

Aekyung Chemical Sustainability Report 2022



Aekyung Chemical Sustainability Report 2022

ABOUT THIS REPORT

Overview

Aekyung Chemical, based on the slogan "Creating a Better World with Unique Chemical Solutions," is committed to contributing to society. In line with this commitment, we publish our first sustainability report in June 2023. We will disclose our sustainability management performances and plans to stakeholders by publishing this report annually.

01

Reporting Period

This report covers Aekyung Chemical's sustainability management activities and achievements from January 1, 2022, to December 31, 2022. To ensure comparability of quantitative performance, we provide data for the past three years (2020 to 2022). In cases where there are differences in certain scopes due to the merger in November 2021, such discrepancies have been explicitly indicated in the report through footnotes and annotations. Additionally, the reporting period is extended to the first half of 2023 for some significant qualitative achievements.

02

Reporting Principles and Standards

This report has been prepared in accordance with the global reporting guidelines of GRI (Global Reporting Initiative) Standards and SASB (Sustainability Accounting Standards Board). Financial information in the report is based on the Korean International Financial Reporting Standards (K-IFRS) consolidation basis.

03

Access and Inquiries

This report can be accessed and downloaded through our website. For any further details or inquiries, please feel free to contact us at the following:

Website: www.aekyungchemical.co.kr

Officer: Yoo Jusang,

Administration Risk management Team

E-mail: esg_ca@aekyung.kr

Telephone: +82-2-6078-3239

04

TABLE OF CONTENTS

Introduction

- 06 CEO Message
- 07 Company Overview
- 12 Business Overview
- 19 THE Management System
- 23 Materiality Assessment

Environment: Together with Environment

- 26 Internalization of EHS Management
- 31 Strengthening Environmental Awareness
- 32 Expanding Environmental Investments
- 40 Management of Hazardous Chemicals and Waste
- 42 Water Resources Management
- 43 Energy Management
- 44 Greenhouse Gas Emission Management
- 46 Establishing a Resource Virtuous Cycle System

Society: Happy Society

- 50 Diverse Social Contribution Activities
- 54 Occupational Safety and Health
- 56 Product Safety and Quality
- 57 Talent Recruitment and Cultivation
- 61 Expansion of Human Rights Management
- 66 Shared Growth with Partners

Governance: Equitable Governance

- 69 Strengthening Board Integrity
- 71 Ethical Management and Compliance
- 76 Shareholder Rights Protection
- 78 Comprehensive Risk Management
- 79 Strengthening Information Security

Appendix

- 81 ESG Facts & Figures
- 91 GRI Index
- 93 SASB Index
- 94 UN SDGs Activities
- 95 Awards and Membership
- 96 GHG Verification Opinion
- 97 Independent Auditors' Report

Interactive User Guide

The Aekyung Chemical Sustainability Report 2022 was published as an interactive PDF, featuring functionalities such as navigating related pages and direct links to associated webpages.



Go to Cover



Go to Previous View



Go to Table of Contents



Go to Previous/Next Page

Respectable Partner for Your Innovation through Chemistry

Aekyung Chemical is dedicated to creating a better life through chemistry. By continuously engaging in research and development and fostering innovation, we expand high value-added and eco-friendly products, enhancing sustainability.

We strive to create a better world by building a society harmonious with the environment and promoting a fair corporate governance.

The passion of Aekyung Chemical remains unwavering.



CEO Message	06
Company Overview	07
Business Overview	12
THE Management System	19
Materiality Assessment	23

Introduction



Introduction

CEO Message

Company Overview

Business Overview

THE Management System

Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

CEO Message

Dear respected stakeholders, I am Pyo Kyoung-won, the CEO of Aekyung Chemical

Since its establishment as Samkyung Chemical Co.,Ltd.(Aekyung Petrochemical Co.,Ltd.), Aekyung Chemical has been at the forefront of South Korea's chemical industry for half a century. In November 2021, a new era of quantum jump began as three chemical affiliates of Aekyung Group(Aekyung Petrochemical, Aekyung Chemical, AK Chemtech) merged to form a new entity.

Under the vision of "Respectable Partner for Your Innovation through Chemistry," Aekyung Chemical is committed to providing innovative and optimal solutions to our customers, with Respect, Excellence, Agility, Commitment, and Teamwork as our core values.

Following the merger, Aekyung Chemical has prioritized ESG management and announced its ESG management policy, "THE! Aekyung Chemical," for systematic implementation. The company has established guiding principles for Environment(Together with Environment), Society(Happy Society), and Governance(Equitable Governance) and is pursuing various initiatives.

Firstly, we are working towards building an environmentally focused business system through the development of eco-friendly product solutions and Green Operation management activities guided by a carbon-neutral policy. Our "Green Initiative 3050" aims to achieve by 2030: ① 50% eco-friendly raw material usage, ② 50% eco-friendly product sales ratio, and ③ 50% reduction in carbon emissions. We are making every effort to attain these objectives.

Secondly, in pursuit of creating a happier society and fulfilling our corporate social responsibilities, we strive to strengthen human rights through mutual respect, establish workplaces where work and life balance is achieved, protect the local community environment, and support for marginalized neighbors through various social contribution activities.

Thirdly, to establish a transparent and fair governance, we are enhancing the independence and expertise of our board of directors, reinforcing ethical management and compliance, supporting our shareholders' rights, and enhancing shareholder return policies.

Moving forward, Aekyung Chemical will establish an exemplary ESG management system, suppliers maximum value to all stakeholders including customers, shareholders, suppliers, and employees, and fulfill our social responsibilities. We kindly ask for your continued support for Aekyung Chemical's sustainable management.

We love you all. We respect you.

CEO of Aekyung Chemical, **Pyo Kyoung-won**

Introduction

CEO Message

Company Overview

Business Overview

THE Management System

Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

Company Overview

Company Name	AEKYUNG CHEMICAL CO., LTD.
Headquarters	9th and 10th Floors, Aekyung Tower, 188 Yanghwa-ro, Mapo-gu, Seoul, South Korea (Donggyo-dong)
Establishment Date	September 3, 2012
Merger Date	November 1, 2021
Number of Employees	709 (as of December 31, 2022)
Business Classification	Listed on KOSPI (Stock Code: 161000)
Shares Outstanding	48,648,709 shares
Industry	Basic Chemicals Manufacturing
CEO	Pyo Kyoung-won
Major Financial Information (as of Dec. 31, 2022)	Sales 2,176.4 billion KRW (Consolidated basis, headquarters: 1,712.8 billion KRW / Domestic and overseas subsidiaries: 463.6 billion KRW)
	Operating profit 95.1 billion KRW (Consolidated basis, headquarters: 90.5 billion KRW / Domestic and overseas subsidiaries: 4.6 billion KRW)
	Total assets 1,234.1 billion KRW (Consolidated basis, headquarters: 106.3 billion KRW, Subsidiaries: 171.1 billion KRW)
Major Products	Plasticizers, Phthalic Anhydride, Resins for Composite Materials, Coating Resins, Adhesives, and Sealants, Isocyanate Hardener, Polyester Polyols, Polyurethane Systems, Surfactants, Refined Glycerin, Biodiesel, Bio-jet Fuel, Hard Carbon, and more

[Reference] Domestic and overseas subsidiaries

1) Domestic Subsidiaries: Aekyung Specialty & Paint CO., LTD, AK Biopharm Co., Ltd., JUNGBU COUNTRY CLUB

2) Overseas Subsidiaries: Aekyung (NINGBO) Chemical CO., LTD., AK VINA Co., Ltd., Aekyung Hongkong Co., Ltd.



Introduction

CEO Message

Company Overview

Business Overview

THE Management System

Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

Company History

Aekyung Petrochemical Co., Ltd, which has grown alongside the history of South Korea's petrochemical industry, has newly emerged as Aekyung Chemical by combining the capabilities of Aekyung Chemical and AK Chemtech. The efforts of Aekyung Chemical in shaping a new history will continue.



1970's~1980's

Laying the foundation of South Korea's petrochemical industry

- Established Sam Kyung Chemical Co. Ltd. (formerly Aekyung Petrochemical Co., Ltd.)
- Registered as the first petroleum chemical company in Korea
- Established Aekyung Chemical
- Established Aekyung Shell (formerly AK ChemTech)
- Constructed Plasticizer Plant (P-4)
- Constructed PCM Paint Plant

1990's~2000's

Expanding business domains

- Constructed Aekyung Chemical's Cheongyang plant
- Listed Aekyung Petrochemical Co., Ltd. on the stock exchange
- Established Aekyung Hongkong Co., Ltd.
- Obtained ISO 9001 (Quality Management System) certification
- Established Plasticizer-linking type plant (P-12)
- Obtained ISO 14001 (Environmental Management System) certification
- Opened Aekyung R&D Center
- Constructed cationic & nonionic surfactant synthesis plant
- Established AK VINA (Vietnam)
- Established Aekyung (NINGBO) Chemical Co., Ltd.
- Constructed Biodiesel plant

2010's~2020's

Strengthening the foundation for sustainable growth

- Constructed environment-friendly plasticizer plant (P-14)
- Constructed refined glycerin plant (P-15)
- Aekyung Petrochemical spin-off - AK Holdings (holding company)/Aekyung Petrochemical (operating company)
- Constructed Jeonju plant (Secondary battery anode materials)
- Established Aekyung (Shanghai) Investment Management Co., Ltd
- Established Aekyung Chemical Co., Ltd. (Merger of Aekyung Petrochemical, Aekyung Chemical, and AK Chemtech)
- Declared ESG Management Policy "THE Management System"
- Incorporated AK BioPharm as a subsidiary (80% ownership)

Introduction

CEO Message

Company Overview

Business Overview

THE Management System

Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

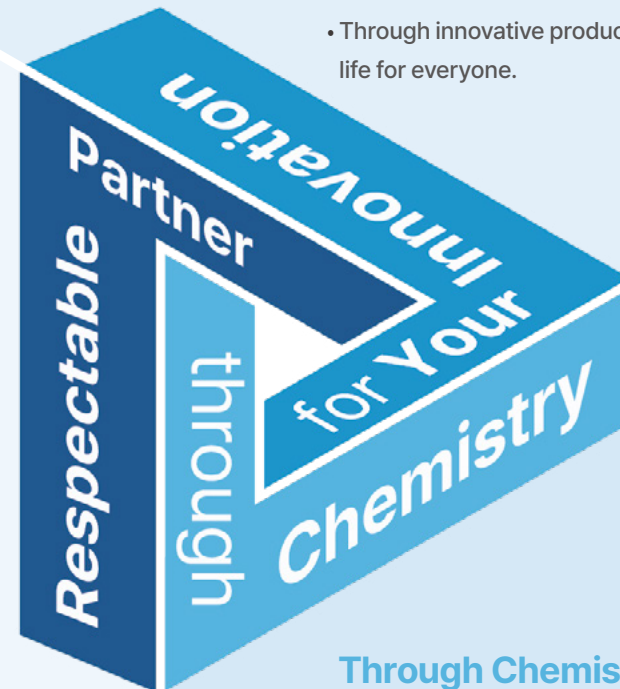
Appendix

Vision

Respectable Partner for Your Innovation through Chemistry

Your Innovation

- Our mission is to provide optimal solutions for our customers' innovation.
- Through innovative products and services, we contribute to better quality of life for everyone.



Respectable Partner

- We aspire to be strategic partners for mutual growth in the long run.
- Embracing an ESG management system, we aim to transform the structure and essence of our business to become a respected company from customers.

Through Chemistry

- Building upon 50 years of history and tradition in the chemical industry, we continue to progress and evolve.
- We expand and strengthen R&D in the field of chemistry to take it to the next level.

Introduction

CEO Message

Company Overview

Business Overview

THE Management System

Materiality Assessment

Environment:
Together with Environment

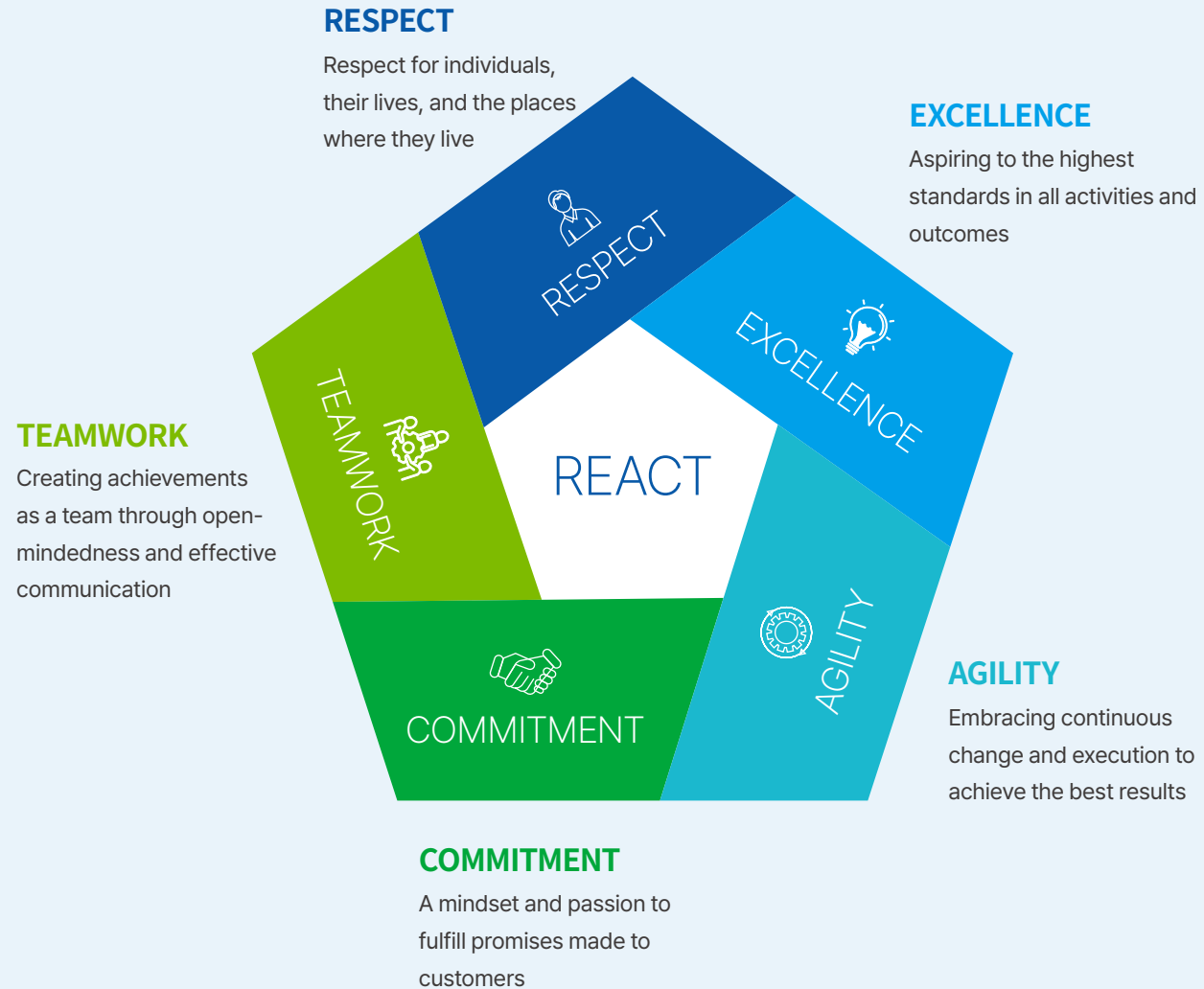
Society:
Happy Society

Governance:
Equitable Governance

Appendix

Core Values

These are the core values that Aekyung Chemical employees prioritize as they strive to achieve the company's vision.



