication of the significance of the 2021 Sustainability Report, and report on its release · Plans for promoting human rights management, establishment of biodiversity policies, and a report on tax policies · Development of a Net Zero roadmap based on the SBTI and publication of a TCFD report · Establishment of Human Rights Management and Risk Management Committees
Human Resources Committee	Reviews including the evaluation and determination of whether to retain the CEO, appropriateness of compensation for the inside directors, and evaluation and determination of compensation for key executives	· Review of CEO's KPI and KPI Review · Performance evaluation of major executives · Review of remuneration of CEO and major executives

Shareholder-friendly Management

Expanding Shareholder Returns

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.

We have set the policy duration to three years, after which we will review this policy after the said period to create a shareholder-friendly environment. In the shareholders' meeting in March 2022, as part of shareholder return policies, we have added the evidence for the mid-term dividend policy in the articles of association. In addition, we decided to pay a mid-term dividend in July and paid it, and also retired treasury stocks equivalent to 2% of the outstanding common shares in September.

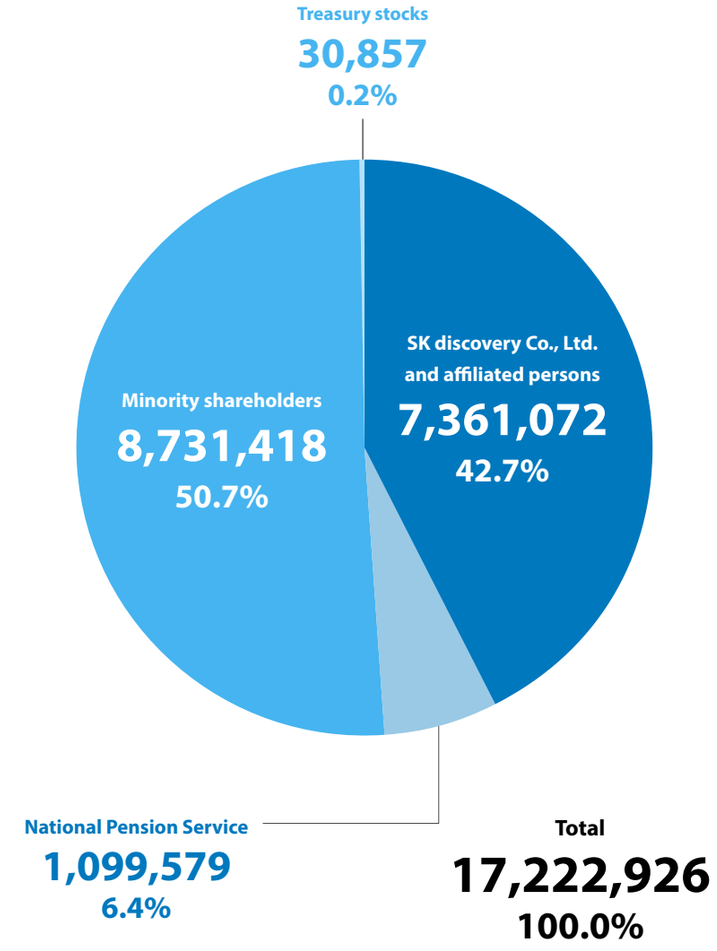
Furthermore, we decided to pay dividends that exceed the already announced dividend payout ratio (30% of separate net income excluding non-operating income and losses) at the board of directors' meeting for the 2023 fiscal year in February, and have reviewed and implemented more policies to enhance shareholder returns.

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 Status

(Unit : share, %)



* No. of shares owned is as of December 31, 2022, and only includes common stocks

Dividend and Ratio of Dividend to Stock Price

Classification	Share	2020	2021	2022
Dividend per share (KRW/share)	Common Stock	2,000	3,000	1,500
	Preferred Stock	2,050	3,050	1,550
No. of stock dividend (share)	Common Stock	11,728,768	17,589,923	17,222,926
	Preferred Stock	1,313,519	1,967,296	1,967,296
Ratio of dividend to stock price (%)	Common Stock	0.5	2.0	1.9
	Preferred Stock	1.2	3.3	3.9

Stocks Owned by Management

Shareholder		No. of shares owned (share)	Share ratio (%)
Registered executives		3,775	0.02
Inside director	Kim Cheol (CEO)	3,000	-
	Ahn Jae-hyun (CEO)	0	-
Non-executive director	Jeon Kwang-hyun	775	-
Independent director	Moon Sung-hwan (Chairman of the BoD)	0	-
	An Yang-ho	0	-
	Cho Hong-hee	0	-
	Park Jeong-soo	0	-
Non-registered executives		3,416	0.02

* No. of shares is as of December, 31, 2022, and only includes common stocks
* The above "No. of shares owned" excludes employee stock ownership

2. RISK MANAGEMENT

Risk Management System

Comprehensive Risk Management System

SK chemicals has established a "Comprehensive Risk Management System" by setting up a Risk Management Committee in December 2022. By integrating dispersed risk management functions across the company and performing financial and non-financial risk management at the board level, the company aims to identify and prevent risks that may affect the achievement of corporate objectives in advance and minimize the volatility of corporate value due to uncertainties.

Risk Management Reporting System

SK chemicals has appointed a Chief Risk Officer (CRO) to report the progress of key risk tasks every quarter to the CEO and subsequently to the Board of Directors. In addition, to prevent conflicts of interest that may arise from business priorities, the risk management organization is structurally separated from the business organization to ensure independence, and efforts are made to manage risks for the maximum benefit of the entire organization. Currently, the CRO is also serving as CFO.

December 2022
Established a Risk Management Committee

Comprehensive Risk Management System

Risk Management System	Risk Management Committee Operation	Expected Effects
1. Identify risks and define tasks / Build goals · Identify risks based on the characteristics of each organization · Define key risk tasks and goals considering the significance including the risk scale and importance	· Identify key risk tasks for C-level executives for each organization · Define core risk goals, activities, and schedule	**Non-financial risk management by the BoD** · BoD discusses the non-financial risks that are currently managed by the working-level staff
2. Improve and monitor risks · Continuously monitor progress regarding key risk tasks	· Risk Management Committee compiles and analyzes the progress of each organization's task, then reports the results to the CRO and CEO · Call a Risk Management Committee meeting and report to the BoD in case of serious issues that affect management activities	**Risk management that goes beyond responding to regulations/compliance** · Need to manage annual progress by selecting/establishing key risk tasks for each Risk Management Committee member
3. Report risk results · Report quarterly BoD activities	· CRO reports to the CEO every quarter, then report to the BoD	**Strengthen risk management that is important for the entire company** · SHE Planning Division acts as a SHE control tower for the entire company · Identify/manage climate change risks and chemical safety risks

Organizational Chart of the Risk Management Committee

* Internal control and audit are done by the Audit Committee

Risk Management Strategies

Types of Risks and Response Strategies

SK chemicals has established a "Comprehensive Risk Management System" by setting up a Risk Management Committee in December 2022. By integrating dispersed risk management functions across the company and performing financial and non-financial risk management at the board level, the company aims to identify and prevent risks that may affect the achievement of corporate objectives in advance and minimize the volatility of corporate value due to uncertainties.

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 (Weekly reports to the CFO and CEO) · Diversification of supply and demand for raw materials
	Credit Risks	· Changes in the counterparty's creditworthiness that may result in losses	· Financial Support Division · Management Support Division (LS)	· 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 (Daily report to the CFO, weekly report to the CEO, and monthly report to the BOD)
	Tax/Balancing Risks	· Tax-related risks that could arise from all business activities	· Financial Support Division	· Tax Policies · Internal Accounting Management Regulations · Audit Committee Regulations	· 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	**Climate Change 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	· Environment Management Regulations · Investment Deliberation 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 · SK multi utility Power Operation Team · ESG Progress Team	· Environment Management Regulations · Water Quality Management Process	· Establishment/implementation of water waste reduction and management objectives for each business site · Response to CDP Water

Non-financial Risks	**Company-wide SHE Risks**	· Potential risks in regards to safety, health, and environment throughout business-related activities	· SHE Planning Division	· SHE Business Management Regulations · Industrial Safety/Industrial Health Management Regulations · Emergency Response Management Regulations · Accident Management Regulations	· Operation of Industrial Safety and Health Committee by business sites · Establishment of compliance system to the Serious Disasters Punishment Act and response to changes in regulations · Establishment/implementation of safety plans by processes
	Ethics and Compliance Risks	· Risk of loss resulting from inadequacy of internal processes, personnel, or systems	· Legal Division · Financial Support Division	· 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
	Chemical Safety Risks	· Issues regarding the use of chemical substances and product safety	· Chemical Research Institute	· Chemical Substance Management Regulations	· Establishment and continuous implementation of LCA roadmap for all products · Establish and follow toxic chemical substance substitution plans · Enhance chemical substance management systems (MSDS, CMS, RAPID Sheet)
	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	· Corporate Culture Division	· Human Rights Policies · Human Rights Management Guidelines	· Establishment of a reporting channel for ethical management · Human rights effect assessment and implement improvements

Emerging Risks

Risk Factors	Financial Effects	Effect Level	Risk Response and Management
Natural Resource Crisis	· Global consumption expansion, production intensity, and insufficient management of natural resources are predicted to exacerbate the shortage of resource supply, including chemical substances, food, natural resources, and water. · The 2022 Russia-Ukraine war, along with the escalation of tensions between several countries worldwide, demonstrated that these resource issues could become a serious economic problem, in addition to the geopolitical risks surrounding resource-rich areas. · The medium- to long-term natural resource crisis, coupled with the supply chain collapse resulting from the Russia-Ukraine war, temporarily caused the price of our main product material, the purified terephthalic acid (PTA) raw material, to rise from $800 per ton to $1,100 per ton. · The medium- to long-term increase in natural resource prices and the instability of product prices may affect our raw material supply and supply chain stability, which could create uncertainty in our medium- to long-term profit generation.	High	· SK chemicals is taking measures to respond to fluctuations in raw material prices such as PTA and MEG, which are caused by natural resource crises, and to minimize financial losses. · In the short term, we are diversifying our raw material risks by continuously monitoring raw materials, securing foreign currency, and diversifying our business. In the long term, we are making fundamental efforts to diversify manufacturing and chemical manufacturing processes and develop alternative products.
Biodiversity Losses	· The extinction or decline of species across land and marine ecosystems is triggering a new level of regulatory risk. · As transparency pressures related to biodiversity such as the Post-2020 GBF (Global Biodiversity Framework) and TNFD (Taskforce Nature-related Financial Disclosure) intensify, we may face medium-term pressure to identify and disclose the significance of biodiversity net-loss related to chemical manufacturing, bio/pharma products and packaging that has not yet been clearly identified. · Moreover, as a major manufacturer of chemicals, we need to evaluate the impact not only on human health but also on a wide range of biodiversity (Net-Loss) from product use and disposal. · In the medium-term, this could expand the product liability scope and increase regulatory costs in accordance with the Polluter's Pay principle, resulting in a negative impact on our medium-term profit generation.	High	· We are conducting a Life Cycle Assessment (LCA) for 100% of our products to evaluate their impact on natural and human factors such as global warming, eutrophication, ozone depletion, and toxicity. · As we expand the scope of our LCA research related to biodiversity loss, we plan to broaden the range of impact management for our products. · In addition, we recognize the importance and impact of production processes on biodiversity and have established biodiversity policies across our entire supply chain. · We have established policies regarding deforestation, which prohibits activities that destroy forests or construct facilities within them. We also plan to gradually replace paper/pulp used in our products and packaging materials with FSC-certified paper and pulp.

3. ETHICAL MANAGEMENT

Principles and Frameworks

Ethical Management | SK Ethical Management

Principles

SK chemical is practicing company-wide ethics and compliance management to become a company trusted by all stakeholders. Based on the SK Management System (SKMS), the Code of Ethics, and the Code of Ethics Practice Guidelines, we are striving to build an exemplary ethical system and culture. The Code of Ethics and the Code of Ethics Practice Guidelines, which are the ethical judgments and practice standards of all SK chemical employees, were established by reflecting the basic management philosophy of SKMS, which is SK's management philosophy and principle of conduct.

Code of Ethics | As a concrete expression of the practice of SKMS basic management philosophy, the responsibilities that employees have to stakeholders are stipulated.

Code of Ethics Practice Guidelines | As a specific guide to practice the Code of Ethics, proposing ethical decision-making and standards for judging behavior.

Frameworks

SK chemical has established and operated a compliance department specializing in the Green Chemicals Business and the Pharma business to promote systematic ethical & compliance management. In order to practice fair management and to establish standards for decision-making, the Code of Ethics and Code of Ethics Practice Guidelines have been established. We are practicing systemic compliance management based on procedures, prevent, detect, and respond activities. Furthermore, we are actively working on implementing an anti-corruption management system (ISO 37001) to strengthen policies related to bribery and anti-corruption measures.

Realization of ethical management: prevent, identify, follow-up

Phase 1. Prevent

Activities to Spread a Culture of Ethics | SK chemical will spread a culture of ethics and compliance. Every year, an ethical practice survey is conducted for all employees to understand the current status of ethical management and weak areas, and the results are reported to the management and Audit Committee. In order to improve the ethical management practice for all employees, ethical training and leader-centered ethical workshops are held every year, and in 2022, they were held twice. In addition, in an effort to spread the culture of ethical management, SK chemical sends a letter to its business partners and shares the SK chemical's ethical management policy. Also announces cases related to ethical management to all employees in the form of a newsletter.

Ethics/Compliance Training | Ethics training is conducted every year to cultivate the will of all employees to practice ethical management and to raise the level of practice. Ethics training is divided into online education for all employees, including contract employees, and leader-centered ethical management practice workshops.
In 2022, we held two online training sessions on ethical management and two workshops on ethical management practices. The online training on ethical management provided case reviews on workplace harassment, information security, prohibition of concurrent work, false reporting, company selection, and unfair work orders for all employees. Through the Ethical Management Practice Workshop, members had the opportunity to discuss various cases with ethical management and anti-corruption as the main topics. Under the supervision of leaders (C-Levels), "respect for personality" was selected as a common theme, and one of the cases watched in the ethical management online training was selected as an autonomous topic, and a total of two topics were discussed for each organization. The participation rate of the Ethical Management Practice Workshop by organization is maintained at 100%.
In particular, we conducted fact-finding inspections and training for subcontractors centered on the Ulsan plant, and achieved results in improving the ethics and working environment of subcontractors.
In the Pharma business, we provide differentiated training for each group on content specialized in the pharmaceutical business. We regularly conduct training on regulations that marketing employees must comply with at least twice a year. In addition, special training is provided when new employees are recruited or related laws and regulations change, and 10 additional trainings were held in 2022.

Phase 2. Identify

Reporting System | In order to strengthen the practice of ethical management, SK chemical receives reports related to ethics and compliance through various channels such as the SK ethical management website, the company's website and intranet, e-mail, telephone, and mail. Depending on the case received, the Compliance Team for the Green Chemicals Business, the CP Team for the Pharma Business will conduct a fact-finding investigation, and the HR department will investigate the HR issue. Sexual harassment in the workplace, acquisition of personal interests, violation of fair transaction, and disadvantage of the whistleblower are serious disciplinary grounds and may be punished by the disciplinary committee with more severe disciplinary action than suspension.
Regarding online reports that have been submitted, we have taken appropriate responses and guidance in accordance with the relevant procedures. In addition, we regularly report the results of the report processing to the Audit Committee and the Board of Directors.