Introduction

- CEO Message
- Company Overview**
- Business Overview
- THE Management System
- Materiality Assessment

Environment:
Together with Environment

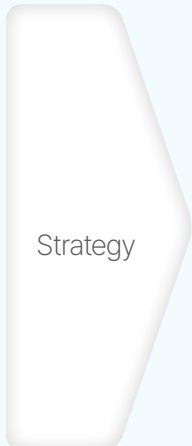
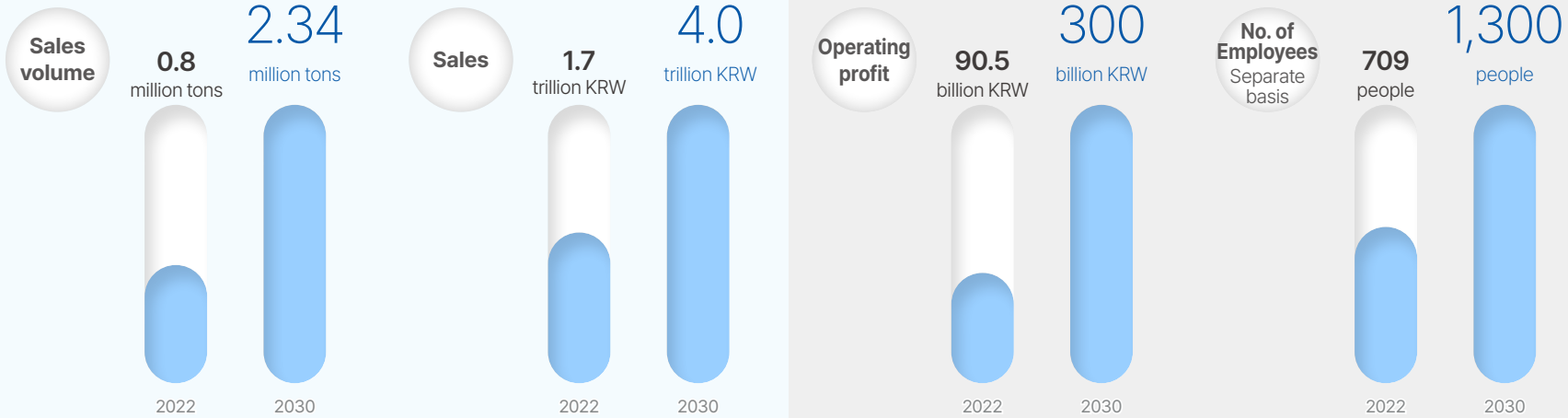
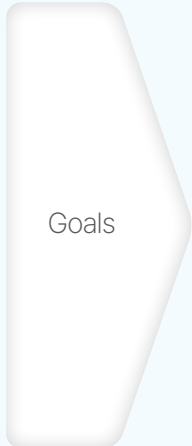
Society:
Happy Society

Governance:
Equitable Governance

Appendix

Medium to Long-Term Goals and Strategies

Achieve sales of 4 trillion KRW and operating profit of 300 billion KRW by 2030



Establish a sustainable business structure for high growth and profitability to achieve medium to long-term goals



Introduction

- CEO Message
- Company Overview
- Business Overview**
- THE Management System
- Materiality Assessment

Environment:
Together with Environment

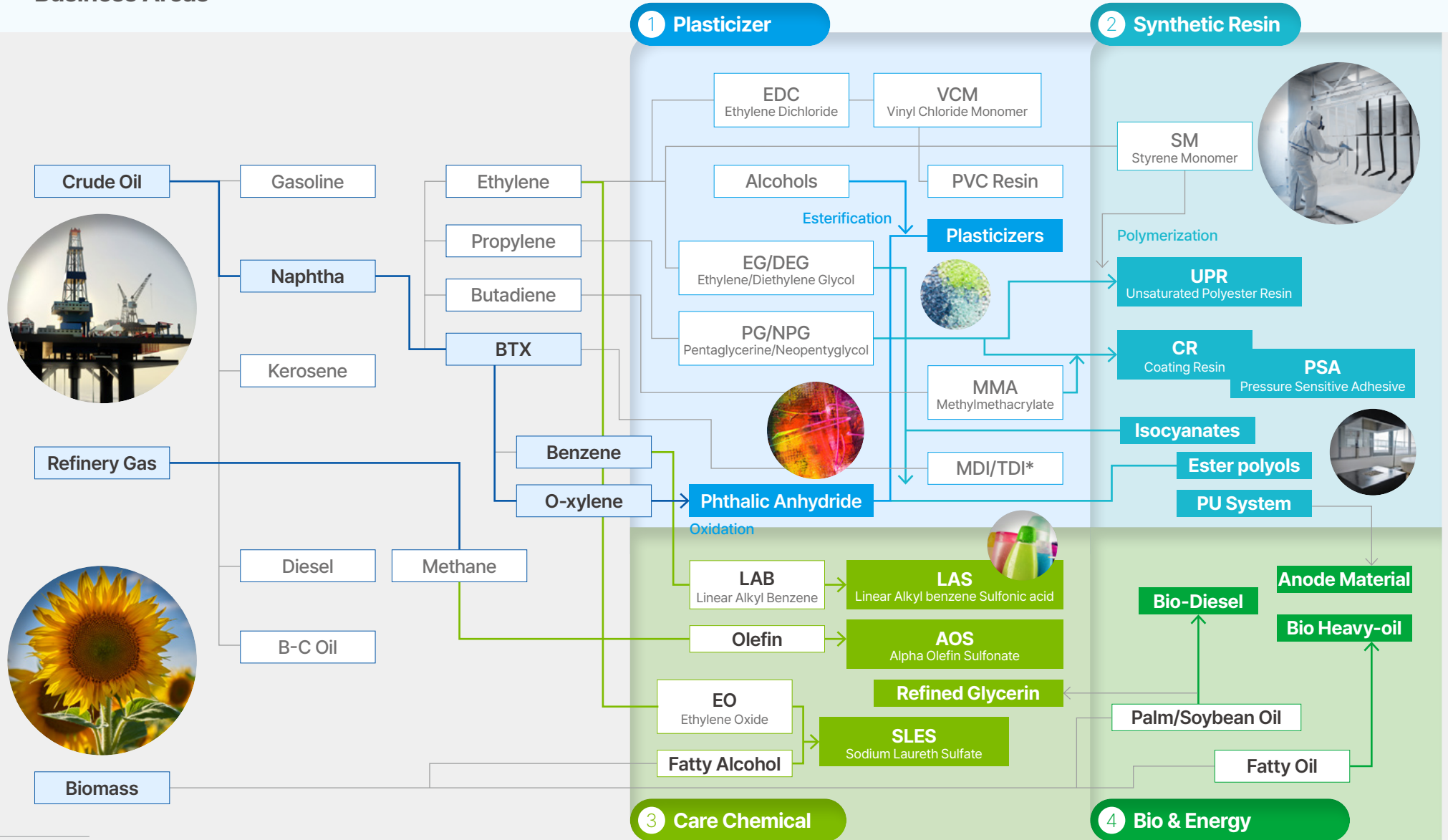
Society:
Happy Society

Governance:
Equitable Governance

Appendix

Business Overview

Business Areas



* MDI/TDI : Methylene Diphenyl Diisocyanate/Toluene Diisocyanate.

Introduction

- CEO Message
- Company Overview
- Business Overview**
- THE Management System
- Materiality Assessment

**Environment:
Together with Environment**

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Business Areas

Plasticizer Business Division

The Plasticizer Business Division encompasses industries involved in the production of phthalic anhydride from basic oils and the subsequent production of various plasticizers using this material. These plasticizers are widely used in a diverse range of industries, including construction, electrical, and general consumer goods, to enhance the flexibility and various properties of plastics, including PVC.

Plasticizer

Plasticizers are substances added to plastics and PVC, to improve flexibility and various properties. They are utilized in various applications, such as wallpapers, flooring materials, wires, and synthetic leather. Aekyung Chemical, based on world-class production capacity and technical skills, has a diverse product line ranging from general plasticizers to functional and eco-friendly plasticizers.

Phthalic Anhydride (PA), Maleic Anhydride (MA), Itaconic Acid (ITA)

PA, MA, and ITA are basic compounds used as key raw materials in various resins. Aekyung Chemical has continuously invested in technological development and capacity expansion since becoming the first company in Korea to commercialize PA. As a result, we possess world-class quality and production capabilities.

PA (Phthalic Anhydride)

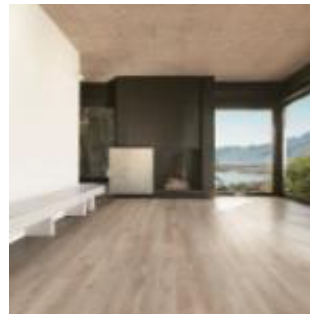
PA is an anhydrous form of phthalic acid, which serves as an intermediate in oxidation reactions and imparts special properties, such as solubility and weatherproof, to various resins. Aekyung Chemical was the first to commercialize PA in Korea and currently possesses world-class quality and production capacity (annual production of 210,000 tons).

MA(Maleic Anhydride)

MA, an anhydrous form of maleic acid, is used as a raw material in various organic synthesis processes due to its unsaturated properties.

Ester Lubricant Base Oil

Ester lubricant base oil is utilized in the Group V area for high-performance industrial and specialty lubricants and additives. Aekyung Chemical's AKLUB-Series provides world-class production capacity and tailored solutions to meet specific requirements.



PVC Flooring



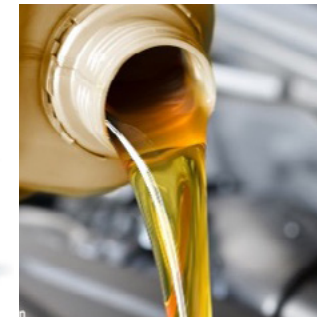
PVC Wallpapers



Electrical Cables



UPR



Cutting Oil & Rolling Oil



Refrigerant Oil

Introduction

- CEO Message
- Company Overview
- Business Overview**
- THE Management System
- Materiality Assessment

**Environment:
Together with Environment**

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Synthetic Resin Business Division

The Synthetic Resin Business Division is an industry that produces various resins through chemical synthesis using basic oils derived from naphtha and natural gas. Key resin products include unsaturated polyester resin (UPR), coating resins, Aromatic (TDI) Polyisocyanate hardener, Aliphatic (HMDI) Polyisocyanate hardener, and adhesives such as acrylic adhesives and urethane adhesives.

Composite Resin

Unsaturated Polyester Resin has excellent formability, workability, and mechanical properties, making it widely used in various industries. Vinyl Ester Resin possesses exceptional chemical resistance and mechanical properties.

Coating Resin

The Coating Resin line includes various types, such as acrylic resins and alkyd resins, water-based acrylic resin and urethane resins. These are used as basic materials for paints, inks, and coatings.

Polyester Polyol

We provide aromatic-structured Polyester Polyol and polyurethane systems with excellent thermal insulation and flame-retardant properties.

PSA & Adhesives

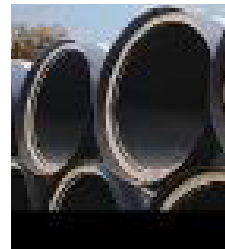
Adhesives can adhere to the surface of another object with a small amount of pressure and have strong cohesion and elasticity, making them easy to detach without tainting the adhered material when peeled. They maintain viscosity permanently at room temperature and do not change physically when activated by solvents or heat. Adhesives find applications in various industries, including automotive, electronics, construction, printing, paper, and recently in electronic materials, mobile phone touch screens, and the medical field.

Polyisocyanate Hardener

Isocyanate Hardeners are used to chemically improve properties through crosslinking and chemical reactions. Aekyung Chemical offers a wide range of Aromatic and Aliphatic polyisocyanate hardener solutions that provide optimal performance for various industrial applications.



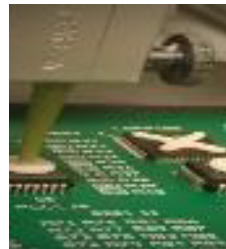
Artificial marble



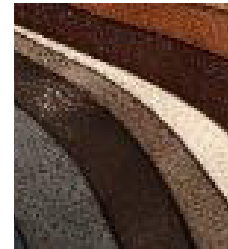
Pipes



Paints



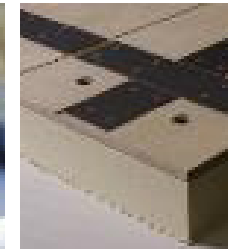
Electronic material adhesive



Synthetic leather



Adhesives



LNG ship insulation material



Urethane insulation

Introduction

- CEO Message
- Company Overview
- Business Overview**
- THE Management System
- Materiality Assessment

**Environment:
Together with Environment**

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Care Chemical Business Division

The Care Chemical Business Division is an industry that produces various basic chemical materials, such as anionic, cationic, amphoteric, and nonionic surfactants, using raw materials derived from naphtha and biomass.

Surfactants

Surfactants are substances that adsorb to the interface in an aqueous solution, reducing surface tension. They have excellent foaming and cleaning properties, making them essential raw materials for personal care products, detergents, and household and industrial cleaning agents. Aekyung Chemical's anionic surfactants, produced through continuous alkali-liquid processes, have the largest production capacity in South Korea.

The mild surfactants are eco-friendly products with low skin irritation, moisturizing, and skin barrier-enhancing properties, widely used in cleansing products.



Refined Glycerin

Refined glycerin is used in cosmetics as a humectant and moisturizer. Due to its antimicrobial and antiviral properties, it is also utilized in pharmaceutical products, such as wound ointments and burn treatments. Moreover, it finds extensive applications across various industries, including as a solvent in the manufacturing of plant extracts and as a defoaming agent. The material (PPG, etc.) is commonly employed throughout the industrial sector.



Shampoo



Hand wash



Laundry detergent



Body wash



Cosmetics



PPG polymerization initiator

Introduction

- CEO Message
- Company Overview
- Business Overview**
- THE Management System
- Materiality Assessment

**Environment:
Together with Environment**

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Bio & Energy Business Division

The Bio & Energy Business Division is an industry that produces various basic chemical materials derived from biomass, which can reduce environmental pollution emissions and create eco-friendly alternative fuels and energy sources. Biodiesel and Bio heavy oil are eco-friendly alternative fuels produced from natural oils, plant oils, and refined oils, and their demand is expanding due to the Renewable Portfolio Standard (RPS) implemented by the government. Additionally, as the demand for secondary batteries in electric vehicles and energy storage systems (ESS) increases, developing materials used in secondary batteries is actively underway.

Biodiesel

Biodiesel is an eco-friendly transportation fuel produced from natural oils, plant oils, and refined oils. It is used as an additive or alternative fuel for diesel vehicles that use regular diesel. Biodiesel has similar fuel performance to regular diesel, reduces carbon dioxide and exhaust emissions, and has excellent biodegradability. The mandatory blending ratio of biodiesel as an eco-friendly fuel is expanding in accordance with the Enforcement Decree of the Renewable Energy Act.



Alternative fuel for internal combustion engines



Renewable fuels for power generation



Industrial boiler fuels



Automotive lithium-ion secondary battery



Lithium capacitors (LIC)

Bio Heavy Oil

Bio heavy oil is an eco-friendly fuel for power generation processed from by-products of natural oils, plant oils, and biodiesel to meet the fuel properties required for power generation. It can be directly applied to the existing equipment used for B-C oil and diesel, reducing atmospheric pollutants such as sulfur compounds, nitrogen oxides, and fine dust compared to B-C oil. Therefore, it is used as one of the various energy sources by power plants in compliance with the Renewable Portfolio Standard (RPS).

Hard Carbon

Hard carbon is one of the four major materials used in secondary batteries and is applied in electric vehicles, IT products, and energy storage systems (ESS). This material possesses an amorphous structure with minimal stacking of graphite layers during the carbonization process, resulting in very small crystal sizes and a characteristic of not forming a graphite structure even at high-temperature heat treatment. As a result, it is suitable for the cathode material of secondary batteries, capacitors, and activated carbon, among others. In particular, it has excellent structural stability and high output characteristics, making it suitable for high-performance secondary batteries compared to conventional graphite or soft carbon. In light of the progress in sodium-ion battery technology, there has been continuous research and development focused on optimizing hard carbon-based anode materials specifically for use in sodium-ion batteries.

* Renewable Portfolio Standard
** Energy Storage System

Introduction

- CEO Message
- Company Overview
- Business Overview**
- THE Management System
- Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

Business Site



Cheongyang Plant 1

1547-64, Chungui-ro, Jeongsan-myeon, Cheongyang-gun, Chungcheongnam-do

Major products

Composite Resin for Compounds, Coating Resin, Adhesives, Polyisocyanate Hardener, etc.



Cheongyang Plant 2

1547-95, Chungui-ro, Jeongsan-myeon, Cheongyang-gun, Chungcheongnam-do

Major products

Surfactants, etc.



Jeonju Plant

283, Wanjusan-dan 6-ro, Bongdong-eup, Wanju-gun, Jeollabuk-do

Major products

Hard carbon, etc.



Headquarter

9F, 10F, 188 Yanghwa-ro, Mapo-gu, Seoul



Daejeon R&D Center

120, Sinseongnam-ro, Yuseong-gu, Daejeon (Sinseong-dong, Aekyung R&D Center)



Daejeon Plant

174, Daehwaro 32beon-gil, Daejeon

Major products

Surfactants, etc.



Ulsan Plant

81, Sanggae-ro, Nam-gu, Ulsan

Major products

Plasticizers, Phthalic Anhydride, Biodiesel, Bio-Kerosene, Refined Glycerin, Polyester Polyol, Polyurethane Systems, etc.

Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System
- Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

Subsidiary Business Site



Aekyung (NINGBO) Chemical Co., Ltd.

No.61 Taixin Rd., Jiaochuan District Zhenhal, Ningbo 315207, China

Major products

Plasticizer, Polyester Polyol, etc.



Shanghai Investment Management LLC.

Shanghai Mart Tower No.2299 Yan An West Road, Shanghai, China

Major Business

Trading



Aekyung Specialty & Paint Co., Ltd.

HQ: 169 Okgucheonseo-ro, Siheung-si, Gyeonggi-do, Korea
Plant: 25 Hodong-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, Korea

Major products

Coatings for Plastics, PCM Coatings, Industrial Coatings, Heavy Duty Coatings, Construction Coatings, Surface Treatment Agents, etc.



Aekyung BioPharm

81 Sanggae-ro, Nam-gu, Ulsan-si

Major products

OMEGA-3, API, Dietary Supplement, etc.



Aekyung Jungbu Country Club

451 Gyeongchungdae-ro, Gonjam-eup, Gwangju-si, Gyeonggi-do

Major Business

Golf course operation



Aekyung Chemical (Hongkong) Co., Ltd.

Kai Tak Commercial Building 161 Connaught Road Central, Hong Kong

Major Business

Trading



AK VINA

Go Dau Industrial Zone, Long Thanh District, Dong Nai Province, Vietnam

Major products

PCM Coatings, Surfactants, etc.



Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System**
- Materiality Assessment

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

THE! We create a better world with more unique chemical solutions.

THE Management System

THE ! Aekyung Chemical Management Policy

THE! Aekyung Chemical's management policy, represents "Together with Environment," "Happy Society," and "Equitable Governance."

With the slogan of "Better," we declare our goal to build a "Better" world, based on ESG-focused strategies, by coexisting with the environment, creating a happy society, and establishing fair governance.



Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System**
- Materiality Assessment

**Environment:
Together with Environment**

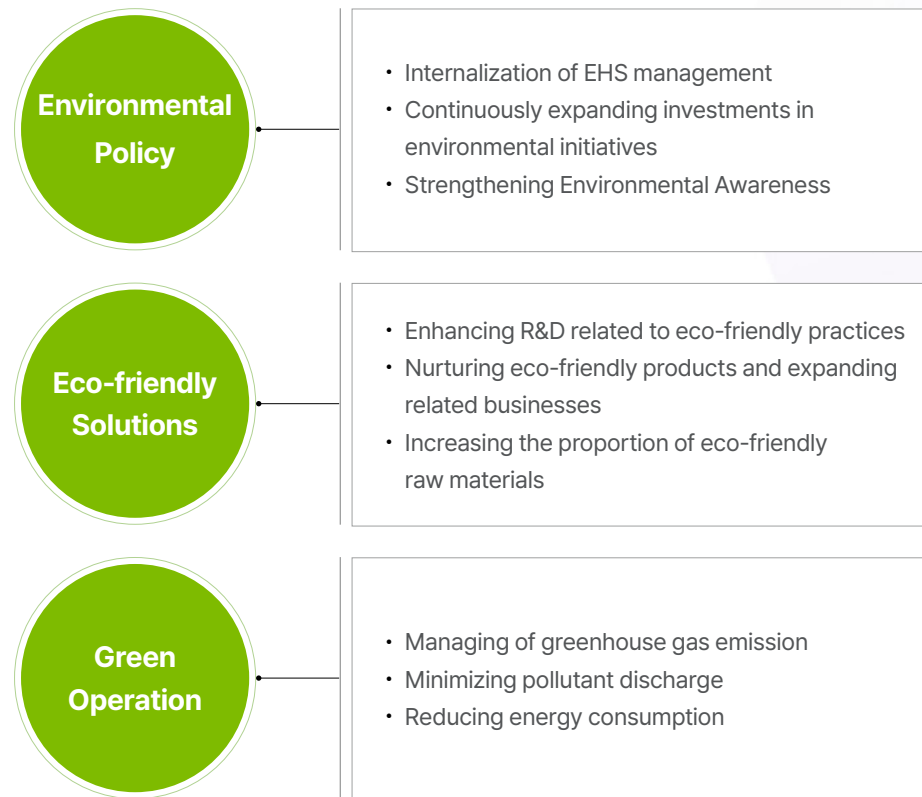
**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Together with Environment

Coexistence with the environment.



T Together with Environment



Aekyung Chemical is aligning its business with the global carbon-neutral trend and working towards a sustainable business structure under the ESG management policy. We are internalizing EHS management, strengthening environmental awareness, and establishing resource circulation systems. We are enhancing our sustainable product portfolio by researching and developing eco-friendly technologies and products.

Furthermore, Aekyung Chemical continues to invest in initiatives such as reducing energy consumption and minimizing environmental pollutant emissions, actively promoting eco-friendly management for carbon emission reduction.

Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System**
- Materiality Assessment

**Environment:
Together with Environment**

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Happy Society

Creating a happy society



Happy Society



Aekyung Chemical strives to create a happy society by ensuring diversity and a fair organization where all employees can demonstrate their abilities. The company endeavors to create a sustainable and safe working environment through safety and health initiatives. It also fulfills its corporate social responsibility by implementing ethics and human rights management systems, ensuring the prevention of any violations in this regard.

Aekyung Chemical actively engages in community contributions, supports various social groups, and conducts continuous environmental protection activities. We have fostered a corporate culture where all employees participate in social contribution activities.

Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System**
- Materiality Assessment

**Environment:
Together with Environment**

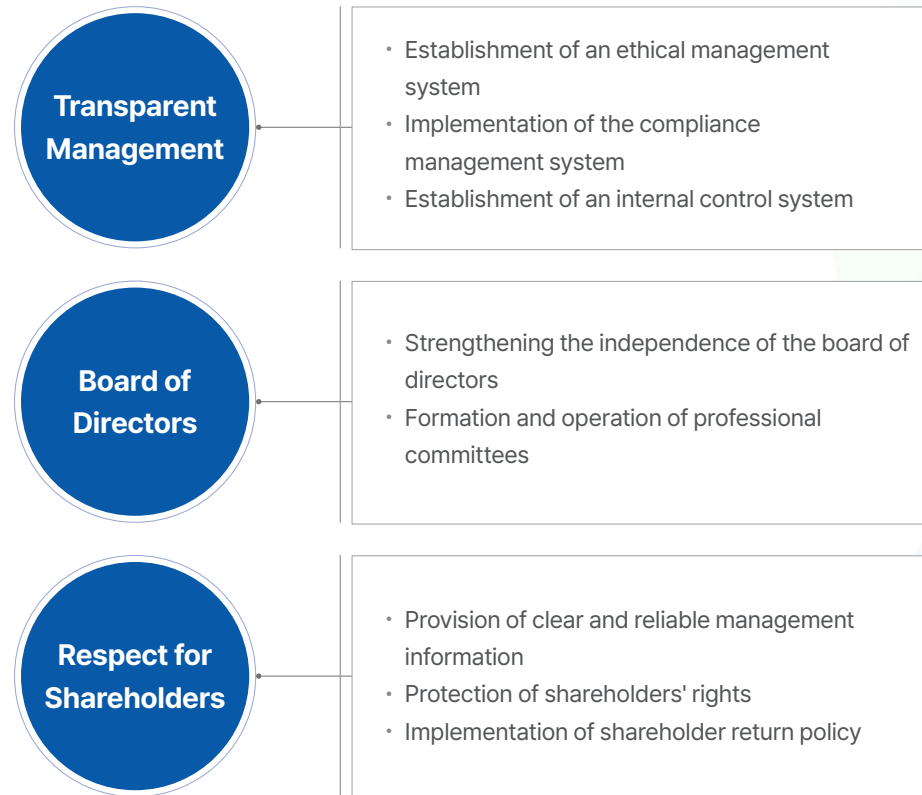
**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Equitable Governance

Establishing fair governance



E quitable Governance



Aekyung Chemical strives to create a fair governance structure for sustainable management. We have established an ethical management and compliance system to provide transparent and reliable management information. Through voluntary compliance with fair trade practices, we reduce the risk of legal violations and enhance external credibility. Moreover, we are committed to protecting the rights of stakeholders through the introduction of systems that facilitate shareholders' exercise of their rights.

Aekyung Chemical operates a sound and stable governance structure and continuously endeavors to build a more balanced governance system.

Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System
- Materiality Assessment**

**Environment:
Together with Environment**

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Materiality Assessment

In 2022, Aekyung Chemical conducted a materiality assessment to identify the key issues for sustainable management in accordance with the Global Reporting Initiative (GRI) Standards, through which we figured out issues that stakeholders were interested in and established our sustainable management strategies.

We also performed internal and external analysis of our business activities, media analysis, and evaluations of global ESG management initiatives and systems to identify fundamental ESG issues. Additionally, a comprehensive analysis of stakeholder surveys was conducted to assess the significance of these issues.

Materiality Assessment Process

Step1. ESG Issues

Twenty ESG fundamental issues were selected through various means, including internal and external business analysis, media analysis, and benchmarking with similar industries.

Benchmarking	Analysis of ESG management issues in similar industries and leading ESG companies
Media research	Analysis of online articles related to Aekyung Chemical's ESG management issues (117 articles, From January 1, 2022 to December 31, 2022)

Step2. Identification and Analysis of Ongoing Impact

We have examined the impact of the fundamental ESG issues on the company's overall business activities, including its economic and environmental aspects.

Step3. Stakeholder Survey

Aekyung Chemical surveyed key stakeholders to select important issues for sustainable management. To identify significant issues from both stakeholder and business perspectives, double materiality assessment was conducted. The survey covered three main themes: "Environment," "Society," and "Governance," and used a 5-point scale to assess their importance, which was then used in the materiality assessment.

* Double-materiality: Adopting the concept of Dual Materiality Assessment from the EU Corporate Sustainability Reporting Directive (CSRD), Aekyung Chemical considered significant issues based on the mutual impact between the company and society. This approach takes into account not only the company's impact on the environment and society but also its impact on financial performance and company value. By considering various perspectives from different stakeholders, the materiality assessment can reflect more comprehensive view.

Survey period	From April 19, 2023 to April 28, 2023
Survey method	Online survey
Survey content	Evaluation of stakeholder interest and financial impact for each ESG issue to assess their significance and impact

Survey results

Category	Target	Survey recipients	Response rate
Internal Stakeholders	Employees	All employees	60%
	Group affiliates	Aekyung Industry, Jeju Air	100%
External Stakeholders	Shareholders	AK Holdings	100%
	Partner companies	Suppliers and customers	100%
	External experts	Professors, research institutions, etc.	100%

Step4. Materiality Assessment Results

We performed a double materiality assessment, analyzing the impact of its business on the environment, society, and financial performance. Through integrating the evaluation results, the company identified key issues. These determinations took into account both 'Stakeholder Interest' and 'Business Importance,' enabling prioritization of the identified issues, resulting in four major issues.

Introduction

- CEO Message
- Company Overview
- Business Overview
- THE Management System
- Materiality Assessment**

Environment:
Together with Environment

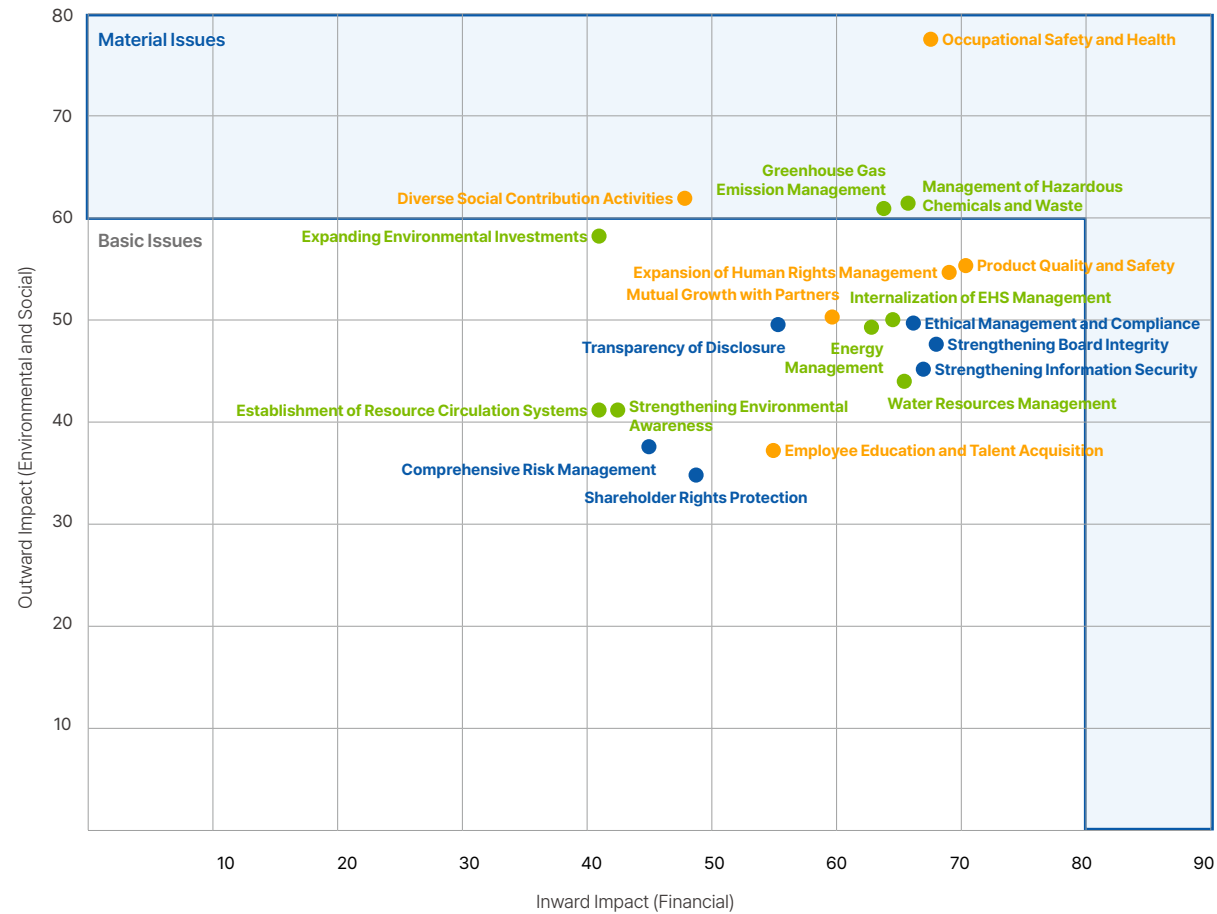
Society:
Happy Society

Governance:
Equitable Governance

Appendix

Materiality Assessment Results

Aekyung Chemical has identified 4 major issues considering both the outward impact on the environment and society and the inward impact on financial performance.



Category	Environment	Society	Governance
Material Issues	<ul style="list-style-type: none"> Greenhouse Gas Emission Management Management of Hazardous Chemicals and Waste 	<ul style="list-style-type: none"> Occupational Safety and Health Diverse Social Contribution Activities 	<ul style="list-style-type: none"> N/A
Basic Issues	<ul style="list-style-type: none"> Internalization of EHS Management Strengthening Environmental Awareness Expanding Environmental Investments Energy Management Water Resources Management Establishment of Resource Circulation Systems 	<ul style="list-style-type: none"> Product Quality and Safety Talent Acquisition and Development Expansion of Human Rights Management Mutual Growth with Partners 	<ul style="list-style-type: none"> Strengthening Board Integrity Shareholder Rights Protection Ethical Management and Compliance Comprehensive Risk Management Strengthening Information Security Transparency of Disclosure

Internalization of EHS Management	26
Strengthening Environmental Awareness	31
Expanding Environmental Investments	32
Management of Hazardous Chemicals and Waste	40
Water Resources Management	42
Energy Management	43
Greenhouse Gas Emission Management	44
Establishing a Virtuous Cycle System	46

Together with Environment



Introduction

**Environment:
Together with Environment**

Internalization of EHS Management

- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Internalization of EHS Management

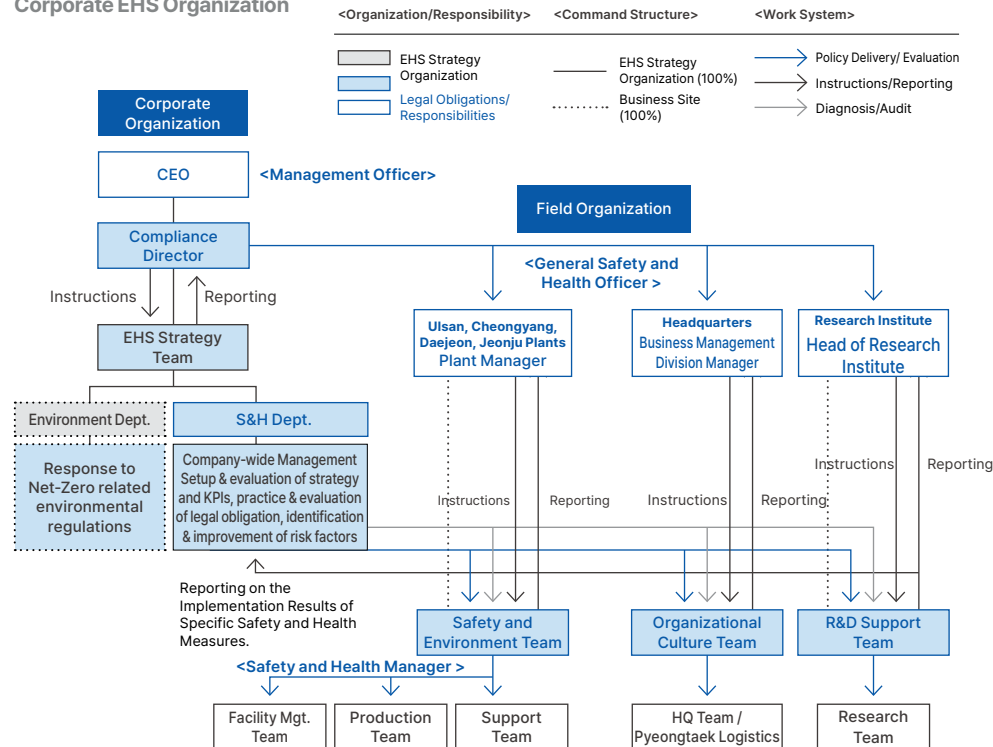
EHS Management System

Aekyung Chemical continuously have improved its EHS(Environment, Health, and Safety) management system and has set targets to conduct key tasks with a goal of "Zero EHS & Compliance Issues" to accomplish for a sustainable future. Also, we have established and implemented challenges to become a 'Global leader in the chemical industry creating a sustainable future value' through continuous efforts enhancing practical environmental management system.

EHS Organization

EHS stands for Environment, Health, and Safety, representing a specialized EHS management organization within Aekyung Chemical. This dedicated team operates directly under the CEO's supervision. The EHS committee plays a central role in presenting major issues to the management meetings and engaging in systematic decision-making processes. The committee implements policies to address various EHS issues, such as minimizing air pollution, managing chemical substances, controlling greenhouse gas emissions, and ensuring safety in all aspects of business activities, ultimately striving for zero EHS incidents.

Corporate EHS Organization



EHS Management Policy

The EHS Committee prioritizes EHS management as the foremost business activity for ensuring safety and environmental preservation through safe and eco-friendly production activities for all employees and the local community. Moreover, the committee aims to practically support issues relevant to the company-wide environment, safety, and health by identifying and managing EHS issues with a vision to realize safe and happy workplace.

EHS is the top priority concern throughout all management activities

EHS is the top priority concern throughout the entire process from product design, manufacturing, use, storage, and disposal, and the company shall strive to develop safe and eco-friendly products.



Instillment of EHS mindset for all employees

The company shall support and encourage EHS training and ensure instillment of EHS mindset through regular inspection.

Establishment of working environment in compliance with EHS

The company shall pre-determine hazard/risk factors and actively execute accident prevention activities, and establish a pleasant and safe working environment.