Reporting Subjects and Scope, Protection of the Informant | All stakeholders, including SK chemicals' partners, customers, and other third parties can report on labor and human rights, environment, anti-corruption, information protection, and sustainable supply chain issues in their real names or anonymously.

All informants can check the process and results of the report through the online reporting system. In addition, we thoroughly protect the identification of the informant so that he or she will not be penalized or discriminated against due to the report. If an employee is penalized due to a report, he or she may request correction or protective measures from the organization in charge of ethical management, and an employee who commits an act that disadvantages the informant will be subject to severe disciplinary action of 'more than honesty'.

Reporting Subjects and Scope

Wrongdoings and bullying towards business partners	Receipt of money and valuables, personal demands, equity investment, unfair instructions, verbal abuse, assault, etc.
Conflict of Interest	Side business, excessive personal affairs, employee money loans, investment using inside information, related party transactions, etc.
Undermining social values	Failure to comply with environmental, safety, health, and quality regulations, ignoring the socially disadvantaged, leaking customer information, and providing false information to customers
Lack of respect	Verbal abuse, assault, sexual harassment, bullying, exclusion from work, instructions for private affairs, etc.
Inappropriate task	False reporting, fraudulent sales, improper use of expenses and assets, information leakage, etc.

Internal Audit | In order to improve the ethical management, SK chemical conducts internal audits consisting of regular audits, implementation audits, purifying systems, and report investigations, centered on dedicated organizations such as compliance teams. We classify risks by organization and function and conduct regular audits and performance inspections every year, and we establish our own purifying system for major risk areas and conduct regular inspections.

We conduct a report investigation within the specified time limit for the reports we receive at any time, and in this process, we protect the anonymity of the informant and improve the trust of our employees in the internal audit by conducting the process of investigating and processing the received reports in a transparent and fair manner.

Internal Audit Violations and Action Status | In addition to internal audits such as regular audits and implementation audits, SK chemical conducts report investigations on reports received at any time. We not only carefully investigate and determine whether violations have occurred, but also handle them transparently and fairly in accordance with our procedures.

In 2022, two regular inspections were conducted. As a result, seven cases and six recommendations for improvement were derived, and the relevant department is making progress. The number of improvement recommendations derived through two regular audits in the previous year was five and two, respectively, and six months later, the 2022 implementation audit confirmed whether all the improvement recommendations were executed. No ethical violations were found through regular audits.

In addition, nine of the reports received internally were investigated, and one of them was confirmed to be true as a result of the investigation, and internal disciplinary and personnel measures were taken.

Phase 3. Follow-up

Monitoring and Inspection Results | SK chemical conducts its own system inspection in order to respond quickly to changes in internal and external regulations and social demands. Follow the internal inspection guide to manage expenses, purchasing· Conduct the system inspections in six areas: BP, HR, accounts receivable, investment, and unusual risk management.

In 2022, we conducted a system overhaul of six areas and recommended one improvement. Through continuous compliance training, there has not been a single case of competition hindrance, unfair transaction practices such as monopoly and oligopoly, violation of other regulations, non-monetary sanctions, and lawsuits (confirmed to lose).

Guidelines | Report | SK Ethical Management
Report online | Report | SK Ethical Management

Procedure

Internal Audit Operations Status

Regular Audit	Regular inspection of risks by organization and function (twice a year)
Implementation Audit	Audit improvement recommendations implementation check (twice a year)
Self-reflection and improvement	Self-inspection according to the company-wide risk inspection guidelines (on an annual basis)
Report Investigation	Conduct investigations on reports received that require investigation

Fair Transaction

Compliance Program

Since 2006, SK chemical has introduced the 'Compliance Program' to comply with the competitive order and practice the Fair Transaction Act in all corporate activities. Under the supervision of the Compliance Program Manager, practitioners in each organization conduct regular inspections through checklists. In the case of a case where there is a high possibility of violation of the regulation, we effectively operate an internal monitoring system, such as conducting a preliminary review in consultation with the company's specialized department.

SK chemical's Pharma Business is directly related to the health of the people, requires a high level of ethics and a professional operation because there are many regulations and restrictions based on industry features.

Accordingly, in 2016, we established a dedicated Pharma Compliance organization, established a business sector-specific Compliance Code and continuously updated to reflect the current status of the pharmaceutical industry. In addition, we appoint a compliance officer from among the executives who are not engaged in marketing work, and provide the authority and responsibility to operate, inspect, improve, and correct the in-house compliance program.

Anti-competitive behavior
Unfair trade practices such as monopolies
Violations of laws and regulations
Non-monetary sanctions and legal actions
Violation of fair transaction code of conduct

0 cases

Establishment of the Compliance Culture

SK chemical has established and shared the 'Code of Compliance Conduct', which contains the legal and ethical standards that employees must comply in order to establish the Compliance culture. In addition, we have published and distributed the "Compliance Handbook," which covers domestic regulations, including the Fair Transaction Act, and foreign anti-corruption laws such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act. In order to encourage voluntary compliance and to help understanding the revision of related laws, we provide training on the Fair Transaction Act related to chemical substance management for our employees every year.

In particular, we have conducted inspections and provided education to subcontractors, especially for the Ulsan Plant, resulting in improvements in ethics and working conditions among subcontractors. With continued fair transaction education, we have achieved a record of zero incidents related to anti-competitive behavior, unfair transaction practices such as monopolies, violations of laws and regulations, non-monetary sanctions, and legal actions (with final judgments).

In addition, more than 50,000 marketing activities are monitored and managed in advance in SK chemical's Life Science Business, and training programs related regulations that marketing employees must comply with is also conducted regularly at least twice a year. On the other hands, special training programs is provided when new employees are recruited or related regulations change. 10 additional training programs were held in 2022. In 2022, there was no violation of the Code of Compliance Conduct in transactions with external stakeholders.

4. INFORMATION PROTECTION

Information Protection Management System

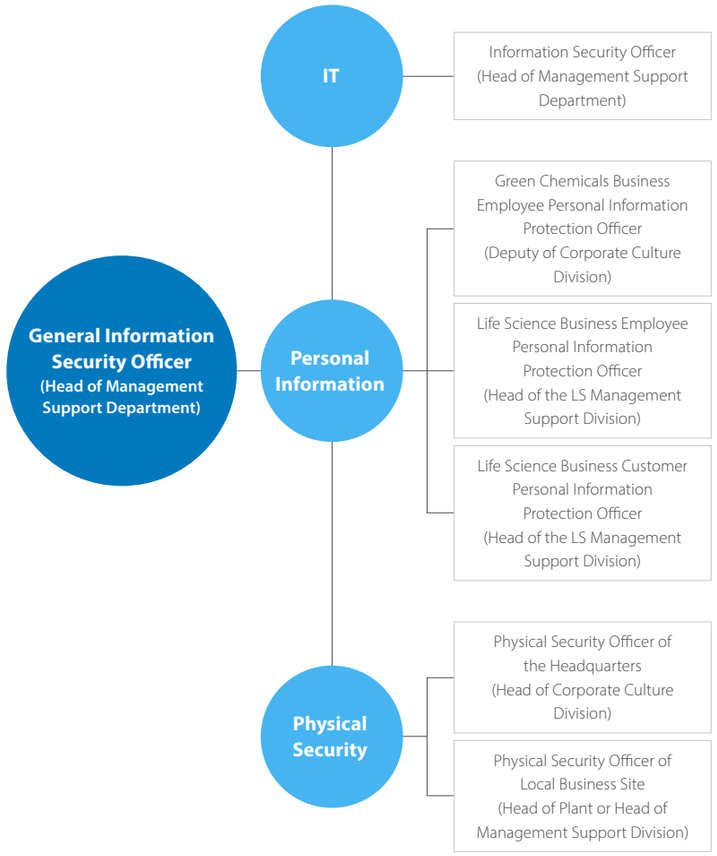
Information Protection System

SK chemicals has introduced an abnormality monitoring system to prevent confidential information leaks and is doing our best to ensure that valuable information assets of customers and companies are safely protected and managed. In order to prevent threats even in cloud or remote work environments, SK chemicals has applied a Zero Trust strategy and built a centralized management platform environment that includes Cloud Access Security Broker (CASB) and Secure Web Gateway (SWG) for cloud access security and a Security Web Gateway (SWG).
In addition, we regularly revise our information protection policy (SK chemicals Security Management Regulations) to operate a systematic response system to effectively protect our information assets. Furthermore, we plan to obtain international standard information security certification (ISO 27001) in 2023 to achieve a global level of information security system.

Information Security Management Organization

In September 2022, we revised the "SK chemicals Security Management Regulations" for the seventh time. Chapter 3 of the revision specifies the roles and responsibilities of security organization members, and states that the CEO must designate the Management Support Department Head as the Chief Information Security Officer (CISO) and support the management of the security organization (budget, manpower). With the CISO and the security organization, we improve the information security management system every year and make special efforts to prevent information security incidents from occurring.

Information Security Management Organizational Chart



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. We will prepare to be ISO 27001 certified in 2023 and plan to strengthen our security management system by introducing an integrated account management system and an advanced document security system.

Protocol for Security Incident Response

STEP 1 Pre-accident preparation	Organize incident response teams, establish emergency communication systems, and improve awareness with information security education
STEP 2 Accident detection	Monitor information assets, detect and analyze anomalies
STEP 3 Initial response	Initial analysis, declare security incident, define and identify the scope of the security incident
STEP 4 Systematization of response strategy	Collect/protect evidence data, emergency response by intrusion types
STEP 5 Accident investigation	Analyze all anomalies, collect and store all trace data, files, or other information related to the incident
STEP 6 Preparation of report	Record items related to the analysis, response, and report
STEP 7 Resolution	Restore damages caused by intrusion to the previous state, establish measures to prevent recurrence

Information Security Training and Inspection

Information Security Training

To increase awareness of information security among partners & employees and internalize information protection capabilities, we provide regular training on the protection and security of personal information that are updated every year to our partners and employees. We provide personal information training, employee security training, and new employee security training for our staff, as well as security training for our partners.

We have built an online system to enhance accessibility to the training program and ensure more members can participate. Due to the COVID-19 pandemic, from 2020, security training for employees and partners is conducted non-face-to-face by distributing educational materials. 100% of our staff take part in personal information protection training and security training, and 92% of our partners take part in the security training.

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 & secure business system through regular vulnerability analysis and management to increase the safety of business solutions. Based on our customer information policy, we have prioritized the prevention of data theft or loss involving the personal information of customers. As a result, the number of cases of data theft or loss has been zero to date, and we have continuously met our security targets.

As part of an initiative to increase security awareness and inspect our internal information security activities, in 2022, we conducted three simulated training sessions for malicious e-mails and one disaster restoration training session, and held a “Security Day” to review the implementation status of practices and inspection items in accordance with internal standards. We will maintain our history of zero security violations by replacing outdated systems, strengthening firewalls within the system, monitoring the number and reasons for security breaches, and conducting regular security checks. We will also strengthen offline inspections related to security by reinforcing security measures and regularly inspecting the system.

Furthermore, we will build an information security roadmap by 2024 to continuously work on integrating our certification system, automating information security threat detection, and upgrading information leak detections.

Information Security Training Program

Name	Detail
Personal Information Protection Training	Personal data protection compliance, minimum personal data processing, guarantee of information subject's choice rights, etc.
Information Security Training	Trends and cases, company’s information security status and process, etc.
Development Security Training	Web secure coding, component security, information leak prevention, etc.

Information Security Roadmap

Stage 1 (2022)
Follow key priorities to strengthen ID/device security and prevention of data leaks

· Build a document security classification system and improve management of document use history
· Strengthen user credential checks and security for work-related devices

Stage 2 (2023)
Detect infringement incidents for ID/devices and automate processes

· Automate document security and compliance management
· Detect threats and automate responses

Stage 3 (2024)
Integrate the verification system and enhance detection capabilities for internal information leaks

· Automatically detect attempts of internal information leaks
· Implement a verification system based on Modern Authentication

5. RESEARCH & DEVELOPMENT

Green Chemicals Business

Research & Development Strategies

To secure sustainable key capabilities, the Chemical Research Institute of SK chemicals has shifted from the existing petrochemical-based research to focus on recycle plastic and new BIO materials.

Based on our polyester technology and capabilities in developing new polymers with a history of over 50 years, SK chemicals has succeeded in commercializing next-generation materials and products such as new recycle monomer production, BIO-polyol using BIO-alcohol as a raw material, and biodegradable plastics for packaging.

The investment in eco-transition fields such as recycle and BIO-materials, accounts for a steadily increasing proportion of the total research budget, rising from 16% in 2020 to 33% in 2021, and surpassing the originally planned 34% to reach 42% in 2022. Furthermore, the plan is to expand and maintain the investment at approximately 50% of the total research budget for the next five years.

With aggressive investments, we have set a goal to achieve eco-friendly material sales accounting for 50% of the total Green Chemicals Business sales by 2025, and 100% by 2030, and focusing on our R&D in that direction. We also discover key technology partners outside of our own research and development, upgrade leading technologies, develop new business models to establish technological partnerships, and enhance research capabilities through strategic collaborations with domestic and international research institutions.

Research & Development Achievements

In 2022, we have established a dedicated facility for the production of PO3G, a 100% BIO-based polyol, and after successful trials, we started mass production in the second quarter. PO3G has been evaluated to reduce greenhouse gas emissions by 40% compared to the production process of conventional petroleum-based polyols in the Life Cycle Assessment (LCA).

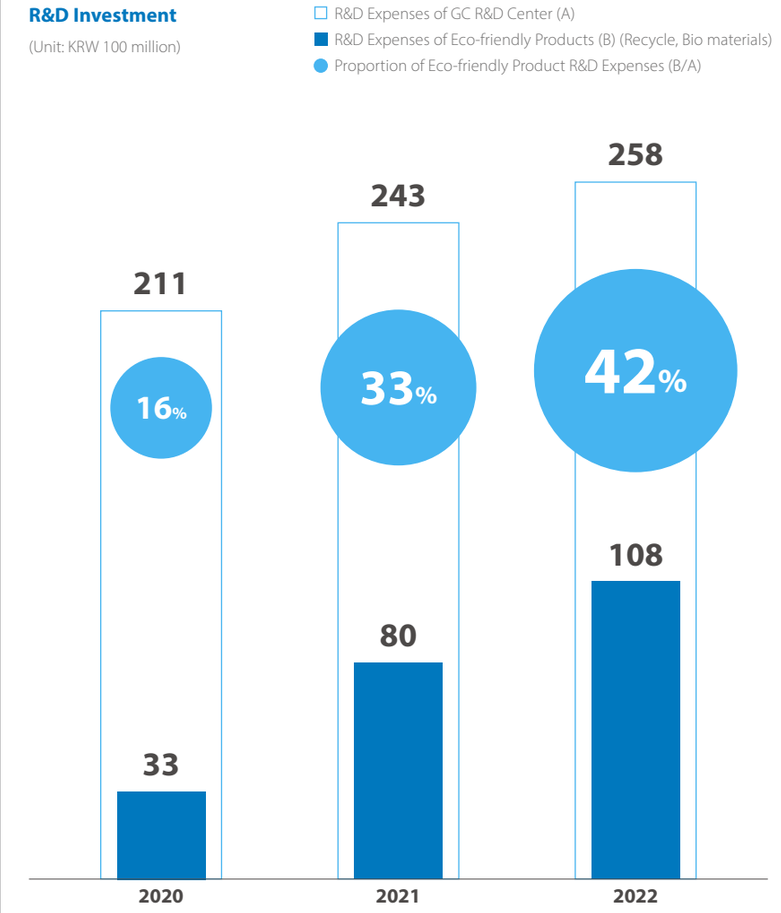
PO3G is gaining attention as an eco-friendly polyurethane material and is supplied for automotive interior materials, fashion, and sports materials. One notable application is the replacement of petroleum-based coating materials used in synthetic leather with eco-friendly polyurethane coating materials based on PO3G, resulting in both excellent texture and environmental friendliness.