Establishment and continuous improvement of EHS management system

The company shall establish and operate an EHS system suitable for the company and continue to respond and improve according to the internal and external environmental changes.

Strict compliance with laws and regulations related to EHS

The company shall establish and operate an internal process to strictly comply with laws and regulations related to EHS, and regularly inspect the execution of such compliance.

Introduction

**Environment:
Together with Environment**

**Internalization of EHS
Management**

- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

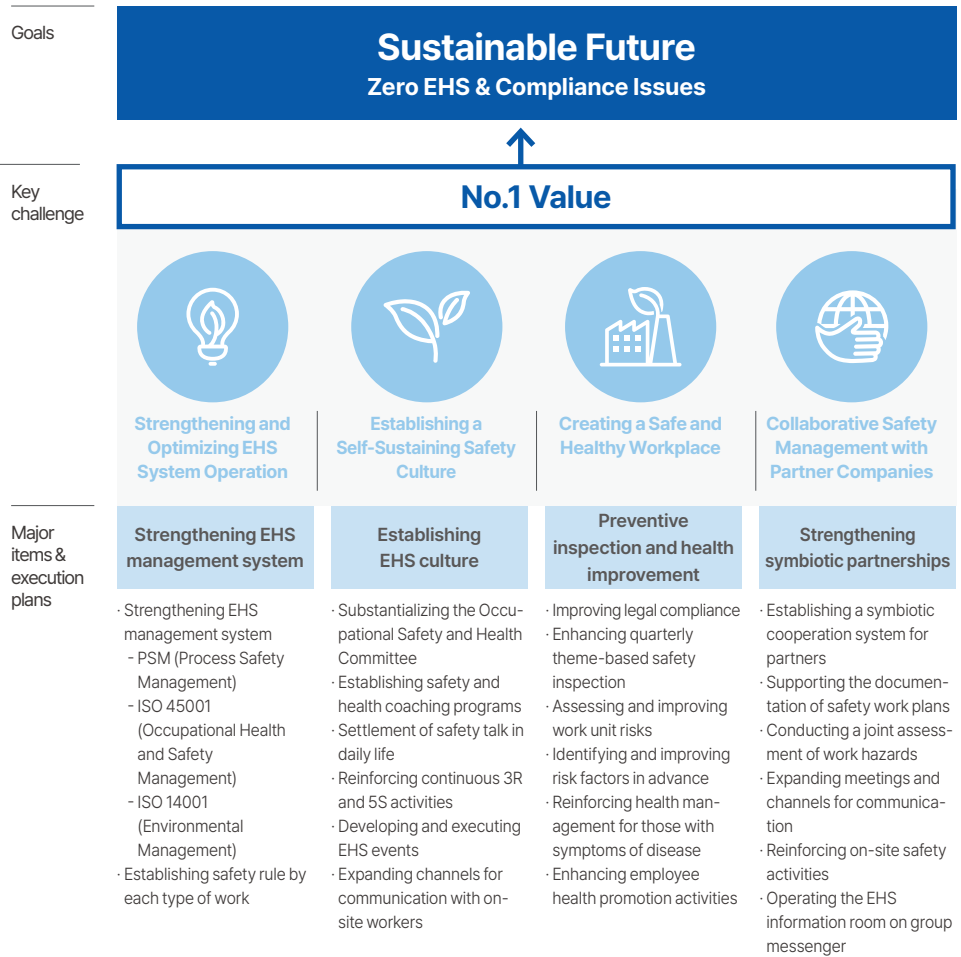
**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Key EHS Challenges and Execution Plans

Aekyung Chemical aims to achieve the goal of "Zero EHS & Compliance Issues" through key challenges such as "Strengthening and Optimizing EHS System Operation," "Establishing a Self-Sustaining Safety Culture," "Creating a Safe and Healthy Workplace," and "Collaborative Safety Management with Partner Companies."



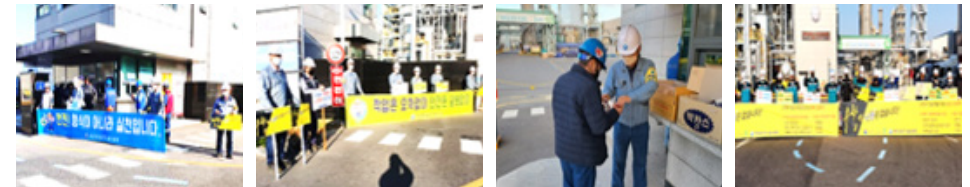
Key EHS Activities

Aekyung Chemical has successfully implemented the EHS management system based on the EHS management policy. Also, Aekyung Chemical makes efforts to reinforce mutually beneficial partnerships by establishing autonomous safety system through settlement of EHS culture and enhancing safety management with partner companies to coexistence. Continuous EHS education and periodic inspections are provided to foster the establishment of an EHS mindset. In addition, we actively conduct activities for accident prevention by identifying hazard and risk in advance, and take initiative for establishing a clean and safe work environment.

Deployment of Visual Safety Activities at Ulsan Plant



Conducting Safety Campaigns with Partner Companies



Media

Aekyung Chemical Advances Towards Accident-Free Sites

Aekyung Chemical has prioritized the EHS management policy and established processes for accident prevention at all business locations, including the Ulsan, Cheongyang, and Jeonju plants and Daejeon R&D Center. Aekyung Chemical is particularly focused on enhancing safety awareness through various campaigns. We carry out various activities to secure safety, such as ΔMonthly operation of the "Safety Committee" for accident prevention, Δweekly "Lead by Example 5S" campaign for all employees to organize the workplace and keep it clean, ΔQuarterly safety accident prevention campaigns conducted with partner companies, Δ"Visual Safety" that promotes the exhibition of confined space tripods and fall prevention guidelines, and Δ"Valve, Flange, and Switch Campaign" within the plant to reduce risk factors by inspecting valves and switches.

Introduction

Environment:
Together with Environment

Internalization of EHS
Management

Strengthening Environmental
Awareness

Expanding Environmental
Investments

Management of Hazardous
Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission
Management

Establishing a Resource
Virtuous Cycle System

Society:
Happy Society

Governance:
Equitable Governance

Appendix

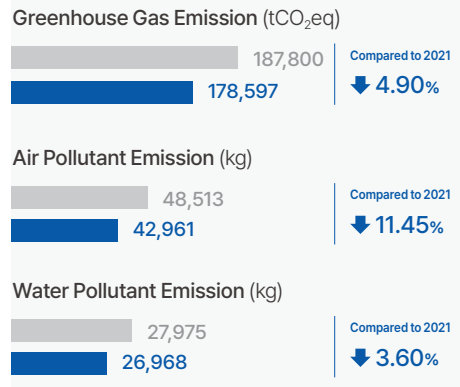
EHS Management Activities

Goals and Achievements

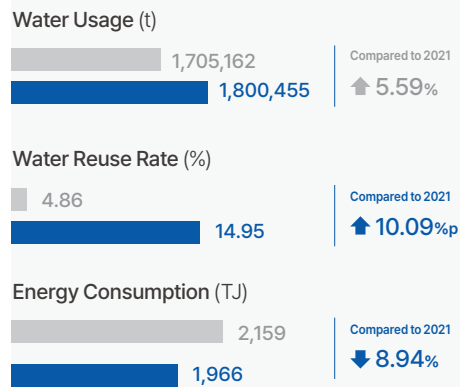
Aekyung Chemical is committed to company-wide environmental management to reduce greenhouse gas emissions and to minimize environmental impact. EHS strategy team deals with agendas for board meeting and other management meetings. And also, the team responds to climate change issues such as harmful substances, energy, and waste management which are caused in the whole business through prompt decision-making. Aekyung Chemical recognizes the increasing importance of corporate roles and responsibilities, and will continuously implement environmental management by establishing quantitative goals.

Key Achievements in 2022 by Sector

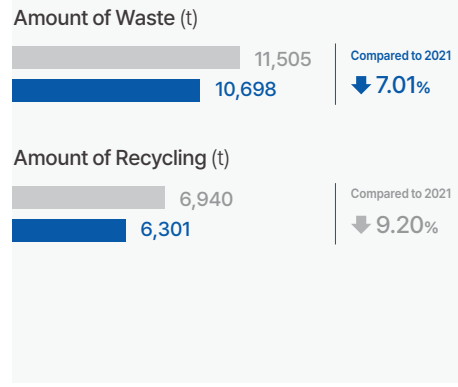
Management of Pollution Substances



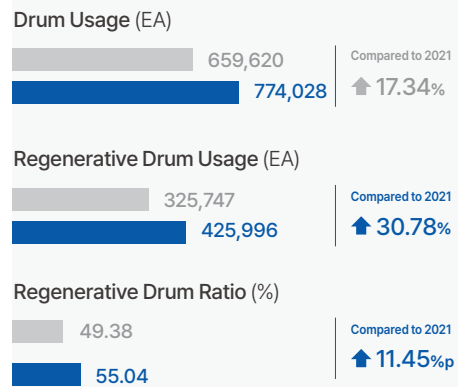
Energy Management



Waste Disposal and Recycling



Use of Regenerative Drum



Status of major EHS-related Certifications

As the emphasis on EHS management has increased, both financial and non-financial factors are being considered in the corporate evaluation process. Improvements in non-financial indicators such as environmental, safety, and quality have enhanced the capabilities of products and services. As a result, Aekyung Chemical has obtained the following ISO certifications:



ISO14001

This standard pertains to environmental management, where companies establish policies and objectives to minimize the impact of their products or services on the environment. Through environmentally conscious management activities, companies can achieve certification as environmentally friendly organizations by the International Organization for Standardization (ISO).

ISO45001

This standard is related to occupational health and safety management. It certifies that companies or organizations meet the requirements for industrial health and safety management for workers, as set forth by the International Organization for Standardization (ISO).

ISO9001

This international standard is for quality management systems. It aims to improve the quality of a company's products and services and increase customer satisfaction, as certified by the International Organization for Standardization (ISO).

Introduction

**Environment:
Together with Environment**

**Internalization of EHS
Management**

Strengthening Environmental Awareness

Expanding Environmental Investments

Management of Hazardous Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission Management

Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Investment

Aekyung Chemical is actively investing in various environmental activities, such as developing eco-friendly products/technologies, optimizing energy, and reducing environmental pollutants. To reduce carbon emissions, we are increasing our environmental management investments and transitioning to an eco-friendly company.



Development of eco-friendly technology and product

- Establishing dedicated equipment for resource recycling in plasticizer production
- Constructing and installing tanks for storing reaction byproduct



Optimization of energy use

- Building infrastructure for energy management systems
- Introducing high-efficiency devices
- Replacing lighting with LED fixtures
- Establishing solar power generation facilities at various locations (Cheongyang, Ulsan, etc.)

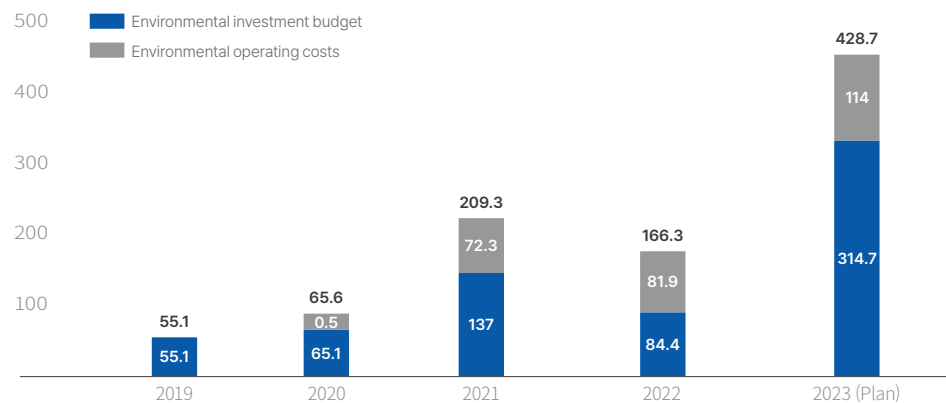


Reduction of environmental pollutants

- Installing a Regenerative Thermal Oxidizer (RTO) to prevent air pollution
- Installing facilities to prevent odor emissions
- Replacing burners with low NOx emissions, etc.

Environmental management investment

(Unit: Million KRW)



Education Status

Aekyung Chemical is committed to conduct 'EHS Education' for all employees, aiming to elevate their understanding of EHS and underscore the significance of addressing environmental issues. The company consistently carries out a comprehensive range of education programs, including regular internal education sessions such as routine safety and health training, specialized safety education, and external training for safety and health management officers and supervisory personnel. Furthermore, Aekyung Chemical invites external instructors to conduct specialized training to reinforce safety awareness and enhance expertise in risk assessment. We are dedicated to ongoing efforts to fortify EHS education.

EHS Environmental Education and Training



In-house Training

- Regular safety and health education
- New employee orientation training
- Specialized safety training



External Training

- Refresher training for safety and health management officers
- Refresher training for safety managers
- Supervisor training



Training by External Instructors

- Training on reinforcing safety awareness
- Specialized training in risk assessment
- PSM renewal review



Other

- Safety and health education for partner companies
- Comprehensive emergency response training
- Confined space training
- Emergency evacuation training (leakage)

Introduction

**Environment:
Together with Environment**

**Internalization of EHS
Management**

Strengthening Environmental Awareness

Expanding Environmental Investments

Management of Hazardous Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission Management

Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Green Initiative 3050

Aekyung Chemical strives to align with the global carbon-neutral trend under the ESG management policy. We are planning to innovate our business and system with the slogan 'Green initiative 3050' for a sustainable growth. In pursuit of eco-friendly management, Aekyung Chemical aims to achieve several targets by 2030: 50% of total sales from eco-friendly products, 50% share of eco-friendly raw materials usage, and 50% reduction in carbon emissions compared to 2021, to reform into an eco-friendly enterprise. We have difficulties in achieving a carbon-neutral state as a chemical based manufacturing industry which heavily relies on petroleum-based raw material for production, but we are planning to expand use of biomass and regenerative material through continuous enhancement of research and development. Furthermore, we aim to strengthen our portfolio of eco-friendly products, reduce energy consumption, and minimize environmental pollutant emissions to fully realize eco-friendly management.

Green Initiative 3050

Aekyung chemical Eco



Green Initiative 3050

Decisive investment with innovative change of business and system for a sustainable growth




Objectives	 Share of eco-friendly product sales Achieving 50%	 Share of eco-friendly raw materials Achieving 50%	 Amount of carbon emissions Achieving 50%
Tasks	Diversify the product portfolio with bioenergy and circular economy products	Expanding the use of biomass and recycled materials	Adopting energy-saving and carbon emission-reduction technologies
Execution strategies	<ul style="list-style-type: none"> Expanding and diversifying the use of bio-based raw materials Increasing sales of products that do not use harmful substances Enhancing research on advanced and foundational technologies 	<ul style="list-style-type: none"> Establishing a global raw material supply network Enhancing research and development of natural raw materials Recycling of products to raw material 	<ul style="list-style-type: none"> Expanding the use of high-efficiency and low-power equipment Minimizing energy losses in processes Implementing real-time monitoring for management of carbon emission

Environmental Management Investment

Continuous expansion of investment in eco-friendly technology/product research and development, energy-saving facilities, and reduction of Pollution substances

ESG Management Policy

Together with Environment

 Environmental Policy	 Eco-friendly Solutions	 Green Operation
<ul style="list-style-type: none"> Achieving Green Initiative 3050 Continuous expanding of eco-friendly investments 	<ul style="list-style-type: none"> Strengthening research and development in eco-friendly technologies Promoting eco-friendly products and expanding business opportunities 	<ul style="list-style-type: none"> Minimizing pollutant emissions Reducing energy consumption and greenhouse gas emissions

Introduction

**Environment:
Together with Environment**

Internalization of EHS Management

Strengthening Environmental Awareness

Expanding Environmental Investments

Management of Hazardous Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission Management

Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Strengthening Environmental Awareness

Environmental Compliance Management System

Aekyung Chemical constantly keeps monitoring on environment-related regulations and implementing to identify whether subject to inspection and examination of compliance for each plants. We obtained integrated environment permit for Ulsan, Cheongyang 1, Cheongyang 2, and Daejeon plants based on the integrated environmental management system which is implemented in Korea from 2022. According to the system, we are improving our environmental pollutant monitoring system and emission facilities. Additionally, our major business sites maintain an application rate of 85% or higher for Best Available Techniques (BAT)* for emission and prevention facilities management.

Environmental Compliance Verification Process

Aekyung Chemical periodically conducts self-measurement of air and water pollutants to minimize and manage pollutants which are able to be generated in plants. For major facilities, TMS(Tele Monitoring System) are installed and monitor concentration of air pollutants for 24 hours in real time. Also, we are establishing and managing operation and measurement method to minimize emission of environmental pollutants when the condition of operation changed due to startup or shutdown of process. To prevent leakage of soil pollutants from storage tanks, containment booms and reinforced concrete floors are built as measurements. Also, level of soil contamination is monitored and examined once every two years.

Response to Violations

Aekyung Chemical is complying with regulations by actively responding to recent strengthened environmental regulations. We continuously monitor various environmental regulations and policies at our major business sites. In cases of violations, we establish measures against recurrence to prevent occurrence of same violations in the future.

* Best Available Techniques (BAT): A management method that effectively minimizes the emission of pollutants and other substances along with feasibility of technical and economical.

Strengthening Environmental Awareness Activities

Participation in Chemical Safety Community

Aekyung Chemical is actively involved in the Chemical Safety Community Council in the Cheongyang region, organized by the Geumgang Basin Environmental Agency. The council comprises of 25 participating companies that handle hazardous chemicals in the Cheongyang area, and they have entered into an agreement for chemical accident prevention and joint response. The council members collaborate on developing joint emergency response plans, sharing resources in the event of a chemical accident, providing environmental safety education, and offering technical support to enhance the region's capacity for preventing chemical accidents. Aekyung Chemical will constantly strive to enhance collaboration with the Chemical Safety Community for establishing safe environment from chemical accidents for the company and residents.



Ulsan Plant Received the Nakdong River Basin Environmental Officer Award

Aekyung Chemical has been recognized for its outstanding efforts in preventing environmental accidents. To prevent accidents, we conducted a campaign that includes voluntary inspections of high-risk equipment, such as valves, flanges, and switches. Additionally, we have been recognized for our outstanding campaign efforts by installing shatter-proof safety covers for equipment which is used in handling hazardous chemicals to prevent accidents. These proactive initiatives led to Aekyung Chemical receiving an award from the Geumgang River Basin Environmental Agency for our commendable campaign efforts.



Introduction

**Environment:
Together with Environment**

Internalization of EHS
Management

Strengthening Environmental
Awareness

**Expanding Environmental
Investments**

Management of Hazardous
Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission
Management

Establishing a Resource
Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

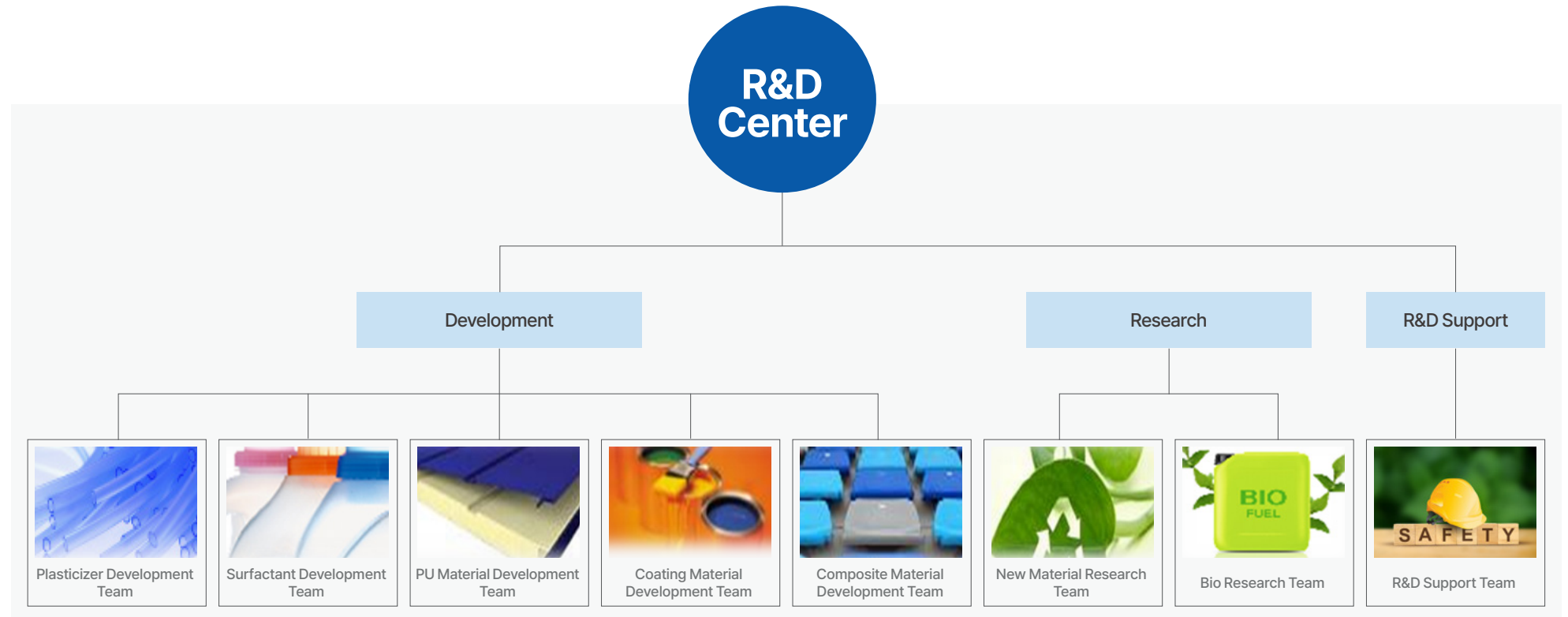
Appendix

Expanding Environmental Investments

About R&D Center

Aekyung Chemical's Research and Development (R&D) Center is divided into two fields: one focuses on developing products used in various industries, ranging from basic chemical materials to daily necessities and advanced materials, while the other explores and researches new processes and bio-materials by continuously examining mega-trends. In the development field, we are developing fine chemistry materials from Plasticizers and Surfactants which are closely related to everyday life, to Polyol, Unsaturated Polyester Resin for Composite materials, Coating Resins, and Polyisocyanate Hardeners which are utilized in industry. Furthermore, we strive to enhance the sustainability of products in rapidly changing industries through eco-friendly and high-functional solutions.

Moreover, we are expanding our scope to become a global research and development center by extending product development and technical support to overseas subsidiaries. In the research sector, we are making efforts to research new processes and materials, such as hydrogenation and chlorination, to enhance existing products and secure foundational technologies that can create new businesses. Particularly, the newly established Bio Research Team in December 2022 is laying the foundation for our eco-friendly growth momentum by conducting research on biological process technologies, including next-generation bioenergy and environmentally-friendly thermal decomposition processes utilizing bio-mass, fermentation, and enzyme usage for efficient material manufacturing.



Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments**
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

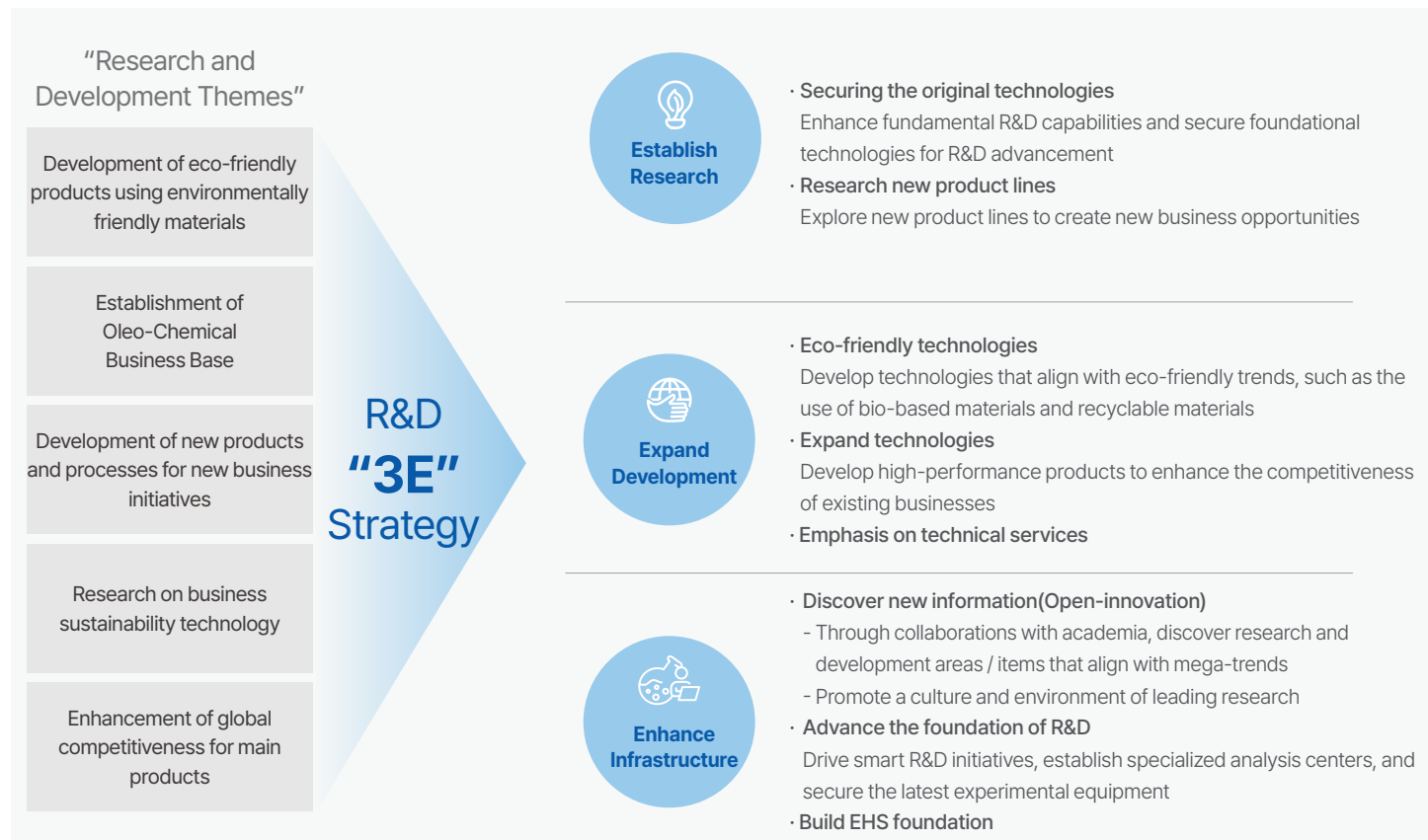
**Governance:
Equitable Governance**

Appendix

Mid-to-Long-Term R&D Strategy for Transitioning into an Eco-Friendly Company

Amidst global efforts to address climate change, policies for carbon neutrality and circular economy are gaining momentum. Consumers' interest and demand for eco-friendly products are also on the rise. Aekyung Chemical has set a mid-to-long-term R&D direction based on environmental strategy of the company. Specifically, in the research and development division, we have identified five key themes to lay the groundwork for transitioning into an eco-friendly company and are continuously investing in research and development.

R&D Themes and Mid-to-Long-Term R&D Strategy



Media

Expansion of Eco-friendly R&D through Open Innovation



Aekyung Chemical is driving open innovation to secure eco-friendly technologies that can serve as future growth engines. In November 2022, we signed a business agreement with the Korea Research Institute of Bioscience and Biotechnology for joint research in the field of eco-friendly biochemical materials. Through this collaborative research, Aekyung Chemical aims to develop a variety of plant oil-based reaction processes and high-purity refinement and utilization technologies.

Introduction

**Environment:
Together with Environment**

Internalization of EHS Management
Strengthening Environmental Awareness
Expanding Environmental Investments
Management of Hazardous Chemicals and Waste
Water Resources Management
Energy Management
Greenhouse Gas Emission Management
Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Research Fields and Development Content

Category	Type/Field	Research & Development Content	Eco-friendly Research Content
Plasticizer	Plasticizer, Lubricant Base Oil	We are researching ester compounds used as Plasticizers in PVC materials which can be founded in daily lives, such as wallpaper, automobiles, and leather, and Lubricant base oil that can reduce friction of machinery.	New bio-based Plasticizer and Lubricant base oil
Surface material	Surfactant, Polymer Material	We are developing various ionic surfactants, such as anionic surfactants with cleaning capabilities applied to industrial and household products, cationic surfactants with antistatic function, and polymer-based cosmetic materials.	Bio-derived Surfactant, Cosmetic ingredients using an enzyme catalyst
Pu material	Polyol system, Polyisocyanate Hardener	We are developing polyester polyols used as raw materials for polyurethane insulation panels for sandwich panels and LNG vessels and polyisocyanates used as hardeners for automotive repair paints and woodworking urethane paints.	Bio-based Polyol system, Bio-based hardener with eco-friendly process
Coating material	Acrylic/Alkyd/Polyurethane Resin, Water-based Resin, UV Resin, Contact Adhesive	Using various polymer synthesis technologies, we provide materials and solutions suitable for applications such as automobiles, electronic materials, and paints. In particular, we focus on research on high-value-added electronic material components such as adhesives for displays and semiconductor processes.	Bio-based Alkyd, Water-based Resin, Solvent-free Adhesive, Room temperature curing Resin
Composite material	Unsaturated Polyester/Vinyl Ester Resin, Prepreg, Carbon SMC	We are developing unsaturated polyester and vinyl ester resins used for lamination, flame retardants, marbles, etc., and are researching lightweight, high-functionality, and eco-friendly composite materials.	Unsaturated Polyester based on Biomass/ Recycled Plastics
New material	Chlorination/Hydrogenation Technology, Resin Recycling	By researching new products with new technology, we focus on securing original technologies to enhance existing developments and to find opportunities for new businesses.	Upcycling of Thermosetting Resin, Carbon Reduction Process
Bio	Fermentation/Enzyme Process, Environmentally Friendly Pyrolysis Process using Biomass	Our bio research is on promising future biofields, developing eco-friendly biomaterials and processes aligning with megatrends, and driving cooperation with our developments.	Bioenergy, Bio-platform Compounds, Biochemical Materials

Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments**
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

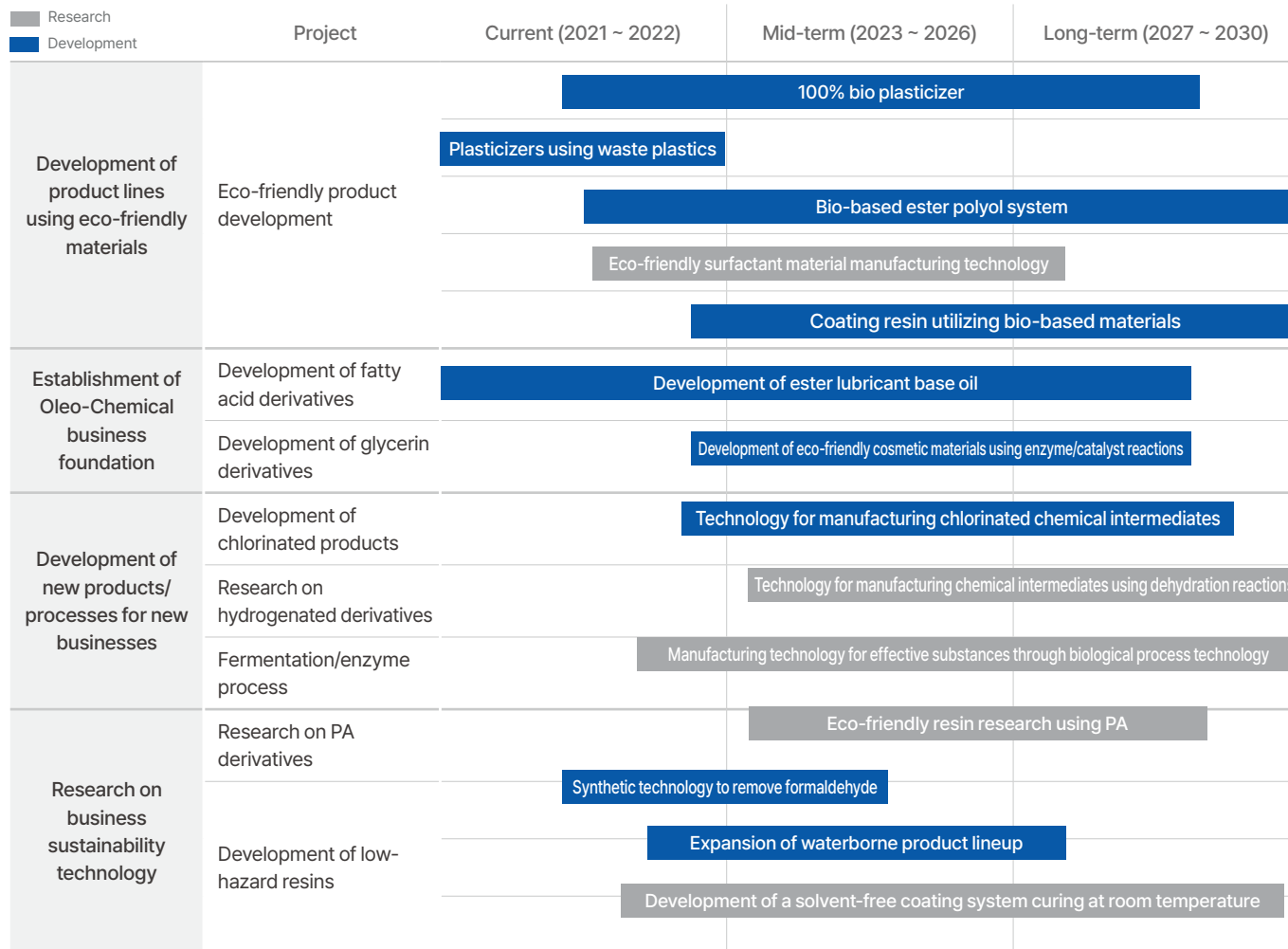
**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Long-term Roadmap for Eco-friendly R&D

We are preparing for the future by enhancing the global competitiveness of our main products to ensure the sustainability of our business and by carrying out eco-friendly R&D themes. In addition, we aim to expand and internalize the field of eco-friendly technologies in the long term through open innovation with academia and industry.



Eco-friendly Items by R&D Stage at Aekyung Chemical in 2022

The R&D process of Aekyung Chemical is divided into basic research, experimentation, practical application (pilot certification), and productization (verification). The eco-friendly items for each stage of R&D in 2022 are as follows:

Stage	Eco-friendly items
Basic Research	<ul style="list-style-type: none"> Cosmetic materials using enzyme catalysts Bio-based polyol system
R&D	<ul style="list-style-type: none"> 100% Bio-based Plasticizer Lubricant base oil based on plant-derived fatty acids
Practical application (Pilot Certification)	<ul style="list-style-type: none"> Solvent-free type adhesive Bio-mass based fully decomposable fertilizer coating resin
Productization (Verification)	<ul style="list-style-type: none"> Resource-circulating Plasticizer using waste plastics

Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments**
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Eco-Friendly Products

Aekyung Chemical aims to implement eco-friendly management by expanding its eco-friendly product portfolio. We have set quantitative targets for expanding the proportion of eco-friendly products and reflected them in KPIs for systematic management.