Also, after succeeding in mass-producing circularly recycle PET (Polyethylene Terephthalate) for the first time in Korea, we have expanded our circular recycle portfolio by applying it to Samdasoo bottled water containers, food contacting containers, etc. It can reduce greenhouse gas emissions by up to 70% compared to petroleum-based PET, and so is receiving great attention in various applications such as fiber and film.

Another achievement in our existing business is the development and commercialization of SKYPEL TPEE-applied moisture-permeable film for outdoor clothing. Developed specifically for the outdoor market which has expanded due to COVID-19, the SKYPEL TX-applied moisture-permeable film has superior moisture permeability, water resistance, and washing durability compared to competing materials. It is now sold as a military or general functional clothing material.

R&D Investment

(Unit: KRW 100 million)



Life Science Business

Research & Development Strategies

SK chemicals' Research & Development (R&D) Center uses strategies to expand its pipeline and secure future value with continuous investment in internal research resources & collaboration with external institutions. In the pharmaceutical industry, collaboration with external institutions through open innovation is essential due to the complexity and high cost of new drug development. Therefore, SK chemicals actively invests in R&D through open innovation to effectively utilize not only internal resources but also external knowledge and technology. It is possible to reduce R&D costs, shorten development time, ensure high success rates, and create high-value-added products.

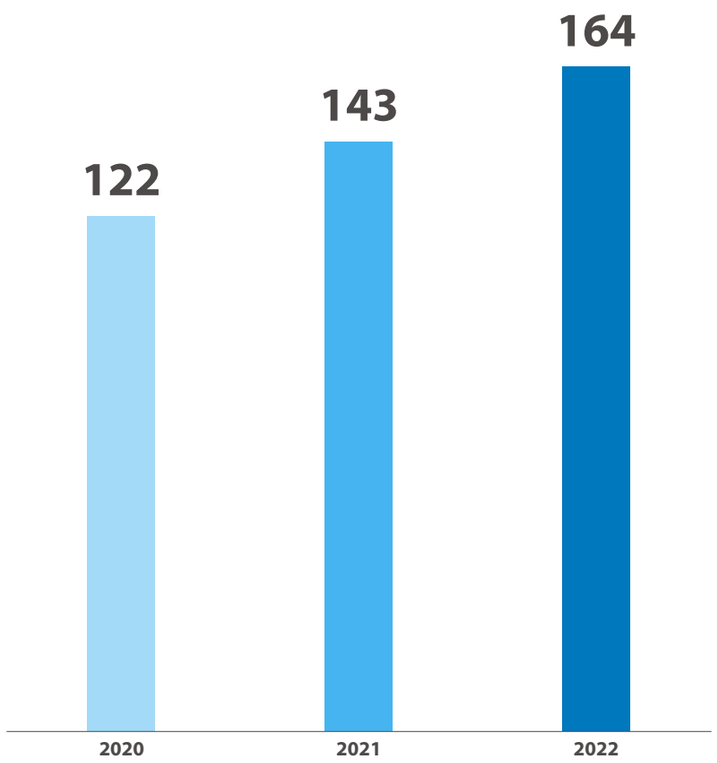
Furthermore, SK chemicals is working to shorten the development period of new drugs by conducting efficient compound screening for drug efficacy, toxicity, and discover new drug candidates based on AI technology through joint research with global AI companies. Going forward, we aim to strengthen our R&D capabilities in the Life Science Business and prepare measures for future new drug development.

Research & Development Achievements

To secure new pipelines, we executed three investments in venture companies for new drug development in 2021 and are currently conducting new joint research projects with AI (Artificial Intelligence) drug development companies and companies with high synthetic capabilities. In addition, we have actively strengthened our existing product portfolio through the development of competitive products. In 2022, we prepared to apply for approval after completing Phase 3 clinical trials in the musculoskeletal disease area, and we have also applied for product approval for a compound reformulated drug for migraine. We are also conducting Phase 1 clinical trials in Republic of Korea for a compound reformulated drug for hyperlipidemia.

R&D Investment

(Unit: KRW 100 million)



Strengthening Open Innovation Capabilities

Our Pharma R&D organization, the Research & Development (R&D) Center, has formed an Open Innovation Team to enhance our open innovation capabilities. The team consists of dedicated personnel in three parts: New Drug Development, AI (Artificial Intelligence), and Investment and Partnership, who perform continuous R&D tasks. Each part's capabilities have been specialized to create mutual synergy through organic linkage between them.

The New Drug Development Part is responsible for joint research and discovering & developing our own pipeline. The AI Part is responsible for building our own artificial intelligence platform, and the Investment and Partnership Part is responsible for introducing early-stage pipelines and venture investment tasks.

Open Innovation Achievements and Goals

In 2022, the Open Innovation Team signed additional joint research contracts with new drug development venture companies such as Oncobix, Incerebro, and Cyclica. In particular, by signing a joint research contract with Cyclica, a global-level AI technology specialist, we will be able to shorten the existing new drug development period and resources through efficient compound screening for drug candidates based on AI technology, including the discovery of new drug candidates.

Meanwhile, Standigm, with whom SK chemicals signed a collaboration agreement in 2019, has discovered candidate compounds for the treatment of non-alcoholic fatty liver disease and rheumatoid arthritis and filed a patent in January 2022.

The new drug research pipeline that we are currently working on is generating numerous candidate compounds and is conducting non-clinical research, aiming to develop therapeutics for difficult-to-treat diseases such as non-alcoholic fatty liver disease, pulmonary fibrosis, and cancer.

Strengthening Research Ethics

Animal Protection Policies

Pharmaceuticals | Our Research & Development (R&D) Center complies with ethical standards for animal trials, such as minimizing animal pain and the number of animals used in all pre-clinical stages of candidate drug efficacy evaluation. We provide regular training and ensure compliance with relevant regulations.

Our Open Innovation Team has introduced in silico screening using AI (Artificial Intelligence) in the drug development process to increase the accuracy of candidate selection by predicting the efficacy, toxicity, and pharmacokinetic information of drug candidates through AI programs. Therefore, we are able to minimize animal trials compared to traditional drug development methods.

Vaccines | SK bioscience conducts animal tests as part of its research, including non-clinical and clinical studies for COVID-19 vaccines. For commercial products, animal tests are conducted to ensure safety and efficacy. To manage ethical considerations in animal tests, we have established a management system and provide relevant education to enhance the ethical awareness of individuals involved in the experiments.

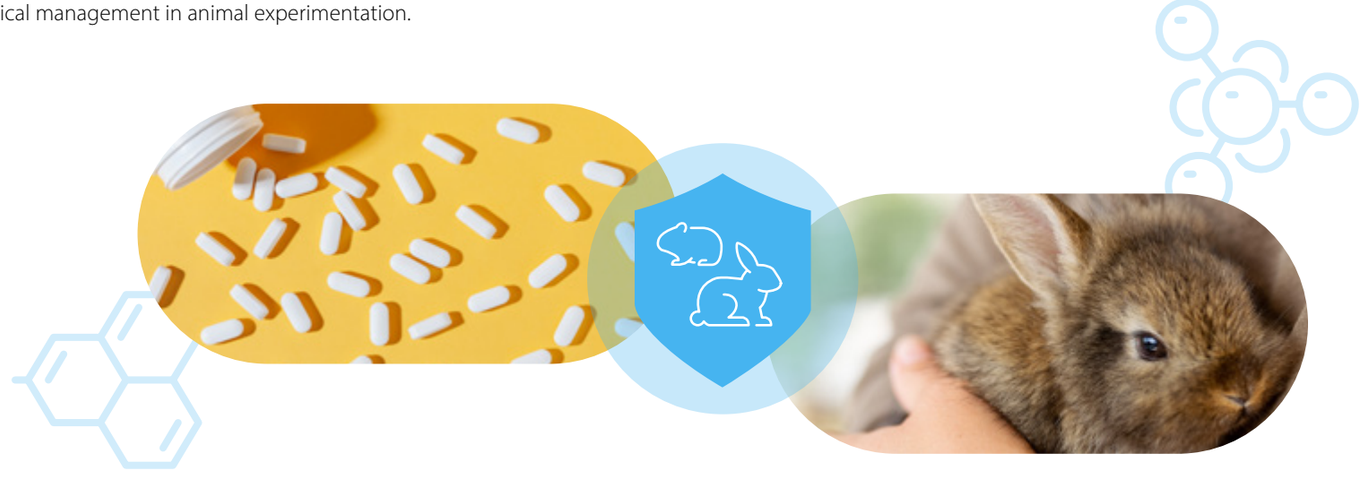
To promote the protection and ethical handling of experimental animals, we have established an Animal Experimentation Ethics Committee in accordance with the IACUC (Institutional Animal Care and Use Committee) guidelines set by the Ministry of Food and Drug Safety. We comply with the Animal Protection Act and the Laboratory Animal Act to ensure the ethics and reliability of animal experiments. With biannual regular meetings of the IACUC, we review the processes related to the use and management of experimental animals, seek necessary consultations, and improve our management system based on the IACUC's advice after reviewing compliance with standard operating procedures (SOPs) and relevant regulations.

The Animal Experimentation Ethics Committee conducts on-site visits to review the ethical and scientific validity of animal experiments, provide guidance and supervision for related education and training. As on-site inspections were difficult due to COVID-19, we conducted remote inspections using photographic materials. The committee conducts reviews of animal experimentation plans based on the principles of the 3Rs (Replacement, Reduction, Refinement), prioritizing alternative methods that can replace animal experiments and respecting the dignity of animal life. They approve animal experimentation plans that adhere to these principles. Furthermore, through Post-Approval Monitoring (PAM), the IACUC monitors the animal experimentation process in collaboration with researchers to enhance animal welfare and ensure the reliability and transparency of experimental results. The committee also stipulates that individuals involved in animal experimentation must receive legal education on the handling and ethical aspects of experimental animals, and they are required to participate in periodic retraining to raise awareness of the importance of ethical management in animal experimentation.

Global Standard Compliance

Our Research & Development Center established a global-level compliance system to pursue research ethics, quality and safety management, fair competition, and responsible marketing. As part of this effort, in 2022, we prepared for the introduction of Data Integrity (DI) to enhance the reliability of drug quality assurance systems.

DI is a fundamental requirement of pharmaceutical quality systems to ensure the quality of drugs by transparently managing data to prevent manipulation. Additionally, in 2022, we introduced Electronic Laboratory Notebooks (ELN) to systematically and professionally manage all data from the start to the completion of research output. We plan to further strengthen the introduced ELN system and management methods to improve research ethics.



4 APPENDIX

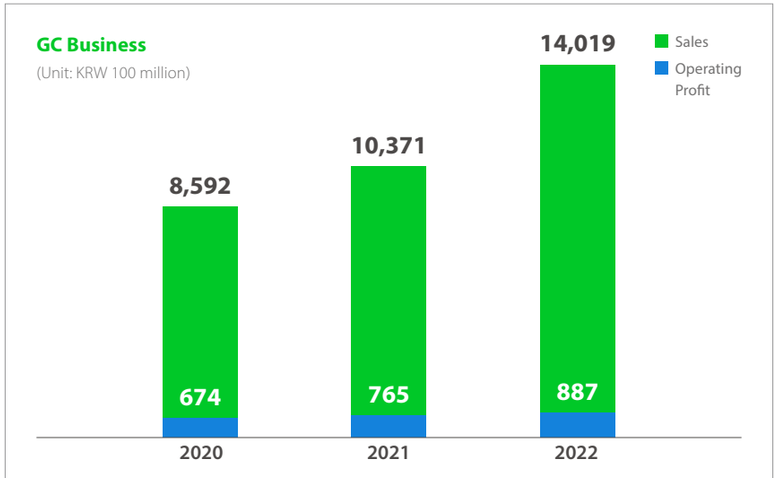
OUR BUSINESS REPORT

Green Chemicals Business

The competition of the global chemical industry is shifting away from the traditional price competition to a green, recycle technology competition based on the paradigm of "sustainability" and "circular economy." Also, with the amendment to the Basel Convention in 2021, plastic waste has been included in the list of controlled waste imports and exports, highlighting the importance of securing waste feedstocks, which are the raw materials for recycling, within the region as a key competitive factor.

In addition, regulations on plastic use are spreading worldwide and becoming increasingly strict. The plastic regulation recently launched by the European Union (EU) aims to comprehensively reduce plastic use, going beyond simply recycling. In the United States, state-level legislation for recycle plastic is also underway. China, the world's largest plastic producing and consuming country, is strengthening regulations such as the ban on plastic waste imports, introduction of separate collection & disposal, and production & use restrictions on disposable products. Recently, Republic of Korea has also been promoting its "plastic-free" policy for a transition to a circular economy.

SK chemicals' Green Chemicals Business is actively focusing on strategies such as developing new products including recycle materials, securing regenerated raw materials by region, and building a production system linking monomers, polymers to respond to market environmental changes and stay one step ahead in the competition. We will continue to secure unique technology and marketing competitiveness and grow into a global leading company in eco-friendly and recycle materials.



Life Science Business

With the rapidly aging global population, the demand for the healthcare market is gradually increasing worldwide. The Korean pharmaceutical industry is strengthening its response to not only changing market environments but also government medical insurance policies, drug price management, various regulations, and ethical and legal activities. Although it is expected that the pharmaceutical and healthcare market will experience a short-term decline due to the direct and indirect effects of the COVID-19 pandemic, developing digital-related platforms is expected to become another opportunity in the medium to long term.

Korean pharmaceutical companies are implementing on diversified marketing activities in a restricted environment by building multi-channel marketing infrastructure such as non-face-to-face marketing. It appears that they will focus more on expanding their portfolio of competitive products and entering the overseas market. Consequently, there may be more mergers and acquisitions among companies, along with continuous investment in research and development, and strengthening of internal operational efficiency to improve profitability.

SK chemical's Life Science Business focuses on growing existing businesses while striving to create new growth engines with development of new drugs. We are also working hard to enter the global market with differentiated technology. In particular, we conduct joint research on new drug development with numerous AI (Artificial Intelligence) and BIO venture companies to review and venture into new fields in various fronts including biotherapeutics as well as aim for synergistic results with existing businesses. Based on the newly secured pipeline, we will actively pursue new businesses, and aim to leap as a leading domestic pharmaceutical company with sales of 1 trillion KRW.