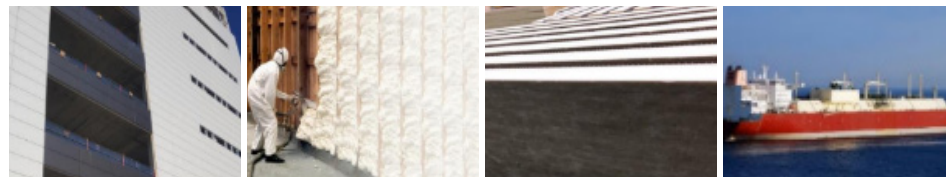
Use of Eco-Friendly Materials

Biomass and waste plastics emit less carbon than petrochemical-based materials. Aekyung Chemical produces various eco-friendly products, such as lubricant base oil using biomass materials, plant-derived surfactants, biofuels, and glycerin.



Contribution to Self/Client Carbon Reduction

To implement eco-friendly management, all industries are working to reduce carbon emissions. Aekyung Chemical is also encouraging eco-friendly management of own company and clients by developing products that can reduce the carbon emitted during the process, such as low-temperature and UV curing resins. In addition, we aim to contribute to carbon reduction in the industry by developing insulation materials that can be applied to zero-energy buildings and passive houses.



Reduction of harmful and toxic substances

As environmental standards are globally strengthened, the categories of harmful/toxic substances are being minimized. Aekyung Chemical imparts product sustainability by developing technology under strengthened regulations. We have configured Polyisocyanate Hardener, which greatly reduces the residual amount of unreacted Isocyanate which have an inhalation toxicity, and 1,4-Dioxane, a Carcinogen, and Anionic Surfactants as eco-friendly premium products.

Substitution/Non-Use of Harmful/Toxic Substances

The needs of products which are produced using alternative material are increasing because it can make negative impacts on the environment if harmful/toxic substances are improperly used and carelessly managed. Aekyung Chemical owns waterborne resin products that replace chemical solvents with organic solvents the automobile and paint industries, which are strictly regulated for harmful/toxic substances. Furthermore, we are also developing solvent-free type adhesives.



Key indicators

263 thousand tons

508.7 billion KRW

Sales of eco-friendly products in 2022

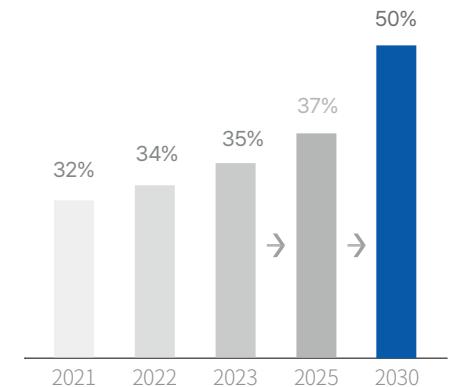
ISCC PLUS, RCS certifications

Resource-circulating plasticizers using waste plastics
Unsaturated polyester resin using waste plastics

Expand waterborne resin products

Waterborne alkyd resin, waterborne acrylic resin, waterborne urethane resin, acrylic-urethane hybrid resin, emulsion resin

Eco-friendly products



Based on product sales

Introduction

Environment:
Together with Environment

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

Society:
Happy Society

Governance:
Equitable Governance

Appendix

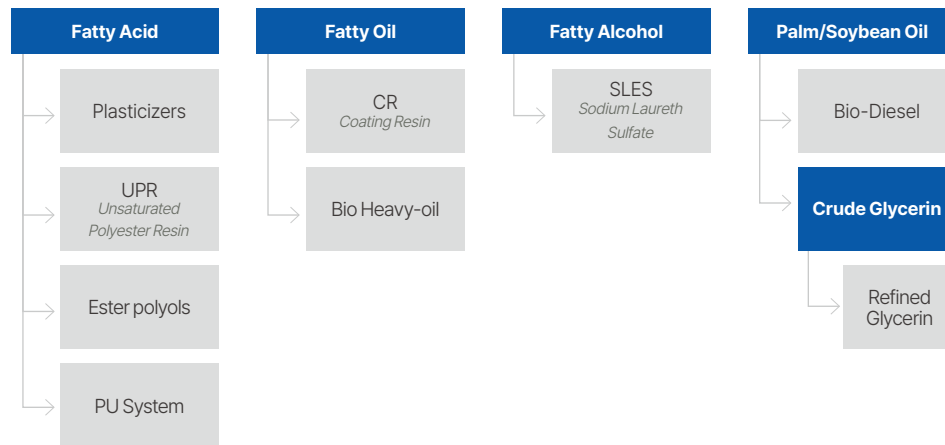
Eco-friendly Raw Materials

Aekyung Chemical aims to practice eco-friendly management by gradually increasing the use of eco-friendly raw materials. Eco-friendly raw materials include biomass as a method of carbon-neutral, and recycled plastic are classified to manage.

Biomass-Based

While petrochemical raw materials generate a large amount of carbon during the manufacturing process, biomass has the advantage in terms of using carbon from the air during photosynthesis, and it makes biomass getting spotlights as a sustainable resource for carbon neutrality. Aekyung Chemical uses vegetable oil for biofuel, Lauryl alcohol for surfactant manufacturing, and Glycerin, a by-product of biofuel production, as eco-friendly raw materials.

Biomass raw materials used in Aekyung Chemical products



RSPO Certification

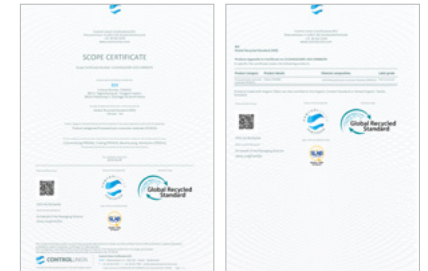
Aekyung Chemical participates in a goal to strictly comply with environmental protection and sustainability principles at all stages of the palm industry through the 'RSPO (Roundtable on Sustainable Palm Oil)' system, an international eco-friendly certification related to palm, and also strive to create a virtuous cycle of value. We have obtained RSPO certification for Glycerin and surfactant raw materials, which are major raw materials for consumer chemical products and is expanding to the Ulsan plant in South Korea in 2020 and the AK VINA corporation in Vietnam in 2022.



RSPO Certification

Recycling based on Petrochemical

As part of resource circulation, plastic waste is being recycled in the product manufacturing process of various industries. Aekyung Chemical produces eco-friendly products using certified waste PET as a raw material.



GRS Certificate for Waste PET

Key indicators

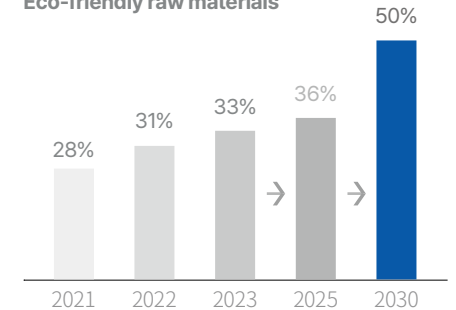
223 thousand tons
Eco-friendly raw materials used in 2022

RSPO certification
Use of glycerin and surfactant raw materials

GRS certification
Use of recycled plastic raw materials

167 thousand tons
Use of biomass raw materials for biofuel

Eco-friendly raw materials



Based on the amount of raw material used in SAP

Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments**
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Development of Eco-friendly Industrial Materials

The transportation and logistics sector accounts for about 20% of the world's carbon dioxide emissions, and various efforts are being made to reduce carbon emissions through policy implementation and the provision of incentives in each country. Biofuels and eco-friendly vehicles are commonly mentioned as key measures to reduce carbon emissions in this sector. Aekyung Chemical is focusing on developing eco-friendly automotive materials to lead the future in line with these changes.

Secondary Battery Materials

Aekyung Chemical is expanding its business area by developing various materials that can improve the efficiency of secondary batteries through continuous technology development.

Hard Carbon

In 2010, Aekyung Chemical became the first company in Korea to develop hard carbon manufacturing technology independently and has consistently supplied Lithium-ion battery (LIB) materials. With the recent expansion of electric vehicles and energy storage systems, hard carbon, which is considered an essential anode material for Sodium-ion batteries (SIB), is gaining attention. Since 2022, Aekyung Chemical has focused on developing new products to achieve performance in line with market needs by organizing a team, the 'Hard Carbon New Business Team'. We are currently conducting validation tests with domestic and foreign battery companies and plan to consolidate its influence with high-performance products in line with the growth of the SIB market.



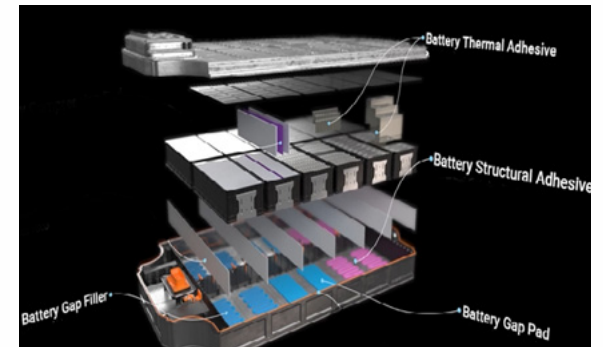
Silicon Anode Binder

As the commercialization of silicon anode materials, known as the next-generation battery materials, is becoming active, many studies are being conducted to solve the problem of expansion of volume of silicon. Using our accumulated know-how in the field of synthetic resins, Aekyung Chemical developed a 'high-capacity silicon-based anode binder' using the eco-friendly solvent, water. Also, this resin has shown improved battery performance by maintaining adhesion and electrode structure even when changes of volume occurred during charging or discharging. We have completed the registration of domestic and foreign patents and are currently conducting application tests with domestic and international companies.



Thermal Adhesive

Thermal adhesive is a key material that prevents overheating of secondary batteries and maintains battery performance stable. Silicone thermal adhesives which are generally used are excellent in cooling performance, but they have insufficient adhesion, which causes cells and modules to shake during electric vehicle driving. In response, Aekyung Chemical has developed modified urethane and Polyisocyanate Hardeners with thermal conductivity and adhesion, enhancing shock and vibration resistance. Currently, we are conducting continuous spec improvement testing with our partners.



Introduction

**Environment:
Together with Environment**

Internalization of EHS Management

Strengthening Environmental Awareness

Expanding Environmental Investments

Management of Hazardous Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission Management

Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

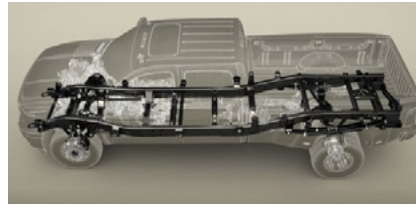
Appendix

Lightweight Materials for Vehicles

In the recent automotive industry, developments for increasing fuel efficiency under the trend of reduction of carbon emissions and reinforcement of environment regulations are in progress. Lightweight materials for vehicles are contributing to improved fuel efficiency, performance, safety, and eco-friendliness. In alignment with this trend, Aekyung Chemical is actively developing many high-performance materials designed specifically for lightweight vehicles.

Prepreg, Carbon SMC

Electric vehicles are approximately 30% heavier than internal combustion engine cars due to incorporation of batteries, the study of reducing vehicle weight is getting active to improve fuel efficiency. Composite materials such as Prepreg and Carbon SMC (Sheet Molding Compounds) are gaining substantial attention as viable materials for vehicle structures and interior/exterior components, owing to their ability to provide a lightweight solution with superior strength.



Automotive Structural Components

The ultra-rapid curing modified epoxy vinyl ester prepreg, a groundbreaking innovation by Aekyung Chemical, possesses the unique capability to substantially reduce the curing time, thereby facilitating a reduction in carbon emissions by optimizing production efficiency. Moreover, the unsaturated polyester resin developed for Carbon SMC has successfully addressed the previously encountered limitations in conventional SMC's curing process, such as harmfulness to human beings (due to odor) and fire risk, thus offering a significantly safer usage environment.

Adhesive for Structure

Structural adhesives can reduce the weight of the car body by eliminating the need for bolts or rivets. The solvent-free, high-functioning, two-component polyurethane adhesive currently under development by Aekyung Chemical is designed to enhance production efficiency by eliminating the need for surface pre-treatment processes. It can save energy by enabling room-temperature curing.

Materials for Energy Storage Tanks

Aekyung Chemical collaborated with East-West D&C (Chemtros) to co-develop a hydrogen transportation and storage container and participated in the hydrogen industry exhibition '2022 H2 MEET' last year. Aekyung Chemical developed a vinyl ester-type binder resin optimized for impregnation and applied it to a lightweight hydrogen storage tank (TYPE4) with excellent internal pressure resistance.



Introduction

**Environment:
Together with Environment**

Internalization of EHS Management

Strengthening Environmental Awareness

Expanding Environmental Investments

Management of Hazardous Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission Management

Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Management of Hazardous Chemicals and Waste

CMS Monitoring System

Aekyung Chemical has introduced a Chemical Management System (CMS*) to efficiently manage chemical information from a Life Cycle perspective, from purchasing to manufacturing and disposing of various chemicals. Moreover, we can systematically manage chemicals in compliance with domestic and international regulations, preventing the misuse of chemicals within the company and contributing to savings in environmental burden costs.

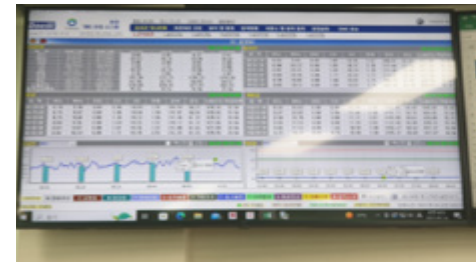
Category	Content
Pre-evaluation management	Pre-evaluation of purchase/product production (automatic MSDS generation)
	Control of purchase/ production (approval of purchase after verifying regulatory compliance)
	Verification of regulatory response information
	Verification of hazardous chemical permit information
Inventory management	Product material inventory
	Verification of quantity, GHS classification, and regulatory information
	Searchable Product Material List
MSDS management	MSDS management/automatic generation/material search (classification of hazardous risks and registration/inquiry/printing/history management of GHS images)
Legal regulation management (Chemical Substances Control Act, Act on the Registration and evaluation, etc. of Chemical Substances))	Guidance on regulatory responses, access to follow-up tasks
	Pre-notification/registration/exemption management of regulations
	Management of import/business licenses by business site
Reporting/performance management	Performance reporting
	Statistical surveys
	Chemical management ledger

* CMS (Chemical Management System)

Real-time Pollutant Management through TMS

Aekyung Chemical has installed a Tele-Monitoring System (TMS**) to measure the data from various air pollutants produced from the incinerator and transmit it to the Ministry of Environment in real time. We have set our regulatory standards at 70% of the legal emission standards, practicing eco-friendly operations. Additionally, in accordance with Article 32 of the Clean Air Conservation Act, Aekyung Chemical entrusts a measurement device management agent with the professional outsourced management of the measurement devices, ensuring continuous compliance with legal standards.

- Major tasks: Regular inspection and parts replacement, accuracy test, real-time data status understanding, and on-site response



Real-time control program



Regular checks

Odor Measuring Device

The device installed at the top of Aekyung Chemical's Cheongyang plants 1 and 2 measures the odor concentration and is automatically connected to the system, enabling real-time monitoring. It allows to reduce air pollution caused by odors and safety risks to workers, fostering a healthy and pleasant working environment.



Odor measuring device at Cheongyang plant (AMS-2000)

Real-time message transfer

** TMS (Tele Monitoring System): Automatically measures air pollutants emitted from the plant chimneys and manages emission situations in real-time via an online connection with the control center.

Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste**
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Waste Management System

Aekyung Chemical identifies the causes of waste generation through process analysis at each business site and minimizes waste generation based on optimized process conditions. We conducted reviews to introduce eco-friendly materials from the product development stage and established a system to recover by-products or waste generated during the production process.

The waste generated from the business sites is collected and separated by type and characteristics, securely stored without external leakage, and entrusted to a legal external agency for disposal. Aekyung Chemical reports the disposal performance of general waste and designated waste to local governments annually and transparently discloses it in the Allbaro system, thoroughly establishing a waste management system.

In addition, Aekyung Chemical is committed to efforts to minimize negative impacts on the environment by identifying waste disposal agencies which are able to regenerate, and we preferentially entrust the work to them.

Case Study

Waste Management System "Allbaro"

The Allbaro system, a government's legal waste disposal system, is a system that manages the entire process from waste discharge to transportation and final disposal in real time and efficiently through the internet. It manages the amount of waste generated and treated by type. It is an IT-based comprehensive waste management system that integrates the whole life cycle management of waste, such as waste reduction, recycling, and proper treatment.



Waste Recycling

Raw Material Recycling Activities

Aekyung Chemical is supplying products such as Plasticizers, Polyol, and PU systems by using 'Recycled drums'. Although Bulk type of sales is recently increasing, we contribute to resource-saving and cost reduction by recycling drums through a drum recycling company (collect drums and conduct washing, drying, and painting) to meet steady demand.



Outdoor Drum Storage at Ulsan Plant

Recycling of Waste Cooking Oil

Aekyung Chemical operates a waste recycling facility with a final waste recycling business license obtained from Nam-gu Office in Ulsan-si. A technical officer with a certificate completes education every three years according to the Waste Control Act for proper control. By recycling waste cooking oil, which can cause water quality and air pollution when discharged, Aekyung Chemical reduces greenhouse gas emissions and produces eco-friendly fuel, biofuel, bringing about a waste reduction effect.