FINANCIAL DISCLOSURE

Economic Value

Main Category	Subcategory I	Subcategory II	Unit	2020	2021	2022	Comment
Production volume	Green Chemical Business	Copolyester resin, DMT, etc.	ton	252,804	366,469	376,686	
		BON	ton	9,208	13,058	10,758	
	Life Science Business	Vaccines	Dose	11,477,663	81,934,044	4,654,316	
		Tablets	Tablet	606,231,520	605,863,519	730,204,575	
		Patches	Patch	40,500,354	38,730,028	41,112,323	
Sales by business sector	Green Chemical Business	Copolyester resin, DMT, etc.	KRW 100 million	8,592	10,371	14,019	
	Life Science Business	Pharma	KRW 100 million	2,523	3,002	3,139	
		Vaccines	KRW 100 million	2,375	9,290	4,567	
	Others	Internal transactions (consolidation adjustment)	KRW 100 million	-1,502	-1,766	-3,434	
		Total Sales	KRW 100 million	11,988	20,896	18,292	
R&D investment	Green Chemical Business	No. of R&D employees	Person	134	122	119	
		R&D investment	KRW 100 million	276	243	258	
		Sales to R&D investment ratio	%	3.2	2.3	1.8	
		R&D costs for clean tech	KRW 100 million	33	80	108	
	Life Science Business (Pharma)	No. R&D employees	Person	52	50	64	
		R&D investment	KRW 100 million	122	143	164	
		Sales to R&D investment ratio	%	4.8	4.8	5.2	

Main Category	Subcategory I	Subcategory II		Unit	2020	2021	2022	Comment
R&D and investment	Life Science Business (Vaccines)	No. R&D employees		Person	146	208	289	Performance of subsidiary SK bioscience
		R&D investment		KRW 100 million	260	474	260	
		Sales to R&D investment ratio		%	14.4	10.7	5.7	
Intellectual property rights	Applied	Patent	Patent-Domestic	Number	9	32	29	
			Patent-Overseas	Number	56	66	54	
		Trademark	Trademark-Domestic	Number	5	4	18	
			Trademark-Overseas	Number	18	13	-	
	Registered	Patent	Patent-Domestic	Number	17	20	23	
			Patent-Overseas	Number	68	46	65	
		Trademark	Trademark-Domestic	Number	5	8	2	
			Trademark-Overseas	Number	10	6	3	

Consolidated Statements of Financial Position

(Unit : KRW)

Classification		2020	2021	2022
Assets	**Current assets**	923,286,317,987	2,784,058,669,420	2,518,693,783,957
	Cash and cash equivalents	86,764,151,843	255,615,367,155	400,028,232,546
	Short-term financial instruments	339,928,469,816	1,794,156,437,313	1,319,742,323,271
	Trade and other accounts receivable	233,192,607,955	366,865,111,272	260,401,304,200
	Inventories	252,930,309,986	349,299,225,904	482,753,081,114
	Contract assets	979,914,679		
	Other current assets	9,490,863,708	18,122,527,776	28,995,934,504
	Non-current assets held for sale			26,772,908,322
	Non-current assets	1,196,680,638,899	1,171,573,724,836	1,426,989,095,787
	Long-term trading financial assets	32,500,000	21,142,500,000	27,500,000
	Trade and other accounts receivable			863,517,000
	Long-term investment assets	24,492,063,443	35,081,486,249	38,628,272,096
	Investment in associates and joint ventures	9,104,020,171	16,328,276,602	13,309,152,533
	Tangible properties	1,069,999,627,343	999,245,763,243	1,193,131,058,845
	Right-of-use assets	16,101,459,538	15,386,726,242	28,609,183,615
	Intangible assets	36,955,864,384	44,422,323,845	51,777,238,900
	Investment in properties	17,055,665,021	17,212,277,612	17,339,365,662
	Other non-current assets	2,344,511,421	11,327,379,952	55,312,652,922
	Deferred tax assets	20,594,927,578	11,426,991,091	27,991,154,214
	Total assets	2,119,966,956,886	3,955,632,394,256	3,945,682,879,744
Liabilities	**Current liabilities**	645,679,130,159	1,086,649,251,139	1,058,819,027,627
	Trade and other accounts payable	232,021,734,019	452,892,821,032	219,159,227,892
	Short-term borrowings	107,636,902,688	11,671,373,163	436,109,819,164
	Current portion of long-term liabilities	96,947,494,138	207,864,113,268	103,986,943,744
	Current proportion of lease liabilities	3,038,108,909	2,788,637,923	11,685,097,812
	Current proportion of contract liabilities	96,226,901,452	114,455,430,866	159,925,939,743
	Liquidity reverse liabilities		22,437,979,100	22,137,940,676
	Income taxes payable	69,339,226,370	174,009,868,314	36,222,667,153
	Other current liabilities	40,468,762,583	100,529,027,473	62,031,064,860
	Non-current liabilities held for sale			7,560,326,583
	Non-current liabilities	515,355,033,495	302,245,734,599	177,958,022,961
	Bonds payable	460,480,569,890	256,063,406,698	154,787,348,542
	Long-term borrowings	31,135,000,000		7,172,698,962
	Lease liabilities	9,392,925,411	8,343,522,232	13,185,242,385
	Defined benefit liabilities	7,643,269,177	4,869,971,132	
	Contracts liabilities			2,278,409,185
	Other non-current liabilities	4,085,315,565	2,629,873,359	534,323,887
	Deferred tax liabilities	2,617,953,452	30,338,961,178	
	Total liabilities	1,161,034,163,654	1,388,894,985,738	1,236,777,050,588
Equity	**Equity attributable to owners of parent**	952,877,954,864	2,053,541,812,523	2,146,698,895,591
	Issued capital	66,000,330,000	98,681,045,000	98,793,505,000
	Capital surplus	264,314,596,680	1,192,768,791,273	1,199,035,135,551
	Other components of equity	(18,117,669,311)	(21,346,012,463)	(21,644,726,463)
	Accumulated other comprehensive loss	(2,624,096,023)	2,937,290,315	1,917,975,389
	Retained earnings	643,304,793,518	780,500,698,398	868,597,006,114
	Non-controlling interests	6,054,838,368	513,195,595,995	562,206,933,565
	Total equity	958,932,793,232	2,566,737,408,518	2,708,905,829,156
Total liabilities and equity		2,119,966,956,886	3,955,632,394,256	3,945,682,879,744

Consolidated Statements of Comprehensive Income

(Unit : KRW)

Classification	2020	2021	2022
Sales	1,198,780,770,389	2,089,631,876,416	1,829,191,322,924
Cost of sales	810,782,693,273	1,208,252,148,242	1,214,096,459,201
Gross profit	387,998,077,116	881,379,728,174	615,094,863,723
Selling and administrative expenses	232,640,102,759	326,193,817,735	384,614,190,356
Operating income	155,357,974,357	555,185,910,439	230,480,673,367
Other income	12,567,892,627	27,409,549,709	9,572,233,627
Other expenses	27,815,467,546	44,231,104,316	24,926,448,399
Financial income	44,134,696,501	62,588,844,094	174,295,170,527
Financial costs	60,130,736,952	63,950,494,455	151,958,375,452
Equity method gains on associate and joint venture investment	1,757,212,860	1,618,945,234	(762,536,109)
Profit (losses) before income tax from continuing operations	125,871,571,847	538,621,650,705	236,700,717,561
Income tax expense from continuing operations	35,924,417,422	168,012,085,990	5,224,847,889
Profit for the year from continuing operations	89,947,154,425	370,609,564,715	231,475,869,672
Profit before income tax from discontinued operations	218,381,756,938	(134,418,662,607)	
Income tax expense from discontinued operations	53,167,701,588	(32,552,435,910)	
Profit for the year from discontinued operations	165,214,055,350	(101,866,226,697)	
Profit before income tax	344,253,328,785	404,202,988,098	236,700,717,561
Income tax expense	89,092,119,010	135,459,650,080	5,224,847,889
Profit for the year	255,161,209,775	268,743,338,018	231,475,869,672
Other comprehensive income	(2,877,570,874)	(251,006,594)	14,124,172,585
Other comprehensive income to be reclassified to profit or loss in subsequent periods	(32,846,968)	5,500,157,039	(929,574,283)
Equity adjustments in equity method	307,469,584	66,701,118	(4,017,338)
Gain (Loss) from translation of foreign operations	(194,585,531)	4,238,697,803	(1,460,722,533)
Loss on valuation of derivatives	(145,731,021)	1,194,758,118	535,165,588
Other comprehensive income not to be reclassified to profit or loss in subsequent periods	(2,844,723,906)	(5,751,163,633)	15,053,746,868
Re-measurement loss on defined benefit plans	(2,844,723,906)	(5,751,163,633)	15,053,746,868
Total comprehensive income (loss), net of tax	252,283,638,901	268,492,331,424	245,600,042,257
Profit (loss) from continuing operations attributable to:	89,947,154,425	370,609,564,715	231,475,869,672
Owners of parent	89,106,714,563	270,006,042,994	191,266,054,717
Non-controlling interests	840,439,862	100,603,521,721	40,209,814,955
Profit (loss) attributable to:			
Owners of the parent	254,320,769,913	168,139,816,297	191,266,054,717
Non-controlling interests	840,439,862	100,603,521,721	40,209,814,955
Total comprehensive income (loss) attributable to:			
Owners of the parent	251,484,529,872	168,640,349,018	203,496,793,939
Non-controlling interests	799,109,029	99,851,982,406	42,103,248,318
Earnings (loss) per share			
Common stock earnings per share (Unit : KRW)			
Common stock earnings (loss) per share from continuing operations (Unit : KRW)	4,533	14,007	9,910
Common stock earnings per share from discontinued operations (Unit : KRW)	8,414	(5,421)	
Common stock earnings (loss) per share from continuing operations (Unit : KRW)	4,523	13,921	9,960
Common stock earnings per share from discontinued operations (Unit : KRW)	8,378		
Preferred stock earning (loss) for share (Unit : KRW)			
Preferred stock earnings (loss) per share from continuing operations (Unit : KRW)	4,576	11,909	9,880
Preferred stock earnings per share form discontinued operations (Unit : KRW)	8,405	(3,273)	

NON-FINANCIAL DISCLOSURE

Environment | General Environment

Environmental Investment

Business Site	Item	Unit	2020	2021	2022	Comment
Total (Including subsidiaries)		KRW 100 million	41.5	62.8	118.5	
SK chemicals (Only)		KRW 100 million	39.0	59.6	116.0	
	Improvement of air/water quality emission facilities, etc.	KRW 100 million	11.3	7.3	47.9	
	Building solar power generators, etc.	KRW 100 million	0	0	20.3	
	Others	KRW 100 million	27.7	52.3	47.8	
SK bioscience		KRW 100 million	2.5	3.2	2.5	

Violation of Environmental Regulations

Business Site	Item	Unit	2020	2021	2022	Comment
Total	Total number of violations[1]	Number	0	0	1	
	Total amount of penalty and fine	KRW 1 million	0	0	0.48	

[1] It was discovered due to non-fulfillment of the change report during the inspection of the emission facility by the Geumgang River Environment Agency and was terminated with the report of the change and the start of operation.
Violation: Failure to report changes in wastewater facilities for SK chemicals Cheongju Plant
Content: Warning (Enforcement Rules of the Water Environment Conservation Act)

Eco-friendly Vehicles[1]

Business Site	Item	Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Number of eco-friendly vehicles	Number	0	2	10	
	Number of total vehicles	Number	0	66	32	
	Proportion of eco-friendly vehicles	%	0	3	31	
SK chemicals (Only)	Number of eco-friendly vehicles	Number	0	1	6	
	Number of total vehicles	Number	0	37	16	
	Proportion of eco-friendly vehicles	%	0	3	38	
SK bioscience	Number of eco-friendly vehicles	Number	0	1	4	
	Number of total vehicles	Number	0	29	16	
	Proportion of eco-friendly vehicles	%	0	3	25	
SK multi utility	Number of eco-friendly vehicles	Number	0	0	0	
	Number of total vehicles	Number	0	0	0	
	Proportion of eco-friendly vehicles	%	0	0	0	

[1] Eco-friendly vehicles: electric vehicles, hydrogen vehicles, hybrid vehicles

Environment | Energy and Greenhouse Gases

Energy[1]

Business Site	Item		Unit	2020	2021	2022	Comment
SK chemicals (Only)	Total energy use		TJ	7,467	5,232	4,852	
	Direct use of energy sources		TJ	5,381	1,696	1,393	
		Liquefied natural gas (LNG)	TJ	661	697	723	
		Propane	TJ	372	462	428	
		Gasoline	TJ	2	2	3	
		Diesel	TJ	3	2	2	
		Other	TJ	4,343	533	237	
	Indirect use of energy sources		TJ	2,086	3,536	3,459	
		Electricity (based on regional infrastructure)	TJ	1,990	1,519	1,463	
		Steam	TJ	96	2,017	1,996	
		Other	TJ	0	0	0	
	Energy use intensity (Per KRW 100 million sales)		TJ/KRW 100 million	0.8	0.5	0.4	
SK bioscience	Total energy use		TJ	293	348	384	
	Direct use of energy sources		TJ	86	95	104	
		Liquefied natural gas (LNG)	TJ	86	93	99	
		Propane	TJ	0	0	0	
		Gasoline	TJ	0	2	2	
		Diesel	TJ	0	0	3	
		Other	TJ	0	0	0	

[1] Energy use reported in the previous year's report was pre-determined, and so was revised with the final confirmed data

Energy

Business Site	Item		Unit	2020	2021	2022	Comment
SK bioscience	Indirect use of energy sources		TJ	226	252	280	
		Electricity (based on regional infrastructure)	TJ	223	250	273	
		Steam	TJ	3	2	7	
		Other	TJ	0	0	0	
	Energy use intensity (Per KRW 100 million sales)		TJ/KRW 100 million	0.1	0.04	0.1	
SK multi utility	Total energy use		TJ	-	4,270	4,251	
	Direct use of energy sources		TJ	-	3,589	3,355	
		Liquefied natural gas (LNG)	TJ	-	0	0	
		Propane	TJ	-	0	0	
		Gasoline	TJ	-	0	0	
		Diesel	TJ	-	3	7	
		Other	TJ	-	3,586	3,348	
	Indirect use of energy sources		TJ	-	681	895	
		Electricity (based on regional infrastructure)	TJ	-	634	868	
		Steam	TJ	-	47	28	
		Other	TJ	-	0	0	
	Energy use intensity[1] (Per KRW 100 million sales)		TJ/KRW 100 million	N/A	N/A	3.1	

[1] Spun off from SK chemicals in Dec, 2021 – Energy use intensity can be calculated from 2022

Renewable Energy Generation

Business Site	Item		Unit	2020	2021	2022	Comment
SK chemicals (Only)	Total renewable energy use		MWh	9	8	9	
		Solar power	MWh	9	8	9	
	Proportion of renewable energy		%	0	0	0	

External Energy Sales

Business Site	Item		Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Total external electricity sales		TJ	219	1,634	1,565	
	Total external heat sales		TJ	3,065	4,989	4,799	
	Total external energy sales		TJ	3,284	6,623	6,364	
SK chemicals (Only)	Total external energy sales		TJ	3,284	0	0	
		Electricity	TJ	219	0	0	
		Heat	TJ	3,065	0	0	
SK bioscience	Total external energy sales		TJ	0	0	0	
		Electricity	TJ	0	0	0	
		Heat	TJ	0	0	0	
SK multi utility	Total external energy sales		TJ	0	6,623	6,364	
		Electricity	TJ	0	1,634	1,565	
		Heat	TJ	0	4,989	4,799	

GHG emissions (Scope 1, 2)❷

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals (Only)❶	Total greenhouse gas emissions (Scope 1+2)	tCO_2eq	500,631	266,423	266,895	
	Direct greenhouse gas emissions (Scope 1)	tCO_2eq	403,227	64,462	63,053	
	Indirect greenhouse gas emissions (Scope 2)	tCO_2eq	97,408	201,961	203,844	
	Total greenhouse gas emissions intensity (Per KRW 100 million sales)	tCO_2eq/KRW 100 million	55	24	21	
SK bioscience	Total greenhouse gas emissions (Scope 1+2)	tCO_2eq	13,415	16,927	18,491	
	Direct greenhouse gas emissions (Scope 1)	tCO_2eq	4,013	4,870	5,173	
	Indirect greenhouse gas emissions (Scope 2)	tCO_2eq	9,402	12,059	13,320	
	Total greenhouse gas emissions intensity (Per KRW 100 million sales)	tCO_2eq/KRW 100 million	6	2	4	
SK multi utility	Total greenhouse gas emissions (Scope 1+2)	tCO_2eq	-	358,057	346,243	
	Direct greenhouse gas emissions (Scope 1)	tCO_2eq	-	327,703	304,712	
	Indirect greenhouse gas emissions (Scope 2)	tCO_2eq	-	30,355	41,531	
	Total greenhouse gas emissions intensity (Per KRW 100 million sales)	tCO_2eq/KRW 100 million	N/A	N/A	249	

Greenhouse Gas Reductions

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals (Only)	Total greenhouse gas reductions	tCO_2eq	N/A	24,500	7,110	
	Using CHDM Off gas	tCO_2eq	N/A	0	810	
	Improving DMT process	tCO_2eq	N/A	24,500	6,300	

❶ According to the guidelines of SBTi (Science Based Targets initiative), Scope 1 and 2 emissions are limited to SK chemicals, while SK bioscience and SK multi utility are included in Scope 3 category 15 for setting reduction targets. Furthermore, starting from 2021, Scope 1 and 2 greenhouse gas emissions from SK chemicals have decreased due to the spinoff of SK multi utility.

❷ Emissions reported in the previous year's report was pre-determined, and so was revised with the final confirmed data

GHG emissions (Scope 3)

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals (Only)	Total greenhouse gas emissions (Scope 3)	tCO_2eq	-	1,078,668	1,089,040	
	Purchased products and services	tCO_2eq	-	210,236	220,997	
	Capital goods	tCO_2eq	-	29,193	38,543	
	Fuel and energy use	tCO_2eq	-	21,763	9,381	
	Upstream transportation	tCO_2eq	-	4,143	4,732	
	Operating waste	tCO_2eq	-	31,348	4,403	
	Business trips	tCO_2eq	-	243	880	
	Commuting	tCO_2eq	-	2,636	1,468	
	Processing products	tCO_2eq	-	82,867	61,774	
	Product waste	tCO_2eq	-	421,235	514,718	
	Investment[1]	tCO_2eq	-	275,004	232,144	

[1] The greenhouse gas emissions of SK multi utility included in Scope 2 emissions from SK chemicals have been removed: 128,501tCO2eq in 2021 / 132,932tCO2eq in 2022

Environment | Water Resource Management

Water Usage and Wasteaterⓘ

Business Site	Item	Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Water usage	ton	107,246,152	134,613,774	139,748,816	
	Total water intake	ton	4,583,857	4,778,364	4,654,520	
	Tap water and industrial water	ton	4,581,203	4,774,947	4,650,302	
	Groundwater consumption	ton	2,654	3,417	4,218	
	Total water recycling volume					
	Reuse and recycling	ton	102,662,295	129,835,410	135,094,296	
	Water recycling rate	%	95.7	96.5	96.7	
	Water discharge	ton	1,366,251	1,447,470	1,547,103	
	Water intake intensity (Per KRW 100 million sales)	ton/KRW 100 million	382	229	254	
SK chemicals (Only)	Water usage	ton	107,096,682	134,442,323	139,569,422	Including SK multi utility
	Total water intake	ton	4,465,153	4,639,644	4,510,038	Water intake source : (Headquarters, ECO Lab) Han River tap water (GC, Ulsan Plant) Nakdong River source water (LS, Cheongju Plant) Daecheong Lake Metropolitan tap water
	Tap water and industrial water	ton	4,462,499	4,636,227	4,505,820	
	Groundwater consumption	ton	2,654	3,417	4,218	
	Total water recycling volume					
	Reuse and recycling	ton	102,631,529	129,802,679	135,059,384	
	Water recycling rate	%	95.8	96.5	96.8	
	Water discharge	ton	1,279,600	1,346,553	1,447,157	Including SK multi utility
	Water intake intensity (Per KRW 100 million sales)	ton/KRW 100 million	493	424	359	

ⓘ CDP Water standards were applied from 2022, changing data calculation methods and resulting in data discrepancies with the previous year's report

Water Usage and Wasteater

Business Site	Item	Unit	2020	2021	2022	Comment
SK bioscience	Water usage	ton	149,470	171,451	179,394	
	Total water intake	ton	118,704	138,720	144,482	Water intake source: Andong Lake
	Tap water and industrial water	ton	118,704	138,720	144,482	
	Groundwater consumption	ton	0	0	0	
	Total water recycling volume					
	Reuse and recycling	ton	30,766	32,731	34,912	
	Water recycling rate	%	20.6	19.1	19.5	
	Water discharge	ton	86,651	100,917	99,946	
	Water intake intensity (Per KRW 100 million sales)	ton/KRW 100 million	53	15	32	

Water Pollutant Emissions

Business Site	Item		Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Water pollutant emissions		ton	55.3	84.1	67.2	
		BOD	ton	20.1	34.9	23.5	
		COD	ton	27.6	37.9	33.6	
		SS	ton	7.7	11.3	10.2	
	Water pollutant emissions intensity (Per KRW 100 million sales)		ton/KRW 100 million	0.005	0.004	0.004	
SK chemicals (Only)	Water pollutant emissions		ton	22.4	27.0	16.6	
		BOD	ton	0.7	2.8	1.9	
		COD	ton	18.0	20.4	12.0	
		SS	ton	3.7	3.8	2.7	
	Water pollutant emissions intensity (Per KRW 100 million sales)		ton/KRW 100 million	0.002	0.002	0.001	
SK bioscience	Water pollutant emissions		ton	33.0	57.0	36.5	
		BOD	ton	19.4	32.1	20.1	
		COD	ton	9.6	17.5	10.4	
		SS	ton	4.0	7.5	6.0	
	Water pollutant emissions intensity (Per KRW 100 million sales)		ton/KRW 100 million	0.015	0.006	0.008	
SK multi utility	Water pollutant emissions		ton	-	0.038	14.1	
		BOD	ton	-	0.004	1.4	
		COD	ton	-	0.030	11.1	
		SS	ton	-	0.004	1.5	
	Water pollutant emissions intensity (Per KRW 100 million sales)		ton/KRW 100 million	-	0.0003	0.010	

Concentration of Water Pollutant Emissions

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals Headquarters (ECO Lab)	BOD	ppm	8.3	6.4	5.7	
	COD	ppm	16.7	12.9	7.1	
	SS	ppm	17.7	13.9	5.7	
SK chemicals Ulsan Plant	BOD	ppm	0.2	1.8	2.1	
	COD	ppm	13.5	14.8	16.3	
	SS	ppm	2.1	2.0	2.3	
SK chemicals Cheongju Plant	BOD	ppm	10.0	14.0	11.5	
	COD	ppm	47.0	50.0	16.0	
	SS	ppm	29.0	42.0	49.7	
SK bioscience	BOD	ppm	223.6	317.9	201.4	
	COD	ppm	110.5	173.0	104.1	
	SS	ppm	46.4	74.0	59.8	
SK multi utility	BOD	ppm	-	1.8	2.1	
	COD	ppm	-	14.8	16.3	
	SS	ppm	-	2.0	2.3	

Environment | Use of Raw Materials and Renewable Materials[1]

Business Site	Item		Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Total raw material use	Amount	ton	469,999	536,295	545,094	
	Renewable material use	Amount	ton	73,588	72,099	76,681	
		Proportion	%	16	13	14	
SK chemicals (Only)	Total raw material use	Amount	ton	469,625	514,689	349,996	
	Renewable material use	Amount	ton	73,588	64,684	10,678	In 2021-2022, wood chip consumption is included.
		Proportion	%	4	8	15	
SK bioscience	Total raw material use	Amount	ton	374	524	292	
	Renewable material use	Amount	ton	0	0	0	
		Proportion	%	0	0	0	
SK multi utility	Total raw material use	Amount	ton	-	21,082	194,807	
	Renewable material use	Amount	ton	-	7,415	66,004	
		Proportion	%	-	35	34	

[1] As data calculation criteria have been expanded, there are figure discrepancies with the previous year's report.

Environment | Waste Generation

Business Site	Item		Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Total waste generation (General + Designated)		ton	35,813	39,086	37,443	
	Amount of general waste generated		ton	25,778	27,017	25,371	
		Recycling and reuse	ton	19,864	23,499	23,733	
		Landfill	ton	5,626	3,168	1,282	
		Incineration with energy recovery	ton	157	219	187	
		Incineration without energy recovery	ton	131	130	169	
		Other methods of disposal	ton	0	0	0	
	Amount of designated waste generated		ton	10,035	12,069	12,072	
		Recycling and reuse	ton	6,849	8,780	9,205	
		Landfill	ton	395	451	513	
		Incineration with energy recovery	ton	673	1,688	1,070	
		Incineration without energy recovery	ton	2,107	1,143	1,281	
		Other methods of disposal	ton	11	9	4	
	Waste generation intensity (Per KRW 100 million sales)		ton/KRW 100 million	3.0	1.9	2.0	
	Waste recycling	Amount of waste recycled	ton	26,713	32,279	32,936	
		Recycling rate	%	75	83	88	

Business Site	Item		Unit	2020	2021	2022	Comment
SK chemicals (Only)	Total waste generation (General + Designated)		ton	35,570	19,331	17,317	
	Amount of general waste generated		ton	25,570	7,315	5,289	
		Recycling and reuse	ton	19,813	5,800	4,235	
		Landfill	ton	5,626	1,374	882	
		Incineration with energy recovery	ton	0	11	4	
		Incineration without energy recovery	ton	131	130	169	
		Other methods of disposal	ton	0	0	0	
	Amount of designated waste generated		ton	10,000	12,016	12,027	
		Recycling and reuse	ton	6,849	8,779	9,205	
		Landfill	ton	395	434	513	
		Incineration with energy recovery	ton	673	1,688	1,068	
		Incineration without energy recovery	ton	2,072	1,107	1,238	
		Other methods of disposal	ton	11	9	4	
	Waste generation intensity (Per KRW 100 million sales)		ton/KRW 100 million	3.9	1.8	1.4	
	Waste recycling	Amount of waste recycled	ton	26,663	14,579	13,438	
		Recycling rate	%	75	75	78	

Business Site	Item		Unit	2020	2021	2022	Comment
SK bioscience	Total waste generation (General + Designated)		ton	243	297	396	
	Amount of general waste generated		ton	208	261	351	
		Recycling and reuse	ton	51	52	168	
		Landfill	ton	0	0	0	
		Incineration with energy recovery	ton	157	208	183	
		Incineration without energy recovery	ton	0	0	0	
		Other methods of disposal	ton	0	0	0	
	Amount of designated waste generated		ton	35	36	45	
		Recycling and reuse	ton	0	0	0	
		Landfill	ton	0	0	0	
		Incineration with energy recovery	ton	0	0	2	
		Incineration without energy recovery	ton	35	36	43	
		Other methods of disposal	ton	0	0	0	
	Waste generation intensity (Per KRW 100 million sales)		ton/KRW 100 million	0.1	0.03	0.1	
	Waste recycling	Amount of waste recycled	ton	51	52	168	
		Recycling rate	%	24	20	42	

Business Site	Item		Unit	2020	2021	2022	Comment
SK multi utility	Total waste generation (General + Designated)		ton	-	19,459	19,730	
	Amount of general waste generated		ton	-	19,442	19,730	
		Recycling and reuse	ton	-	17,648	19,330	
		Landfill	ton	-	1,794	400	
		Incineration with energy recovery	ton	-	0	0	
		Incineration without energy recovery	ton	-	0	0	
		Other methods of disposal	ton	-	0	0	
	Amount of designated waste generated		ton	-	17	0	
		Recycling and reuse	ton	-	0	0	
		Landfill	ton	-	17	0	
		Incineration with energy recovery	ton	-	0	0	
		Incineration without energy recovery	ton	-	0	0	
		Other methods of disposal	ton	-	0	0	
	Waste generation intensity (Per KRW 100 million sales)		ton/KRW 100 million	-	-	14.2	
	Waste recycling	Amount of waste recycled	ton	-	17,648	19,330	
		Recycling rate	%	-	91	98	

Environment | Air Pollutant Emissions

Business Site	Item	Unit	2020	2021	2022	Comment
Total (Including subsidiaries)	Total dust emissions	ton	10.9	10.4	9.8	
	Emissions intensity (Per KRW 100 million sales)	ton/KRW 100 million	0.0009	0.0005	0.0005	
	Total sulfur oxides (SOx) emissions	ton	215.8	244.1	171.2	
	Emissions intensity (Per KRW 100 million sales)	ton/KRW 100 million	0.0180	0.0117	0.0094	
	Total nitrogen oxides (NOx) emissions	ton	319.2	356.2	266.3	
	Emissions intensity (Per KRW 100 million sales)	ton/KRW 100 million	0.0266	0.0170	0.0146	
	Total volatile organic compounds (VOCs) emissions	ton	12.4	6.0	6.9	
	Emissions intensity (Per KRW 100 million sales)	ton/KRW 100 million	0.0010	0.0003	0.0004	
SK chemicals (Only)	Dust	ton	10.3	8.9	2.7	
	Sulfur oxides (SOx)	ton	215.8	225.2	2.6	
	Nitrogen oxides (NOx)	ton	312.0	326.5	66.0	
	Volatile organic compounds (VOCs)	ton	12.4	6.0	6.9	
SK bioscience	Dust	ton	0.06	0.06	0.06	
	Sulfur oxides (SOx)	ton	0.00	0.00	0.00	
	Nitrogen oxides (NOx)	ton	7.20	7.92	8.34	
	Volatile organic compounds (VOCs)	ton	-	0	0	
SK multi utility	Dust	ton	-	0.9	6.5	
	Sulfur oxides (SOx)	ton	-	18.9	168.6	
	Nitrogen oxides (NOx)	ton	-	21.8	191.9	
	Volatile organic compounds (VOCs)	ton	-	0	0	