Waste (Used Cooking Oil) Recycling Facility at Ulsan Plant

Introduction

Environment:
Together with Environment

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management**
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

Society:
Happy Society

Governance:
Equitable Governance

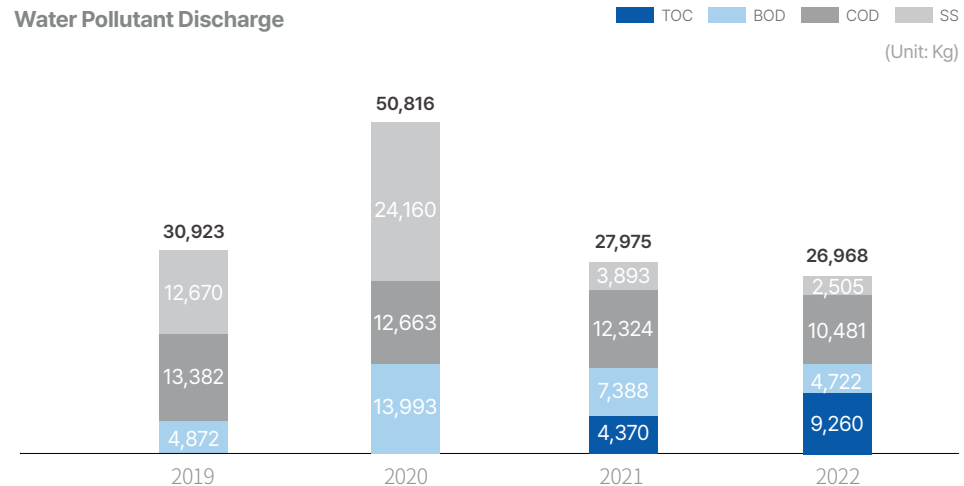
Appendix

Water Resources Management

Minimizing Water Pollution

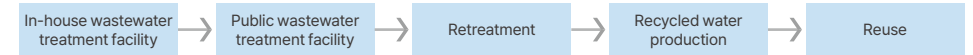
Aekyung Chemical operates its wastewater treatment facilities at each site to minimize the discharge of water pollutants generated from processes. Our in-house wastewater treatment system reduces water pollutants through physical, chemical, and biological treatment stages such as coagulation, sedimentation, neutralization, aeration, flotation, concentration, and dewatering. The process is subsequently followed by introducing the public wastewater treatment facility near each business site. We operate a triple monitoring system by measuring the concentration of water pollutants like BOD (Biochemical Oxygen Demand), TOC (Total Organic Carbon), SS (Suspended Solids) through daily in-house analysis, weekly analysis at the public wastewater treatment facility, and semi-annual analysis by testing institutions.

Additionally, to manage non-point source pollution within the business site during rainfall, we have equipped automatic pH measuring devices that trigger automatic shut-off gates to prevent the discharge of polluted water into rivers when a certain standard is exceeded. Furthermore, to conserve water, we monitor the amount of water used and factors causing increases or decreases in wastewater generation at least once a month for each process, and we are continuously striving to minimize water pollution through reduction activities and campaigns.



Reuse of Recycled Water

Aekyung Chemical enhances the efficiency of water resources by using recycled water, which is reprocessed at the public wastewater treatment facility (Yongam) in the industrial complex for production processes. We also minimize wastewater generation from boiler water by utilizing a system that recovers condensate from the boiler facility at the business site.



Wastewater Treatment Facility at Ulsan Plant



Yongam Outfall Reuse Facility in Ulsan Petrochemical Complex

Investment in Water Resources Management

Aekyung Chemical's Cheongyang 1 Plant replaced the existing aged wastewater treatment facility (installed in 1992) with a new one in 2020 to meet strengthened environmental standards. Additionally, we are continually investing in replacing all facilities, including neutralization tanks, reaction tanks, coagulation tanks, and dewatering equipment, to reduce the discharge of wastewater pollutants.



Wastewater Treatment Facility at Cheongyang plant

Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management**
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Energy Management

Energy Management System

Aekyung Chemical identifies energy consumption patterns monthly to efficiently manage the energy used in the manufacturing process. For the Ulsan plant, the heat generated from the existing process, which was previously sold externally, was converted to be entirely used in-house, resulting in significant savings in the use of boiler LNG. Moreover, we are reducing electricity consumption by replacing pumps and motors with high-efficiency devices.

We plan to introduce a smart transformer which can manage and adjust of load by collecting data on the electricity used in the factory in real-time. Consequently, we expect to maximize efficiency as well as maintaining the power network.



PA Plant at Ulsan Plant

Energy Conservation Activities

The nature of chemical product manufacturing companies is such that energy consumption tends to increase as the process operating time extends to produce a unit product. In case of the batch-type process, we perform regular test operations to minimize the reaction time, conserve energy consumed, and optimize the usage of electricity/steam, etc.

Indeed, concurrently minimizing waste generated in the process and ensuring no residual waste through an incineration facility, confirmed by the Korea Environment Corporation, Aekyung Chemical significantly attenuates its environmental impact. We recirculate the steam produced by the incineration process back into our operations, maximizing our utility.

Introduction of High-Efficiency Equipment

Aekyung Chemical has adopted high-efficiency machinery to reduce energy loss during its operational processes. In 2022, a quarter of the investment costs for environmental management were directed toward energy optimization, thereby converting equipment and appliances into high-efficiency machinery. Consequently, energy loss has been minimized, reducing power consumption and, in turn, expecting lowering carbon emissions.

Reducing LNG Consumption through Waste Heat Recovery

The production process of Polyamide, a flagship product of Aekyung Chemical, generates heat due to its exothermic reaction. The heat generated is used in the form of steam, contributing to a reduction in Liquefied Natural Gas (LNG) consumption. By utilizing waste heat recovery, the Ulsan plant manages energy usage efficiently, understanding the energy consumption patterns according to monthly production volumes. Aekyung Chemical also adopts the strategy of using the steam generated from waste incineration in the process. We plan to progressively reduce carbon emissions through energy usage from waste incineration, thus effectively managing overall energy consumption.

Key Indicators

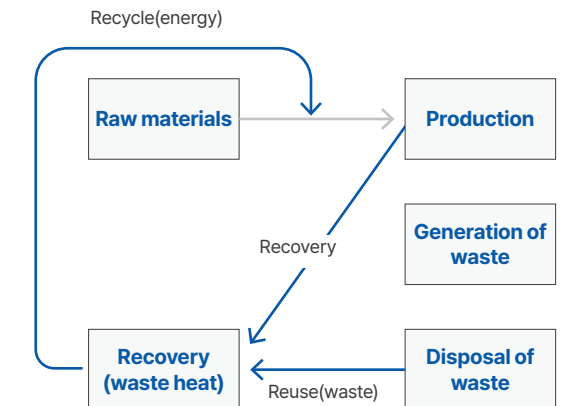
3,059,820 Nm³

LNG savings through maximum utilization of waste heat in 2022

6,684 tCO₂-eq

Reduction in carbon emissions through maximum utilization of waste heat in 2022

Aekyung Chemical's Internal Energy Circulation Model



Introduction

**Environment:
Together with Environment**

Internalization of EHS Management

Strengthening Environmental Awareness

Expanding Environmental Investments

Management of Hazardous Chemicals and Waste

Water Resources Management

Energy Management

Greenhouse Gas Emission Management

Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Greenhouse Gas Emission Management

Minimizing Greenhouse Gases

Aekyung Chemical fulfills carbon emission reduction through diverse activities. By 2030, we aim to transition into an eco-friendly corporation by reducing the total carbon emissions by 50% compared to 2021. In particular, we focus on energy optimization in the production process, which emits the most carbon, through energy recycling, introducing high-efficiency equipment, and process improvements. Furthermore, initiatives such as solar panel installation, introduction of renewable energy, and carbon emission reduction activities at each workplace are also underway.



RTO (Regenerative Thermal Oxidizer)

At the Ulsan plant, a process 'waste heat recovery system' is operated for the purpose of reducing carbon emissions. It recycles and reuses the heat generated in the Polyamide production process and optimizes energy consumption to reduce carbon emissions.

In addition, we are constantly improving the insulation of steam pipes and enhancing energy efficiency through precise diagnosis. In accordance with environmental laws, a new state-of-the-art Regenerative Thermal Oxidizer (RTO) was introduced in 2023 to reduce LNG usage in RTOs, and pollution prevention facilities. The introduction prepares for emergencies in the operation of existing RTOs and increases operational efficiency.

Aekyung Chemical has replaced lighting inside and outside the plant with high-efficiency LEDs to improve the working environment and practice energy conservation, and uses renewable energy power secured through solar power generation facilities. We are making ongoing efforts to reduce the power grid dependency of the plant and achieve carbon reduction.

Future Plan for Greenhouse Gas Reduction

Aekyung Chemical is carrying out reduction activities for Scope 1 and Scope 2 emissions while also planning to reduce Scope 3 emissions. We analyze emissions to minimize carbon emissions generated in the raw material procurement and transportation stages. We are also researching and developing the production of products using recycled PET, a circular resource. The plan also includes managing emissions from the supply chain in the future.

Carbon Savings through Process Improvements

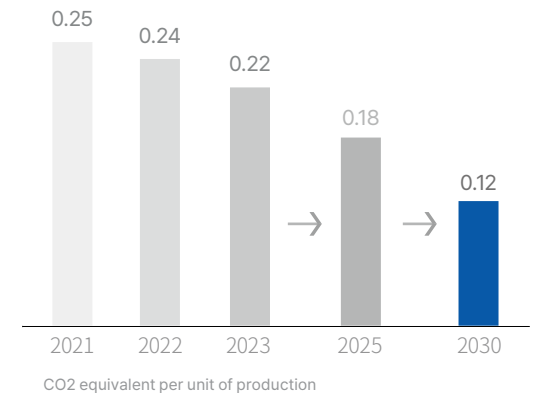
Continuous process analysis and innovative process technology improvements through ongoing production monitoring can reduce operating time and save energy. In 2022, the production team and the production innovation team collaborated to investigate the amount of nitrogen input into product production and found the optimal amount of nitrogen through continuous research, reducing the reaction time by 14%. These efforts reduced energy loss and increased reaction speed, thereby improving process efficiency. We are expecting to achieve a carbon reduction effect of 500t CO₂ annually by adopting the process. Aekyung Chemical plans to continue carbon reduction through ongoing research and technological development.

Key Indicators

178,597 tCO₂-eq

Comprehensive carbon emissions in 2022

Carbon emissions



Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management**
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

**Governance:
Equitable Governance**

Appendix

Climate Change Response Strategy

Climate Change Response Strategy System

Under the slogan of Green Initiative 3050, Aekyung Chemical conducts reduction management by monitoring carbon emissions intensity at each business site. We continually aim to improve the basic unit based on greenhouse emission of each business sites and the amount of produced. The improvement of the carbon emission basic unit is managed as a Key Performance Indicator (KPI) of our employees, and we strive to reduce carbon emissions through annual performance evaluations as a priority. Furthermore, Aekyung Chemical is pursuing plans to offset its greenhouse gas emissions and absorption amounts, aiming to reduce the net emission amount to zero.

In 2022, we participated in the Climate Change Risk and Adaptation Committee project hosted by the Korea Energy Agency, and assessed and established measures against the risks (floods, heatwaves, heavy snow, drought, etc.) from climate change at the Ulsan plant and Cheongyang plant. We reviewed geographical and climatic factors of the business sites based on RCP* scenario analysis and, as a result, performed a risk assessment for each Value Chain. In the future, we also plan to conduct a financial impact assessment according to the TCFD** recommendations.

Media

Aekyung Chemical introduces 32 eco-friendly cars, reducing annual greenhouse gas emissions by 73t.

Considering the monthly average driving distance per vehicle, Aekyung Chemical anticipates that introducing eco-friendly vehicles can reduce annual greenhouse gas emissions by 73.6t compared to operating conventional vehicles. This is similar to the greenhouse gas absorbed by 6,400 trees annually. For business vehicles, Aekyung Chemical views hybrid vehicles, which have a long driving distance after charging, are efficient, and expects that the introduction of eco-friendly vehicles will not only reduce greenhouse gas emissions but also enhance the convenience and efficiency of employees' tasks.



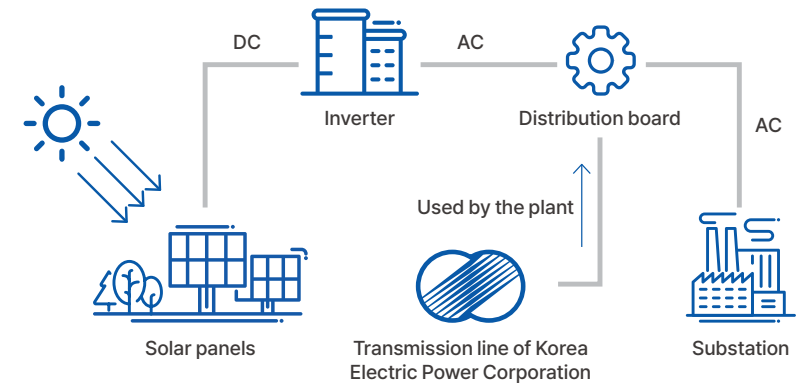
* RCP(Representative Concentration Pathways) : an indicator showing the impact of human activities on the earth's atmosphere.

** TCFD(Task Force on Climate-related Financial Disclosure) : Environmental, climate change initiative that recommends disclosure of financial information such as governance, strategy, risk management, indicators/reduction targets.

Expanding the Use of Renewable Energy

To reduce emissions (Scope 2) from the electricity used at the business site, we plan to use electricity derived from solar power and wind power generation. Previously, solar power generation facilities were only operated at some plants, such as the Jeonju Plant and Cheongyang plant 2, but we plan to expand the use of solar power generation facilities to the Ulsan plant and the Cheongyang plant 1 from 2023.

Solar Power Generation Process



Solar Power Generation Facility at Jeonju



Solar Power Generation Facility at Cheongyang plant 1

Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System**

**Society:
Happy Society**

**Governance:
Equitable Governance**

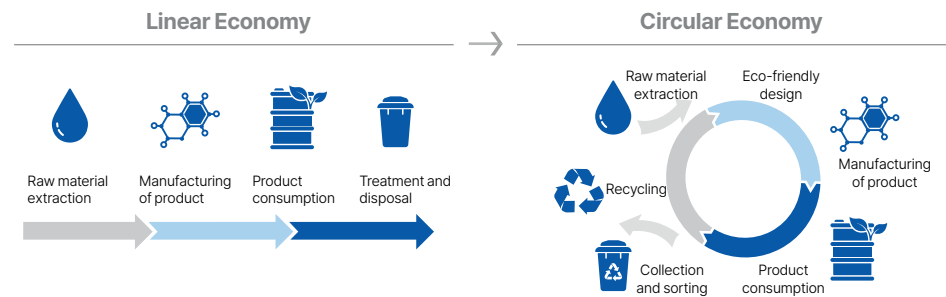
Appendix

Establishing a Resource Virtuous Cycle System

Resource Virtuous Cycle System

Resource Cycling Activity

Resource cycling is an activity that recycles waste rather than disposing it to make resource saving and to reuse it to reduce unnecessary waste which is generated as part of economic activity such as production and consumption. Also, Virtuous cycle which is known as eco-friendly economic model is pursuing sustainability through these activities. Aekyung Chemical strives to identify potential negative environmental impacts and seeks solutions for environmental improvement by assessing the entire process of its main products through Life Cycle Assessment (LCA).



Implementing Product Life Cycle Assessment (LCA)

Aekyung Chemical completed the first full life cycle assessment of its Plasticizer product, NEO-T, by the end of 2022, analyzing the environmental impact during stages such as raw material procurement, transportation, production, and sales. When compared with the results of Plasticizer (DOTP) publicized in the overseas Ecoinvent* database, our NEO-T carbon footprint was identified to be approximately half.

The carbon emissions generated in the production of the product were primarily influenced by the use of raw materials, and it is anticipated that the carbon emission reduction effect will be significantly higher if the raw materials are replaced with circular resources (recycled PET). We are currently carrying out a project to derive the LCA results of the main products that we produce in the future and will systematically manage the environmental impact levels of the input and output materials at all stages.

Developing Resource-circulating Eco-friendly Products

In line with the trend toward carbon neutrality, Aekyung Chemical is developing eco-friendly products. Furthermore, by obtaining various eco-friendly certifications, we aim to enhance the credibility of our products, accelerate our entry into related markets, and complete our eco-friendly portfolio through resource circulation using recycled waste plastics in line with megatrends and the development of biomass-based products that replace petroleum-based materials.

Recycling of Waste Plastics (Resource Circulation)

Recycling waste plastics can reduce carbon emissions compared to the traditional process of producing petroleum-based products. As global regulations on the use of plastics tighten, many companies are adopting carbon neutrality through the circulation of plastics.

Aekyung Chemical meets the growing consumer demand for eco-friendliness by using waste plastic to produce plasticizers used in PVC. In 2022, we gained recognition for our eco-friendliness by obtaining the international certification ISCC PLUS. The developed circular resource plasticizer is being applied to a variety of products, including flooring, wallpaper, and artificial leather.

Case Study

Physical Recycling vs. Chemical Recycling

Physical recycling is a method of making plastics again by sorting recyclable plastics and going through processing steps such as cleaning, crushing, and melting. However, there are many restrictions on actively recycling, as recycling waste vinyl or composite materials is difficult, and the sorting process is complicated. On the other hand, chemical recycling is a method of recycling by chemically breaking down waste plastic and returning it to its raw material state. This method can reduce the waste sorting process and even utilize contaminated waste.

* Ecoinvent: An LCI (Life Cycle Inventory) database that supports various types of sustainability evaluations.