Environment | Concentration of Air Pollutant Emissions

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals Headquarters (ECO Lab)	Dust	mg/Sm^3	-	2.2	7.9	Self-assessment of air pollution emissions started in 2021
	Sulfur oxides (SOx)	ppm	-	0.3	1.3	
	Nitrogen oxides (NOx)	ppm	-	30.2	16.3	
	Volatile organic compounds (VOCs)	ppm	-	0	0	
SK chemicals Ulsan Plant	Dust	mg/Sm^3	3.8	3.6	2.6	
	Sulfur oxides (SOx)	ppm	30.1	32.5	2.8	
	Nitrogen oxides (NOx)	ppm	42.1	43.3	40.0	
	Volatile organic compounds (VOCs)	ppm	0.6	0.5	0.2	
SK chemicals Cheongju Plant	Dust	mg/Sm^3	4.4	3.0	2.1	
	Sulfur oxides (SOx)	ppm	0	0	0	
	Nitrogen oxides (NOx)	ppm	64.9	30.5	23.7	
	Volatile organic compounds (VOCs)	ppm	85.4	61.5	73.4	
SK bioscience	Dust	mg/Sm^3	-	2.5	4.0	
	Sulfur oxides (SOx)	ppm	-	11.0	1.7	
	Nitrogen oxides (NOx)	ppm	-	38.3	38.0	
	Volatile organic compounds (VOCs)	ppm	-	0	0	
SK multi utility	Dust	mg/Sm^3	-	3.6	2.8	Spinoff in December 2021
	Sulfur oxides (SOx)	ppm	-	20.2	18.6	
	Nitrogen oxides (NOx)	ppm	-	40.8	37.2	
	Volatile organic compounds (VOCs)	ppm	-	0	0	

Social | Local Community

Social Value

Business Site	Item	Unit	2020	2021	2022	Comment
Indirect economic contributions	Employment	KRW 100 million	1,450	2,199	2,339	
	Dividend	KRW 100 million	262	588	289	
	Tax payment	KRW 100 million	890	2,180	448	
	Total	KRW 100 million	2,602	4,967	3,076	
Environmental performance	Product/services	KRW 100 million	510	526	531	
	Environment (Process)	KRW 100 million	-580	-408	-316	
	Total	KRW 100 million	70	118	215	
Social performance	Quality of life	KRW 100 million	-519	1,495	434	
	Labor	KRW 100 million	11	35	38	
	Win-win growth	KRW 100 million	21	13	17	
	Social contributions	KRW 100 million	21	67	96	
	Total	KRW 100 million	572	1,610	590	

Investment and Support for Social Contribution

Business Site	Item	Unit	2020	2021	2022	Comment
All business sites (Including subsidiaries)	Social contribution activity costs	KRW 100 million	32.5	45.6	70.1	
SK chemicals (Only)		KRW 100 million	20.0	20.5	18.5	
SK bioscience		KRW 100 million	12.5	25.1	51.6	

	Business Site	Item	Item	Unit	2020	2021	2022	Comment
Investment and Support for Social Contribution	**SK chemicals (Only)**	Participation in social contribution activities	Participating volunteers	Person	353	201	780	
			Volunteer hours per person	Hour	4.6	8.1	5.3	
		Number of Happy Green School environmental education sessions		Person	30	3,822	4,586	
		Hope Maker registrations		%	84	84	70	

Social | Health/Safety

	Business Site	Item	Unit	2020	2021	2022	Comment
General Health/Safety	**SK chemicals**	Process Safety Incidents Count (PSIC)	Number	4	6	2	
		Process Safety Total Incident Rate (PSTIR)	%	-	-	-	
		Process Safety Incident Severity Rate (PSISR)	%	-	-	-	
		Number of transport incidents	Number	-	-	-	

Work-related Diseases[1]

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Number of occurrence of work-related diseases	Number	0	0	0	
SK bioscience	Number of occurrence of work-related diseases	Number	0	0	0	
SK multi utility	Number of occurrence of work-related diseases	Number	-	-	0	

Industrial Disasters[2]

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Total proportion of industrial disasters	%	-	-	0.11	Reporting according to the Occupational Safety and Health Act
	Total number of serious accidents	Number	0	0	0	
SK chemicals Business Partners	Total proportion of industrial disasters	%	-	-	0.26	
	Total number of serious accidents	Number	0	0	0	
SK bioscience	Total proportion of industrial disasters	%	0	0.16	0	
	Total number of serious accidents	Number	0	0	0	
SK multi utility	Total proportion of industrial disasters	%	-	-	0	
	Total number of serious accidents	Number	-	-	0	

[1] No deaths from work-related diseases
[2] Data management started from 2022

Work-related Injuries

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Number of deaths	Number	0	0	0	
	Number of accidents	Number	12	4	8	
	Total Recordable Injury Rate (TRIR)❶	%	0.59	0.34	0.60	
	Lost Time Injury Rate (LTIR)❷	%	0.59	0.23	0.08	
SK chemicals Business Partners❸	Number of deaths	Number	0	0	0	
	Number of accidents	Number	0	2	1	
	Total Recordable Injury Rate (TRIR)	%	-	-	0.27	
	Lost Time Injury Rate (LTIR)	%	-	-	0.27	
SK bioscience	Number of deaths	Number	0	0	0	
	Number of accidents	Number	0	1	0	
	Total Recordable Injury Rate (TRIR)	%	0	0.49	0	
	Lost Time Injury Rate (LTIR)	%	0	0.16	0	
SK multi utility	Number of deaths	Number	-	-	0	
	Number of accidents	Number	-	-	0	
	Total Recordable Injury Rate (TRIR)	%	-	-	0	
	Lost Time Injury Rate (LTIR)	%	-	-	0	

❶ TRIR (Total Recordable Injury Rate) : (Total number of injuries and accidents × 200,000 / Total working hours)
❷ LTIR (Lost Time Injury Rate) : (Total number of injuries and accidents of Level D or above × 200,000 / Total working hours)
❸ The accident rate of suppliers will be managed separately from 2022

Social | Labor Status

Employees

Business Site	Item			Unit	2020	2021	2022	Comment
SK chemicals[1]	Workforce composition			Person	1,500	1,439	1,425	
		Gender	Male	Person	1,210	1,145	1,112	
			Female	Person	290	294	313	
		Employment type	Permanent employee	Person	1,454	1,351	1,337	
			Contract employee	Person	46	88	88	
		Age	Under 30	Person	186	172	183	
			30 to 49 years old	Person	985	985	1,002	
			50 and above	Person	329	282	240	
		Diversity	Disabled	Person	39	44	43	
			Veterans	Person	29	26	26	
			Foreigners	Person	0	1	1	
	Hiring			Person	77	128	197	
		Gender	Male	Person	55	99	125	
			Female	Person	22	29	72	
		Age	Under 30	Person	26	49	73	
			30 to 49 years old	Person	44	61	111	
			50 and above	Person	7	18	13	
		Position	Executives	Person	2	0	4	
			Middle managers (PL, team leaders)	Person	1	1	1	
			Non-managers	Person	74	127	192	
		Percentage of open position filled by internal candidates		%	1	2	1	

Employees	Business Site	Item		Unit	2020	2021	2022	Comment
	SK chemicals[1]	Employee Turnover		Person	134	280	160	
		Gender	Male	Person	112	233	110	
			Female	Person	22	47	50	
		Age	Under 30	Person	20	28	33	
			30 to 49 years old	Person	71	125	79	
			50 and above	Person	43	127	48	
		Position	Executives	Person	1	3	3	
			Middle managers (PL, team leaders)	Person	6	11	5	
			Non-managers	Person	127	266	142	
		Turnover rate[2]	Total	%	8.9	19.5	11.2	
			Voluntary	%	7.4	17.9	10.3	

❶ In the previous year's sustainability report, the calculations included SK chemicals subsidiaries (INITS, ENTIS, SK multi utility, SK chemicals Daejeong), as well as external directors and advisors. However, this year's report excludes SK chemicals subsidiaries, resulting in differences in the data compared to the previous year's report.

❷ Total turnover rate = Those with terminated contracts/total employees
Voluntary turnover rate = Voluntary retirees/total employees

Employees

Business Site	Item			Unit	2020	2021	2022	Comment
SK bioscience	Workforce composition			Person	832	1,007	1,079	
		Gender	Male	Person	556	636	660	
			Female	Person	276	371	419	
		Employment type	Permanent employee	Person	575	675	900	
			Contract employee	Person	257	332	179	
		Age	Under 30	Person	401	546	464	
			30 to 49 years old	Person	397	422	565	
			50 and above	Person	34	39	50	
		Diversity	Disabled	Person	21	43	36	
			Veterans	Person	0	1	1	
	Hiring			Person	157	603	249	
		Gender	Male	Person	90	363	130	
			Female	Person	67	240	119	
		Age	Under 30	Person	55	272	80	
			30 to 49 years old	Person	91	310	158	
			50 and above	Person	11	21	11	

Employees

Business Site	Item			Unit	2020	2021	2022	Comment
SK multi utility	Workforce composition			Person	-	70	81	
		Gender	Male	Person	-	67	78	
			Female	Person	-	3	3	
		Employment type	Permanent employee	Person	-	63	70	
			Contract employee	Person	-	7	11	
		Age	Under 30	Person	-	6	8	
			30 to 49 years old	Person	-	33	41	
			50 and above	Person	-	31	32	
		Diversity	Disabled	Person	-	1	1	
			Veterans	Person	-	0	0	
			Foreigners	Person	-	0	0	
	Hiring			Person	-	70	13	
		Gender	Male	Person	-	67	13	
			Female	Person	-	3	0	
		Age	Under 30	Person	-	6	4	
			30 to 49 years old	Person	-	33	8	
			50 and above	Person	-	31	1	
		Position	Executives	Person	-	1	0	
			Middle managers (PL, team leaders)	Person	-	4	0	
			Non-managers	Person	-	65	13	
		Percentage of open position filled by internal candidates		%	-	96	0	

Employees	Business Site	Item		Unit	2020	2021	2022	Comment
	SK multi utility	Employee Turnover		Person	-	0	2	
		Gender	Male	Person	-	0	2	
			Female	Person	-	0	0	
		Age	Under 30	Person	-	0	0	
			30 to 49 years old	Person	-	0	2	
			50 and above	Person	-	0	0	
		Position	Executives	Person	-	0	0	
			Middle managers (PL, team leaders)	Person	-	0	0	
			Non-managers	Person	-	0	2	
		Turnover rate	Total	%	-	-	2.5	
			Voluntary	%	-	-	2.5	

Female Talents	Business Site	Item		Unit	2020	2021	2022	Comment
	SK chemicals	Executives	Number of female executives	Person	0	0	1	
			Proportion of female executives	%	0	0	4	
		Managers (PL, team leaders)	Number of female managers	Person	8	9	13	
			Proportion of female managers	%	6	8	10	
		Non-managers	Number of female junior managers	Person	282	285	300	
			Proportion of female junior managers	%	21	22	24	
		STEM members (Members of R&D department)	Number of female employees	Person	56	62	72	
			Proportion of female employees	%	37	41	49	
		Managers of benefit-related departments (Marketing department PL, team leaders)	Number of female employees	Person	20	18	19	
			Proportion of female employees	%	6	6	6	
	SK bioscience	Executives	Number of female executives	Person	4	6	8	
			Proportion of female executives	%	19	19	21	
		Managers (PL, team leaders)	Number of female managers	Person	12	20	27	
			Proportion of female managers	%	17	21	23	
		Non-managers	Number of female junior managers	Person	260	345	384	
			Proportion of female junior managers	%	35	39	42	
		STEM members (Members of R&D department)	Number of female employees	Person	5	9	12	
			Proportion of female employees	%	26	31	32	
		Managers of benefit-related departments (Marketing department PL, team leaders)	Number of female employees	Person	3	3	27	
			Proportion of female employees	%	19	50	39	

Female Talents

Business Site	Item		Unit	2020	2021	2022	Comment
SK multi utility	Executives	Number of female executives	Person	-	0	0	
		Proportion of female executives	%	-	0	0	
	Managers (PL, team leaders)	Number of female managers	Person	-	0	0	
		Proportion of female managers	%	-	0	0	
	Non-managers	Number of female junior managers	Person	-	3	3	
		Proportion of female junior managers	%	-	5	4	
	STEM members (Members of R&D department)	Number of female employees	Person	-	0	0	
		Proportion of female employees	%	-	0	0	
	Managers of benefit-related departments (Marketing department PL, team leaders)	Number of female employees	Person	-	1	1	
		Proportion of female employees	%	-	2	2	

Social | Welfare Benefits

Childcare Leave

Business Site	Item		Unit	2020	2021	2022	Comment
SK chemicals	Number of childcare leave users	Male	Person	6	4	12	
		Female	Person	14	17	25	
		Total	Person	20	21	37	
	Number of returnees after childcare leave	Male	Person	3	6	7	
		Female	Person	14	7	14	
		Total	Person	17	13	21	
	Number of returnees who have worked for more than 12 months	Male	Person	3	4	6	
		Female	Person	13	5	8	
		Total	Person	16	9	14	
	Proportion of returnees who have worked for more than 12 months	Male	%	100	67	86	
		Female	%	93	71	57	
		Total	%	94	69	67	

Pay

Business Site	Item		Unit	2020	2021	2022	Comment
SK chemicals	Gender pay ratio (Base salary)	Executives	%	91	N/A	134	Ratio of average base salary for women to average base salary for men
		Managers	%	100	97	103	
		Non-managers	%	72	78	79	
		Total	%	69	71	69	
SK bioscience	Gender pay ratio (Base salary)	Executives	%	91	92	115	
		Managers	%	98	98	101	
		Non-managers	%	92	100	101	
		Total	%	86	90	89	
SK multi utility	Gender pay ratio (Base salary)	Executives	%	-	N/A	N/A	
		Managers	%	-	N/A	N/A	
		Non-managers	%	-	37	43	
		Total	%	-	37	43	

Retirement Pension

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Retirement pension operating amount (DB, defined benefit type)	KRW 100 million	1,022	1,078	1,237	
	Number of retirement pension subscribers (DB, defined benefit type)	Person	1,260	1,182	1,072	
SK bioscience	Retirement pension operating amount (DB, defined benefit type)	KRW 100 million	243	208	396	
	Number of retirement pension subscribers (DB, defined benefit type)	Person	406	301	764	
SK multi utility	Retirement pension operating amount (DB, defined benefit type)	KRW 100 million	-	43	58	
	Number of retirement pension subscribers (DB, defined benefit type)	Person	-	66	77	

Social | Education

Education Hours

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals[1]	Total education hours	Hour	74,846	76,875	82,134	
	Education hours per person	Hour	50	53	58	
SK bioscience	Total education hours	Hour	8,498	5,537	44,283	
	Education hours per person	Hour	10	6	43	

Education Costs

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals[1]	Total education costs	KRW 1 million	2,339	2,053	2,799	
	Education costs per person	KRW 1 million	1.56	1.43	1.96	
SK bioscience	Total education costs	KRW 1 million	654.8	982.9	688	
	Education costs per person	KRW 1 million	0.78	1.05	0.67	

Social | Human Rights

Human Rights Risk Management

Category	Total percentage assessed in the last 3 years (%)	Percentage of sites assessed where risks were identified (%)	Percentage of identified mitigation/remediation action processes applied (%)	Comment
In-house management activities	100	17	100	
Contractors and Tier 1 suppliers	63	2	38	

[1] Includes SK multi utility

Social | Labor Union

Labor Union and Labor Council Membership

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Proportion of members of the labor union	%	91	89	97	
	Number of labor-management conferences held	Number	4	4	4	
	Application ratio of collective agreement	%	100	100	100	
SK bioscience	Proportion of members of the labor union	%	100	100	100	
	Number of labor-management conferences held	Number	N/A	N/A	N/A	
	Application ratio of collective agreement	%	100	100	100	
SK multi utility	Proportion of members of the labor union	%	Not established	100	100	
	Number of labor-management conferences held	Number	Not established	4	4	
	Application ratio of collective agreement	%	Not established	100	100	

Social | Performance

Ratio of Performance Evaluation Review[1]

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Proportion of employees subject to performance evaluation with goals agreed upon with immediate superior	%	97	95	99	
	Proportion of employees subject to 360degree feedback	%	96	97	96	
	Proportion of employees subject to relative evaluation	%	96	81	88	

Social | Customer Satisfaction

Customer Satisfaction Survey

Business Site	Item	Unit	2020	2021	2022	Comment
SK chemicals	Annual customer complains Number of reports and processes	Number	51	60	83	
	Customer satisfaction score	Score	N/A	86.6	84.0	

[1] Due to changes in the calculation method of the number of employees in this year's report, the proportion of employees eligible for performance evaluation differs from the previous year's report.

Social | Information Security

	Business Site	Item	Unit	2020	2021	2022	Comment
Information Security	SK chemicals	Participation rate for information security training	%	99	99	99	
		Number of personal information leaks	Number	0	0	0	
		Total financial damage from violating information security	KRW 100 million	0	0	0	
		Investment and operation costs for information security	KRW 100 million	38	12	21	
		Proportion of information security certification	%	0	0	0	

Governance | Ethical Management

Business Site	Item		Unit	2020	2021	2022	Comment
SK chemicals[1]	Official ethics management channel reports	Number of reports	Number	5	5	9	
		Number of processing cases	Number	5	5	9	
		Proportion of complaints resolved	%	100	100	100	
	Unfair trade practices such as reduced competition, monopolies, etc., and other violations of laws	Number of violations	Number	0	0	0	
		Number of non-monetary sanctions	Number	0	0	0	
		Number of lawsuits (Defeated)	Number	0	0	0	
	Participation rate of ethics training		%	100	100	100	
	Proportion of employees that have signed the Code of Conduct	Employees	%	100	100	100	
		Business partners	%	68	88	100	
		Subsidiaries	%	100	100	100	
		Joint ventures	%	100	100	100	
	Proportion of business sites that have gone through corruption risk inspections		%	100	100	100	

[1] Includes SK multi utility

Governance | Management of the Board of Directors

Business Site	Item		Unit	2020	2021	2022	Comment
Management of the Board of Directors	Number of meetings	Regular BOD meetings	Number	13	17	16	
	Agenda	Registered agenda	Number	21	35	26	
		Approved agenda	Number	21	35	26	
	Attendance rate	Inside director	%	100	97	100	
		Non-executive director	%	N/A	N/A	91	
		Outside director	%	100	100	100	
Board Remuneration	Inside directors	Total amount paid	KRW 1 million	1,942	2,566	3,154	
		Number	Person	2	2	3	
		Average remuneration per person	KRW 1 million	971	1,283	1,051	
	Outside directors	Total amount paid	KRW 1 million	267	294	380	
		Number	Person	3	4	4	
		Average remuneration per person	KRW 1 million	89	74	95	

Governance | Composition of Shareholders and Dividends

Business Site	Item		Unit	2020	2021	2022	Comment
Composition of shareholders	Stocks held and share ratio	SK discovery Co., Ltd.	Number of shares	3,930,310	6,137,781	7,056,899	
			%	29.77	31.10	36.43	
		Chey Chang-won and related people	Number of shares	255,517	383,273	382,109	
			%	1.94	1.94	1.97	
		Shareholders with 5% or more (National Pension Service)	Number of shares	1,179,620	1,430,519	1,099,579	
			%	8.94	7.25	5.68	
		Treasury stocks	Number of shares	157,779	178,990	178,990	
			%	1.20	0.91	0.92	
		Minority shareholders	Number of shares	7,676,840	11,605,646	10,651,635	
			%	58.16	58.80	54.99	
		Total	Number of shares	13,200,066	19,736,209	19,369,212	
			%	100	100	100	
Dividend Status	Common stock	Share dividend (KRW/share)	Common stock	2,000	3,000	1,500	
		Number of dividend shares (Share)	Common stock	11,728,768	17,589,923	17,222,926	
		Cash dividend yield (%)	Common stock	0.5	2.0	1.9	
	Preferred stock	Share dividend (KRW/share)	Preferred stock	2,050	3,050	1,550	
		Number of dividend shares (Share)	Preferred stock	1,313,519	1,967,296	1,967,296	
		Cash dividend yield (%)	Preferred stock	1.2	3.3	3.9	

STAKEHOLDER ENGAGEMENT

Stakeholder Engagement

SK chemicals defines its key stakeholders as customers, shareholders, investors, financial institutions, employees, government and associations, business partners, and local communities. In 2020, we added the pursuit of happiness for each stakeholder into our articles of incorporation. In March 2021, SK chemicals established a Corporate Governance Charter, demonstrating a clear commitment to stakeholder management with approval from the BOD. At the 2022 Annual General Meeting, we unveiled a financial story centered around the transition to the "Green Materials" business, generating trust and empathy from shareholders and other stakeholders.

SK chemicals considers SKMS as the foundation of our management, aiming to create value for various stakeholders through sustainable business practices. We play a vital role in the social and economic development, while striving for corporate management that contributes to human happiness. To achieve this, SK chemicals engages in diverse forms of communication, gathering stakeholders' opinions, understanding key issues, and incorporating them into our business activities. We aim to freely share opinions, damages, and instances of social responsibility violations with stakeholders, working together to address relevant issues related to our overall business operations.

Stakeholder Issues and Participating Channels

Classification	Major Issues	Communication Channels
All Stakeholders	· Awareness on the transition to green materials and eco-friendly consumption · Requiring pharmaceuticals & bio business and health information · Introduction of SK chemicals and hiring information · ESG management activities	· Stakeholder survey – once a year · SK chemicals YouTube channel – at all times
Customers	· Feedback on products and services · Product quality management and safety	· Customer satisfaction survey (Green Chemicals business) – once a year · Customer counselling (Pharma business) – all times · Voices of Customer on the SK chemicals website – all times · Visits to customer companies – when necessary
Shareholders and Investors	· Stock price and dividend fluctuation issues · Changes in business environment and performance, management strategies · Transparent disclosure of corporate information	· Annual reports / quarterly, half term reports · Disclosure at all times / autonomous disclosure · Regular/temporary shareholders' meetings · Quarterly performance announcements and NDR – once per quarter · Operation of Contact IR board – all times
Employees	· Changes in the business environment · Employment and fostering system · Fair evaluation and rewards · Better welfare benefits	· Town Hall Meeting – once a quarter · G+ / L+ meeting – once a quarter · Happiness G / Team Leader Tea time – once a month · Save Us! Happiness – once a week · Happiness Executive Workshop – twice a year · Labor-Management meeting · Company broadcasting and newspaper · Member satisfaction survey / Culture survey – once a year · SK Ethical Management reporting channel – at all times
Government and Associations	· Regulations and policies · Business opportunities and risks	· Policy-related meetings with the local government – all times
Business Partners	· Fair contracts, unfair transactions · Win-win growth, cooperation	· Build an ESG management system for business partners · SK Group Shared Growth Academy · Visits to business partners – at all times · Subcontract committee meeting – once a month · Safety manager seminar with business partners – once a month · Organize safety report system – at all times
Community	· Community engagement and development · Cooperative social contribution activities	· Jointly develop and organize programs with the local community · Local community volunteer group

PARTICIPATION IN GLOBAL INITIATIVES

UNGC Communication on Progress

Classification	Principles	Major Activities	Page
Human Rights	**Principle 1** Businesses should support and respect the protection of internationally proclaimed human rights; and **Principle 2** make sure that they are not complicit in human rights abuses.	· Make Declaration on Human Rights and Human Rights Management Guidelines · Launch a Human Rights Management Committee · Conduct human rights audits · Follow labor principles and laws	63-74
Labor	**Principle 3** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; **Principle 4** the elimination of all forms of forced and compulsory labour; **Principle 5** the effective abolition of child labour; and **Principle 6** the elimination of discrimination in respect of employment and occupation.	· Follow the Labor Standards Act · Organize a fair performance management system · Have Labor-Management meetings	66-74
Environment	**Principle 7** Businesses should support a precautionary approach to environmental challenges; **Principle 8** undertake initiatives to promote greater environmental responsibility; and **Principle 9** encourage the development and diffusion of environmentally friendly technologies.	· Establish measures to reduce GHG pathways and 2040 Net Zero Roadmap based on SBTi · Reduce GHG with process optimization, fuel conversion, and solar power generation · Expand business focusing on green materials (recycle, bio-based materials)	40-42, 45-47
Anti-Corruption	**Principle 10** Businesses should work against corruption in all its forms, including extortion and bribery.	· Establish ethical management and anti-corruption policy · Organize a dedicated organization for ethical management and establish a reporting/counseling system · Implement ethics management and anti-corruption education · Obtain compliance management certification (ISO 37001)	98-100

UN SDGs

SDGs	Target		Activities
1. No poverty 	1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	· Free meal support for the local community · Kimchi sharing for vulnerable groups and heating cost support · Blood donation campaign for employees
3. Good health and well-being 	3.3	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.	· Contribute to fighting diseases with the vaccine business
	3.4	Noncommunicable diseases and mental health: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.	· Contribute to treating diseases with the pharmaceutical business · Provide treatment support for incurable disease patients · Develop and support programs to enhance cognitive skills for dementia patients
4. Quality education 	4.4	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.	· Support obtaining degrees and certifications related to job responsibilities · Implement personal information protection and security education · Support safety training and education for employees of the company and business partners · Support enhancing competitiveness through education for business partners
6. Clean water and sanitation 	6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.	· Reduce wastewater with eco-friendly processes and business sites
7. Affordable and clean energy 	7.1	By 2030, ensure universal access to affordable, reliable and modern energy services.	· Support the use of energy by distributing cookstoves to Myanmar
	7.2	By 2030, increase substantially the share of renewable energy in the global energy mix.	· Transition to high-energy fuel and increase the share of renewable energy
	7.3	By 2030, double the global rate of improvement in energy efficiency.	· Build eco-friendly business sites and operate the sites to enhance energy efficiency
8. Decent work and economic growth 	8.5	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.	· Create high-quality jobs through institutional and policy support · Support for the growth of business partners through financial assistance programs · Welfare support for employees of business partners
9. Industry, innovation and infrastructure 	9.2	Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.	· Upgrade R&D investment to protect the earth's environment · Upgrade R&D investment to promote people's health

Participation in Global Initiatives

SDGs	Target		Activities
10. Reduced inequalities 	10.2	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.	· Alleviate inequalities with human rights protection systems
12. Responsible consumption and production 	12.4	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.	· Make efforts to reuse wastewater and waste that appears from the production process
13. Climate action 	13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.	· Establish a dedicated management organization for climate change risks · Set and implement targets for greenhouse gas reduction and development of bio-materials · Make efforts to reduce greenhouse gas emissions by using waste resources
	13.3	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.	· Implement eco-friendly environmental management with PET eco-friendly circular economy and cleaning the environment
14. Life below water 	14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.	· Efforts to reduce marine pollution risks by developing eco-friendly plastics · Volunteer activities to clean streams
17. Partnership for the goals 	17.16	Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries.	· Support for diagnosing and systematizing the ESG management status of business partners · Establish comprehensive solutions based on diverse infrastructure and partnership networks · Promote global partnership activities for sustainable management

TCFD

TCFD Recommended Disclosures	Report Page	CDP Link
Governance		
a. Describe the board's oversight of climate-related risks and opportunities.	29, 37, 92	CDP_C1.1
b. Describe management's role in assessing and managing risks and opportunities.	29, 37, 92	CDP_C1.2
Strategy		
a. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	27~29, 36~37, 92	CDP_C2.1, C2.2a, C2.3a, C2.4a
b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	27~29, 36~37, 92	CDP_C2.3a, C2.4a
c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	27~29, 36~37, 92	CDP_C3.2a
Risk Management		
a. Describe the organization's processes for identifying and assessing climate-related risks.	94~97	CDP_C1.2a, C2.2
b. Describe the organization's processes for managing climate-related risks.	37, 94~97	CDP_C2.2
c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	94~97	CDP_C2.2
Metrics and Targets		
a. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	16, 27~29, 36~38	CDP_C4.1a
b. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	44~47, 117~118	CDP_C6.1, C6.3, C6.5
c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	27~29, 36~37, 45~48	CDP_C4.1a

SASB | Chemicals

Topic	SASB Code	Accounting Metric		Unit of Measure	Report Page	Contents
SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS						
Greenhouse Gas Emissions	RT-CH-110a.1	Scope 1 Emissions		Metric tons (t) CO –e	117	63,053
		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, and an analysis of performance against those targets			27~29	In order to achieve Net-Zero by 2040, we have submitted SBTi membership and targets for 2023.
Air Quality	RT-CH-120a.1	Air emissions for the following pollutants	NOx (Excluding N_2O)	Metric tons (t)	128	66
			SOx	Metric tons (t)		2.6
			Volatile Organic Compounds (VOCs)	Metric tons (t)		6.9
			Hazardous Air Pollutants (HAPs)	Metric tons (t)		-
Energy Management	RT-CH-130a.1	Total energy consumed		Gigajoules (GJ)	114	4,851,484
		Percentage grid electricity		%		-
		Percentage renewable		%		-
		Total self-generated energy		Gigajoules (GJ)		-
Water Management	RT-CH-140a.1	Total water withdrawn		Thousand cubic meters (m^3)	119	4,510,038
		Total water consumed		Thousand cubic meters (m^3)		4,510,038
		Percentage of water withdrawn in regions with High or Extremely High Baseline Water Stress		%	52	0
		Percentage of water consumed 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	112	1 (Warning due to non-compliance with SK chemicals Cheongju Plant wastewater facility change report)
	RT-CH-140a.3	Description of water management risks and discussion of strategies and practices to mitigate those risks			52	Establish water risk management and monitoring system
Hazardous Waste Management	RT-CH-150a.1	Hazardous Waste	Amount generated	Metric tons (t)	124	12,027
			Percentage recycled	%		76.5
Community Relations	RT-CH-210a.1	Discussion of engagement processes to manage risks and opportunities associated with community interests			84~86	Conduct activities based on social contribution policies and mid- to long-term goals

Topic	SASB Code	Accounting Metric		Unit of Measure	Report Page	Contents
SUSTAINABILITY DISCLOSURE TOPICS & ACCOUNTING METRICS						
Workforce Health & Safety	RT-CH-320a.1	Total recordable incident rate (TRIR)	Direct employees	Rate	133	0.60
			Contract employees	Rate		-
		Fatality rate	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			78	Discover and improve the workspace risk factors preliminary, provide health management programs
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 Substances		Percentage(%) by revenue	-	
		Percentage of such products that have undergone a hazard assessment		%	-	
	RT-CH-410b.2	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact			42~43	Reinforce the management system on chemical substance, disclose relevant information, and establish the target for replacing hazardous chemicals
Genetically Modified Organisms	RT-CH-410c.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	131	2
		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 METRICS						
	RT-CH-000.A	Production by reportable segment	Copolyester, DMT	Metric tons (t)	-	376,686
			BON	Metric tons (t)	-	10,758
			Tablets	Tablet	-	730,204,575
			Patch	Patch	-	41,112,323

GRI Standards

GRI Standards/Source	Disclosure	Page	Note
General disclosures			
GRI 2: General Disclosures 2021	2-1 Organizational details	10, 15	p.3~4 of the Annual report
	2-2 Entities included in the organization's sustainability reporting	7, 10	
	2-3 Reporting period, frequency and contact point	7	
	2-4 Restatements of information	7	
	2-5 External assurance	7, 161~163	
	2-6 Activities, value chain and other business relationships	11~15, 149	
	2-7 Employees	134~138	
	2-8 Workers who are not employees	134~138	
	2-9 Governance structure and composition	89~92	
	2-10 Nomination and selection of the highest governance body	89~92	
	2-11 Chair of the highest governance body	89~92	
	2-12 Role of the highest governance body in overseeing the management of impacts	37, 89~92	
	2-13 Delegation of responsibility for managing impacts	37, 89~92	
	2-14 Role of the highest governance body in sustainability reporting	92	
	2-15 Conflicts of interest	91	
	2-16 Communication of critical concerns	92	
	2-17 Collective knowledge of the highest governance body	89~90	
	2-18 Evaluation of the performance of the highest governance body	91	
	2-19 Remuneration policies	91	
	2-20 Process to determine remuneration	91	
	2-21 Annual total compensation ratio	146	Disclosed on a separate GRI content table
	2-22 Statement on sustainable development strategy	9, 16	
	2-23 Policy commitments	36, 63, 75, 80, 98, 101	

GRI Standards/Source	Disclosure	Page	Note
GRI 2: General Disclosures 2021	2-24 Embedding policy commitments	36, 63, 75, 80, 98, 101	
	2-25 Processes to remediate negative impacts	66~74, 98~99	
	2-26 Mechanisms for seeking advice and raising concerns	74, 79	
	2-27 Compliance with laws and regulations	43, 112, 145	
	2-28 Membership associations	164	
	2-29 Approach to stakeholder engagement	148~149	
	2-30 Collective bargaining agreements	144	
Material Topics			
GRI 3: Material Topics 2021	3-1 Process to determine material topics	17	
	3-2 List of material topics	18	
	3-3 Management of material topics	19~20	
	[Material Topic 1] Expanding and investing in eco-friendly businesses	38~44	Non-GRI
	[Material Topic 2] Ensuring chemical safety for chemical substances and products	42~43, 79	
	[Material Topic 3] Achieving carbon neutrality to mitigate climate change	27~30, 45~48, 117	
	[Material Topic 4] Efficient use of resources and building a circular economy	30, 40~42, 54, 123~127	
	[Material Topic 5] Formalizing waste management	30, 40~42, 54, 123~127	
	[Material Topic 6] Strengthening occupational health and safety for employees and partners, and supporting sustainable lifestyles	75~78, 131~133	
	[Material Topic 7] Reducing emissions of hazardous chemicals	42~43, 79	
	[Material Topic 8] Ethical management (anti-corruption, fair competition, fair trade)	98~100, 145	
	[Material Topic 9] Contributing to the shared growth and development of local communities	84~86, 130	
	[Material Topic 10] Enhancing transparency in disclosing ESG management information and increasing internal and external communication	148~149	
Topic Standards			
GRI 201 Economic Performance	201-1 Direct economic value generated and distributed	21	
	201-2 Financial implications and other risks and opportunities due to climate change	95~96	
	201-3 Defined benefit plan obligations and other retirement plans	62, 142	

GRI Standards/Source	Disclosure	Page	Note
GRI 203 Indirect Economic Impacts	203-1 Infrastructure investments and services supported	21, 84~86, 130	
	203-2 Significant indirect economic impacts	84~86, 130	
GRI 205 Anti-corruption	205-1 Operations assessed for risks related to corruption	98~100	
	205-2 Communication and training about anti-corruption policies and procedures	98	
	205-3 Confirmed incidents of corruption and actions taken	98~100, 145	
GRI 206 Anti-Competitive Behavior	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	100, 145	
GRI 207 Tax	207-1 Approach to tax	-	Disclosed on a separate GRI content table
	207-2 Tax governance, control, and risk management	-	Disclosed on a separate GRI content table
	207-4 Country-by-country reporting	-	Disclosed on a separate GRI content table
GRI 301 Materials	301-1 Materials used by weight or volume	123	
	301-2 Recycled input materials used	123	
GRI 302 Energy	302-1 Energy consumption within the organization	114~116	
	302-2 Energy consumption outside of the organization	116	
	302-3 Energy intensity	114~115	
	302-4 Reduction of energy consumption	114~116	Disclosed on a separate GRI content table
GRI 303 Water and Effluents	303-1 Interactions with water as a shared resource	52	
	303-2 Management of water discharge related impacts	53, 119~120	
	303-3 Water withdrawal	119~120	
	303-4 Water discharge	119~120	
	303-5 Water consumption	119~120	
GRI 304 Biodiversity	304-2 Significant impacts of activities, products and services on biodiversity	49~51	
	304-3 Habitats protected or restored	49~51	

GRI Standards/Source	Disclosure	Page	Note
GRI 305 Emissions	305-1 Direct (Scope 1) GHG emissions	117	
	305-2 Energy indirect (Scope 2) GHG emissions	117	
	305-3 Other indirect (Scope 3) GHG emissions	118	
	305-4 GHG emissions intensity	117	
	305-5 Reduction of GHG emissions	47, 117	
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	128~129	
GRI 306 Waste	306-1 Waste generation and significant waste-related impacts	23~25, 30, 54	
	306-2 Management of significant waste-related impacts	23~25, 30, 54	
	306-3 Waste generated	124~127	
	306-4 Waste diverted from disposal	124~127	
	306-5 Waste directed to disposal	124~127	
GRI 308 Supplier Environmental Assessment	308-1 New suppliers that were screened using environmental criteria	82~83	
	308-2 Negative environmental impacts in the supply chain and actions taken	82~83	
GRI 401 Employment	401-1 New employees & employee turnover (Age, gender, region)	134~138	
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	62	
	401-3 Parental leave	62, 141	
GRI 403 Occupational Health and Safety	403-1 Occupational health and safety management system	75~76	
	403-2 Hazard identification, risk assessment, and incident investigation	77~78	
	403-3 Occupational health services	78	
	403-4 Worker participation, consultation, and communication on occupational health and safety	75~78	
	403-5 Worker training on occupational health and safety	77, 143	
	403-6 Promotion of worker health	78	
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	75~78	
	403-8 Workers covered by an occupational health and safety management system	75	
	403-9 Work-related injuries	131~132	
	403-10 Work-related ill health	132	

GRI Standards/Source	Disclosure	Page	Note
GRI 404 Training and Education	404-1 Average hours of training per year per employee (Gender, age)	143	
	404-2 Programs for upgrading employee skills and transition assistance programs	58~60	
	404-3 Percentage of employees receiving regular performance and career development reviews	144	
GRI 405 Diversity and Equal Opportunity	405-1 Diversity of governance bodies and employees	89~91, 139~140	
	405-2 Ratio of basic salary and remuneration of women to men	142	Disclosed on a separate GRI content table
GRI 406 Non-discrimination	406-1 Incidents of discrimination and corrective actions taken	70	
GRI 413 Local Communities	413-1 Operations with local community engagement, impact assessments, and development programs	84~86, 130	
	413-2 Operations with significant actual and potential negative impacts on local communities	-	After an environmental assessment of business sites, it was found that none of the business sites had community or biodiversity risk factors
GRI 414 Supplier Social Assessment	414-1 New suppliers that were screened using social criteria	-	
	414-2 Negative social impacts in the supply chain and actions taken	82~83	
GRI 415 Public Policy	415-1 Political contributions	-	Disclosed on a separate GRI content table
GRI 416 Customer Health and Safety	416-1 Assessment of the health and safety impacts of product and service categories	42~43, 79	
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	-	No related violations
GRI 418 Customer Privacy	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	145	

3RD PARTY ASSURANCE STATEMENT

Dear Stakeholders of SK CHEMICALS,

KFQ has been engaged by SK CHEMICALS to provide independent assurance on the 2022 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:** SK CHEMICALS complied with all requirements specified in the GRI Standards (2021) to report in accordance with the GRI Standards

Requirement	compliance	GRI Standards/Topic Disclosure
1. Reporting Principles	Yes	GRI 1 : Foundation 2021(section 4)
2. Report the disclosures in GRI 2	Yes	GRI 2 : General Disclosures 2021(2-1 ~ 2-30)
3. Determine material topics	Yes	GRI 3 : material Topics 2021
4. Report material topics	Yes	GRI 3 : material Topics 2021(3-1, 3-2)
5. Report disclosures from the GRI Topic Standards for each material topic	Yes	· GRI 205: Anti-Corruption · GRI 206: Anti-competitive Behavior · GRI 305: Emissions · GRI 306: Waste · GRI 403: Occupational Health and Safety · GRI 413: Local Communities · GRI 416: Customer Health and Safety
6. Provide reasons for omission for disclosures and requirements that the organization cannot comply with	Yes	
7. Publish a GRI content Index	Yes	
8. Provide a statement of use	Yes	
9. Notify GRI	Yes	

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 Annual 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, https://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.

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 2022 Sustainability Report for SK CHEMICALS reports in accordance with the 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, investors, partner companies, employees and local communities through communication channels such as customer satisfaction survey, general shareholders' meeting, shared growth program, employees culture survey and local community collaboration. Nothing came to our attention to suggest that the main stakeholders are not stated in the Report.

- **Materiality**
  SK CHEMICALS simultaneously increases economic value (EV) and social value (SV) through management activities, and strives to create social value through corporate contributions to solving social issues and the pursuit of happiness for its members. To this end, it was confirmed that sustainability management strategies and goals were established to enhance execution capabilities.
  In an effort to identify internal and external stakeholders' interests and their impacts, SK CHEMICALS identified 25 issues from economic, environmental, and social perspectives and determined 10 material topics by conducting a materiality assessment. It was confirmed that the identified issues resulting from the materiality assessment were fully described in the Report 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 interviewed employees who are responsible to prepare the Report, 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 internalize sustainability management in the future and to disclose the results of the report effectively.

- We look forward to seeing SK CHEMICALS will report additional disclosures from the GRI Topic Standards beyond information related to selected material issues in response to stakeholders' needs and expectations.

June, 2023
Seoul, Korea

AA1000 Licensed Report 000-80/V3-JYHD1

kfq Korean Foundation for Quality

Ji Young Song, CEO
Korean Foundation for Quality (KFQ)

Ji Young Song

GREENHOUSE GAS VERIFICATION STATEMENT

Scope 1, 2

kfq Korean Foundation for Quality

Verification Statement on 2022 Greenhouse Gas Emission Report

Verification Target
Korean Foundation for Quality (hereinafter "KFQ") has conducted the verification of "2022 Report on Quantity of emitted Greenhouse gas Consumption (hereinafter 'Inventory Report") for SK chemicals. (hereinafter "Company")

Verification Scope
KFQ's verification was focused on all the facilities which emitted the greenhouse gas during the year of 2022 under Company's operational control and organizational boundary. GHG emissions from direct and indirect emission sources (Scope 1 and 2) were calculated for all GHG emission facilities under the operational control of each company.

Verification Criteria
The verification process was based on 'Rule for emission reporting and certification of greenhouse gas emission trading Scheme (Notification No. 2021-112 of Ministry of Environment)', 'Rules for verification of operating the greenhouse gas emission trading scheme (Notification No. 2022-279 of Ministry of Environment)'.

Level of Assurance
The Verification has been planned and conducted as the 'Rules for verification of operating the greenhouse gas emission trading scheme', and the level of assurance for verification shall be satisfied as reasonable level of assurance. And it confirmed through the internal review whether the process before the verification conducted effectively.

Verification Limitation
The verification shall contain the potential inherent limitation in the process of application of the verification criteria and methodology.

Verification Opinions
Regarding to the data of the Greenhouse Gas Emission Consumption from the report through the verification, KFQ provides our verification opinions as below;

1) The Inventory Report has been stated in accordance with 'Rule for emission reporting and certification of greenhouse gas emission trading Scheme'
2) The result of Material discrepancy satisfied the criteria for an organization that emits less than 500,000 tCO_2-e shall not exceed 5% from total emission as per 'Rules for verification of operating the greenhouse gas emission trading scheme'
3) Thus, KFQ conclude that the Greenhouse Gas Emissions of Each Company in 2022 is correctly calculated and stated in accordance with 'Rule for emission reporting and certification of greenhouse gas emission trading Scheme'.

Emission calculation results

tCO_2eq

Business site	Scope 1	Scope 2	Total
Sum	61,088.236	202,515.252	263,601

There is a difference between the total emissions and the sum of emissions by business site (truncated emissions by business site are added together by company).

Jul 11th, 2023

Ji Young Song

CEO Ji-Young Song
Korean Foundation for Quality

KSA GHG Emission Verification Statement IAF

SK Chemicals Co., Ltd.

1. Verification Goal

The goals of greenhouse gas(GHG) emission verification (hereinafter referred to as 'verification') conducted by the Korean Standards Association are as follows.

- Confirming the conformity with standards and procedures of GHG emission and GHG emissions calculated within the scope of verification
- Checking the validity of declarations related to the organization's GHG emissions or removals
- Confirming the effective implementation of the organization's management of GHG emissions or removals
- Confirming the conformity of processes for implementing, managing and improving the organization's GHG emissions or removals estimates

2. Verification Scope

Korea Standards Association conducted verification of Scope 3 for Greenhouse Gas Declaration of SK Chemicals Co., Ltd.

- Boundary : Scope3
  * Category 1 Purchased Goods and Services
  Category 3 Fuel-and energy-related activities(not included in Scope 1 or 2)
  Category 5 Waste generated in operations
  Category 12 End-of-Life Treatment of Sold Products
  Category 15 Investment
- Year : 2022

3. Verification Criteria and Guidelines

Korean Standards Association conducted verification according to international standards and the standards and guidelines of the National Institute of Environmental Research.

- ISO 14064-1,3 : 2006
- Guidelines for reporting and certification of emissions from the GHG Emissions Trading System (Notification of the Ministry of Environment: No. 2022-279)
- 2006 IPCC Guidelines for National GHG Inventories
- WRI(World Resources Institute) Greenhouse Gas Protocol
- The Corporate Value Chain (Scope3) Accounting and Reporting Standard

4. Level of assurance verification and Responsibility

Korea Standards Association provides verification at limited level of assurance to strengthen GHG management for your company's GHG emissions.

5. Verification Limit

GHG emissions can be affected by factors such as data limits and uncertainties in the scope of verification, and inherent limitations may exist accordingly.

6. Verification Conclusion

No errors or false facts were found in SK Chemicals Co., Ltd.'s GHG emissions verified through the ISO 14064-3 verification procedure within the scope of verification.

Scope 3

Appendix. GHG emission in 2022

(unit : tCO2eq)

Categories	GHG Emissions
cat. 1 Purchased Goods and Services	220,997
cat. 3 Fuel-and energy-related activities(not included in Scope 1 or 2)	9,381
cat. 5 Waste generated in operations	4,403
cat. 12 End-of-Life Treatment of Sold Products	514,718
cat. 15 Investment	232,144
Total	981,643

※ Note: There is a difference between the total amount of emissions for each business site and total amount of emissions by types because when GHG emission is calculated, decimal point is round down.

2023, 5, 30

Myung Soo Kang

KOREAN STANDARDS ASSOCIATION

Participating Associations and Organizations

Gyeonggi-do Nurses Association	Korean Hospital Association	Korea Industrial Safety Association Seongnam Branch	Korea Industrial Safety Association Ulsan Branch
Ulsan District Env. Pre. 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	Korean Association of Occupational Health Nurses	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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