Introduction

Environment:
Together with Environment

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

Society:
Happy Society

Governance:
Equitable Governance

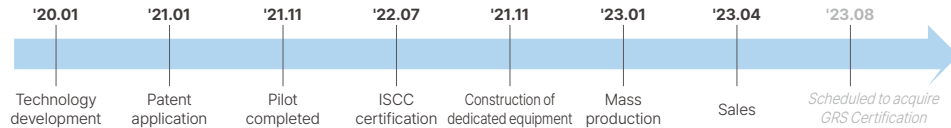
Appendix

Manufacturing Process of Resource Circulation Products

Chemical recycling has technical difficulties due to the use of contaminated waste, but Aekyung Chemical has developed products that achieve properties equivalent to those using general raw materials by applying its own developed process.



R&D Timeline for the Development of Resource Circulation Plasticizer



We have developed unsaturated polyester resin applied to composite materials using waste plastics and acquired the RCS certification in 2022. The resource circulation resin is gradually expanding its fields from buttons and non-digging applications, which are the first applied fields according to government regulations.



Aekyung Chemical's Progress on Resource Circulation Certification

	ISCC Plus	RCS	GRS
Certified materials	Bio / Bio-circular / Circular	Recycle (all recycled products)	
Applicable industry	Food, feed, chemical, and all industries	Textiles, automobile interiors, chemical industries	
Aekyung Chemical's certified product	Plasticizer, polyol, lubricant base oil (3 items)	Unsaturated polyester resin	Plasticizer
Date of certification	July 2022	February 2022	Planned for August 2023

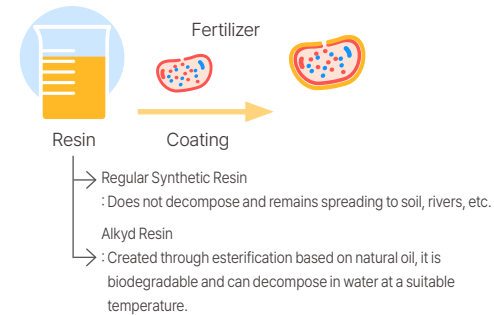
Biomass-based Approach

In addition to recycling waste plastics, Aekyung Chemical is also focusing on the white bio-industry, which produces chemical products or biofuels from renewable biomass. We are developing a technology to replace petrochemical raw material to biomass and producing those products.

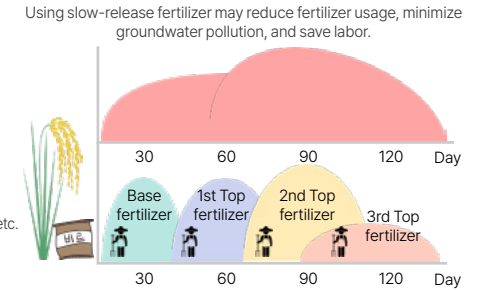
Plant Oil-based Alkyd Resin

Aekyung Chemical, in collaboration with its clients, has developed a solvent-free type alkyd resin based on plant oils. This synthetic resin has outstanding advantages in that it biomaterializes the external coating of eco-friendly slow-release fertilizers. The polymer created through the esterification reaction of natural oil-based acids and alcohols can decompose at suitable temperatures, making it applicable to slow-release fertilizers that can adjust the amount of fertilizer. Furthermore, it does not associate with societal issues such as food shortage or deforestation because it uses non-edible raw materials instead of edible based oils.

Alkyd Resin Coating



Advantages of Slow-release Fertilizer



Aekyung Chemical's Progress on Biomass Product Certification

The biomass-based coating resin developed by Aekyung Chemical has received the 'USDA BioPreferred' certification, with a bio-carbon content of 57%, significantly exceeding the bio-carbon content standard (22%) required by the United States Department of Agriculture. We plan to expand our portfolio of bio-originated products based on the plant oil-based alkyd resin, which received USDA certification in March 2023.



Introduction

**Environment:
Together with Environment**

- Internalization of EHS Management
- Strengthening Environmental Awareness
- Expanding Environmental Investments
- Management of Hazardous Chemicals and Waste
- Water Resources Management
- Energy Management
- Greenhouse Gas Emission Management
- Establishing a Resource Virtuous Cycle System

**Society:
Happy Society**

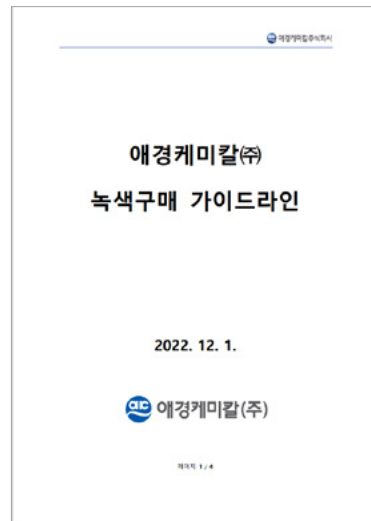
**Governance:
Equitable Governance**

Appendix

Green Procurement Guideline

Aekyung Chemical seeks to enhance the value of its supply chain by minimizing the impact on the environment and making responsible purchasing decisions and spreading sustainability. We have established eco-friendly green purchasing and management guidelines, prioritizing the purchase of eco-friendly certified raw materials and goods used in manufacturing activities.

Aekyung Chemical is implementing green purchasing activity guidelines defined for the purpose of preserving the environment and natural resources. Green purchasing is actively recommending to take green purchasing products to consider eco-friendliness through whole processes including research, production, sales, and logistics, and to enhance environmental management practices. The green purchasing guidelines apply to items that can be replaced with eco-friendly products such as civil engineering, architecture, electricity, chemistry, equipment, MRO (office supplies and consumables), and daily necessities, as well as raw materials consumed in manufacturing activities at business sites. Also, Aekyung Chemical's purchasing department continuously monitors the performance of green purchasing, leading green purchasing activities for the sustainable environmental development of Aekyung Chemical.





Diverse Social Contribution Activities	50
Occupational Safety and Health	54
Product Safety and Quality	56
Talent Acquisition and Development	57
Expansion of Human Rights Management	61
Shared Growth with Partners	66

Happy Society

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

- Occupational Safety and Health
- Product Safety and Quality
- Talent Recruitment and Cultivation
- Expansion of Human Rights Management
- Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Diverse Social Contribution Activities

Social Contribution Goals

Aekyung Chemical has been promoting Diverse Social Contribution Activities under the slogan 'Aekyung Chemical is with you' to 'create a happy society'.



LOVE: We are engaged in collaborative activities with various local community institutions to build a social safety net in the local community and realize a sustainable society, and we are expanding our collaboration institutions every year to carry out activities suitable for the local community.

DIVERSE: We practice sharing by sponsoring various strata. We are performing our social responsibility as corporate citizens by practicing donation activities and supporting that can provide necessary help to those in need who are in the welfare blind spot of our society.

GREEN: We contribute to protecting the ecosystem through continuous environmental protection activities. We have carried out environmental protection campaigns 'Gam. Tan. Sa,' 'Jubging, Together' in which our members participate directly.

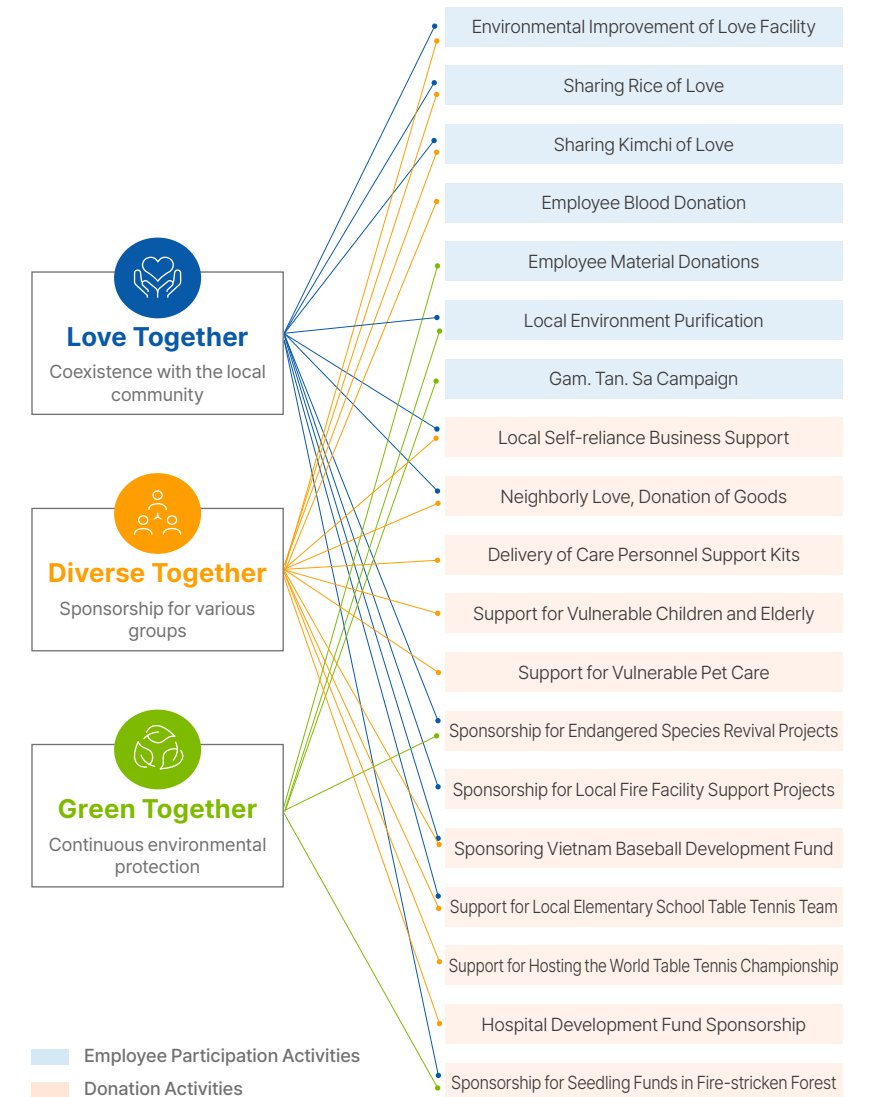
Aekyung Chemical has determined eco-friendly production activities as the highest priority management activity and will take the lead in continuous environmental protection.

Aekyung Chemical will continue to develop and improve community growth programs together, sharing programs to sponsor various strata, and environmental contribution programs for a sustainable environment.

Social Contribution Organizations



Social Contribution Programs



Blue line: Employee Participation Activities
Orange line: Donation Activities

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution
Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and
Cultivation

Expansion of Human Rights
Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Social Contribution Programs

Love Together Coexistence with Local Community

Environmental Improvement of 'Love Facilities' Using Our Eco-friendly Products

From June to October 2022, Aekyung Chemical carried out environmental improvement work on old welfare facilities to contribute to the improvement of the quality of life for vulnerable groups in the location of its nationwide business sites. We created safe and pleasant environments by redecorating the interiors and replacing floor coverings with wallpapers and linoleum made with our eco-friendly Plasticizer at the Hongik Senior Welfare Center in Mapo-gu, Seoul, the Ulsan Majungmul Protection Center, the Cheongyang Gangok Village Hall, and the Jeonju Yongjin Children's Center. In addition, at the Daejeon Haemalgum Center (a school violence victim recovery center), we conducted an event where our employees personally painted colorful pictures on the building's exterior with eco-friendly paint made from our company's production materials, providing emotional stability to the victimized adolescents while improving the environment.



'Sharing Rice of Love' Event

'Sharing Rice of Love' is a social contribution program that has been ongoing every year for 20 years since its start in 2003, where Aekyung Chemical employees participate personally to share love and warmth with vulnerable groups in the local area through 'Rice of Love'. We purchase 'Chugok rice' at near the Ulsan plant, and support vulnerable communities in Seoul, where our headquarters are located, through rice deliveries. In December 2022, we delivered a total of 230 bags of 'Rice of Love' to multicultural families, children's study rooms, and elderly people living alone who needed help in Guro and Mapo areas in Seoul. Since 2003, we have delivered about 135 tons of rice and plan to continue our social contribution activities to share warm affection with local communities.

Active Support for Young Baseball Dreamers in Vietnam

In 2022, Aekyung Chemical actively began sponsoring the development of baseball in Vietnam, the location of our subsidiary 'AK VINA'. In July 2022, we donated to the 'Hulk Foundation', led by Director Lee Man-soo, for the 'Vietnam Baseball Development Fund'. We also promised our subsidiary 'AK VINA' and the 'Vietnam Baseball Development Support Group' to contribute to the development of baseball in Vietnam through continuous cooperation by signing a sponsorship agreement in November. This donation is planning to be used for baseball popularization projects, such as the production of Vietnamese baseball textbooks and the institutionalization of baseball physical education, for young baseball dreamers in Vietnam.



Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution
Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and
Cultivation

Expansion of Human Rights
Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Diverse Together Sponsorship for Various Groups

'Sharing of Love' Activities for Neighbors in Various Groups

Aekyung Chemical is conducting 'Sharing of Love' activities for neighbors from various strata, aiming to practice the love and respect implied by our mission. We collaborate with various local community organizations to select recipients and support items reflecting the needs of the local community. In 2022, we delivered fans to support a cool summer for vulnerable groups in Seoul, Ulsan, Cheongyang, and Daejeon, where our business sites are located nationwide. Especially in the situation of COVID-19, we delivered hygiene product support kits to caregivers for children, the elderly, and disabled people in welfare blind spots, and we also delivered pet care items to vulnerable households living with pets. Aekyung Chemical plans to continue its love sharing activities for those who need a support.



Support for Cheongyang Elementary School Table Tennis Club

In July 2022, Aekyung Chemical signed a business agreement with Jeongsan-myeon Sports Association and promised to support the table tennis club at Jeongsan Elementary School in Cheongyang, where our plant is located. This support project was initiated to create a foundation for local children the environment where they can concentrate on their sports in better a condition and grow much healthier, and we plan to continue supporting activities for the nurturing of local children.



'Sharing Kimchi of Love' Event

In August 2022, Aekyung Chemical conducted a 'Thanksgiving Labor-Management Kimchi Sharing Event' together with the Mapo Welfare Foundation. This event was held before Thanksgiving in response to the needs of the local to prevent unbalanced diet from running out of Kimchi before Kimchi-making season in winter. A total of 13 participants, including employees from our labor-management council and the person in charge at the Mapo Welfare Foundation, made kimjang kimchi with love and affection for their neighbors. Also, for coexistence with small businesses, we purchased kimjang ingredients from the local community and delivered them to each household in eco-friendly recycled containers.



Support for '2024 Busan World Table Tennis Championships'

In April 2023, Aekyung Chemical signed a business agreement with the Korea Table Tennis Association to actively support the promotion of the '2024 Busan World Table Tennis Championships'. Through this support project, we pledge to actively promote the tournament with the association to contribute to the development of the Korean table tennis industry. The tournament is the highest authoritative international table tennis tournament with qualification for the 2024 Paris Olympics team event, and it will be held in Busan at the same year.



Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution
Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and
Cultivation

Expansion of Human Rights
Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Green Together Ongoing Environmental Protection

‘Jubging, Together’ Campaign

Aekyung Chemical is running a quarterly campaign ‘Jubging, Together’ to clean up the environment around our business locations nationwide. ‘Jubging’ is an activity of picking up garbage while taking a walk, and since 2022, it has been carried out quarterly to contribute to local environmental protection by cleaning parks and rivers near the business site, while also caring for the health of employees in situations where external activities are restricted due to COVID-19. More than 100 employees from a total of 5 business sites participate every quarter.



Sponsorship for Endangered Species Protection

In March 2023, Aekyung Chemical signed a business agreement with Geumgang River Basin Environmental Office, Cheongyang-gun, Goun Botanical Garden, and Korea Chamber of Commerce and Industry for the ‘Cheongyang Endangered Species Conservation Project’ to contribute to the conservation of biodiversity and the recovery of ecosystem. The first activity was a tree planting event on April 26, planting 7 types of endangered wild plants. This project is practicing to establish measures to manage endangered species in the Cheongyang area due to climate change and destruction of ecosystem. As a company representing Cheongyang, we plan to continue our efforts to improve the local environment and conserve ecosystem.



Sponsorship for Seedling Fund for Gangwon Wildfire Damaged Areas

In November 2022, Aekyung Chemical, together with AK Holdings, AK PLAZA, and other group companies, delivered a fund for purchasing seedlings to support the recovery of wildfire-damaged areas in Gangwon Province to the Gangwon Economic Promotion Agency. The forest will be reforested through this fund over approximately 5,000 pyeong.



Daily Carbon Reduction Activity, ‘Gam. Tan. Sa Campaign’

Aekyung Chemical has conducted a ‘Gam. Tan. Sa Campaign’ as a daily activity to reduce carbon for a sustainable environment. It is an activity to reduce unnecessary energy consumption and carbon generation through small practices and plans to be regularly conducted twice a year during the high energy consumption seasons of summer and winter.

* What does Gam. Tan. Sa. stand for? Gam (Reduce). Tan (Carbon). Sa (Company: Aekyung Chemical)



Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Occupational Safety and Health

Major Tasks in Occupational Health and Safety

Occupational Health and Safety Management Policy

Aekyung Chemical has established an occupational health and safety goal of "building a sustainable and safe workplace," and has selected some key tasks: 'construction of proactive and technological safety and health management,' 'establishment of self-safety system centered on production sites,' 'co-existence safety management with partner companies,' and 'ZERO violations of environmental laws and chemical management laws through an internal chemical comprehensive system'. Each plant has its own EHS management organization, and the organization are divided into roles and responsibilities to perform occupational health and safety-related tasks. Furthermore, an occupational health and safety committee is set up in each workplace to review and decide on important matters related to safety and health at the workplace on a regular basis, and systematically respond to safety and environmental issues occurring in factories. Moreover, it has been certified for ISO 45001 to build a safety-centered corporate culture, and is continuously working to enhance the level of occupational health and safety management at all workplaces through various safety education programs.

Occupational Health and Safety Activities

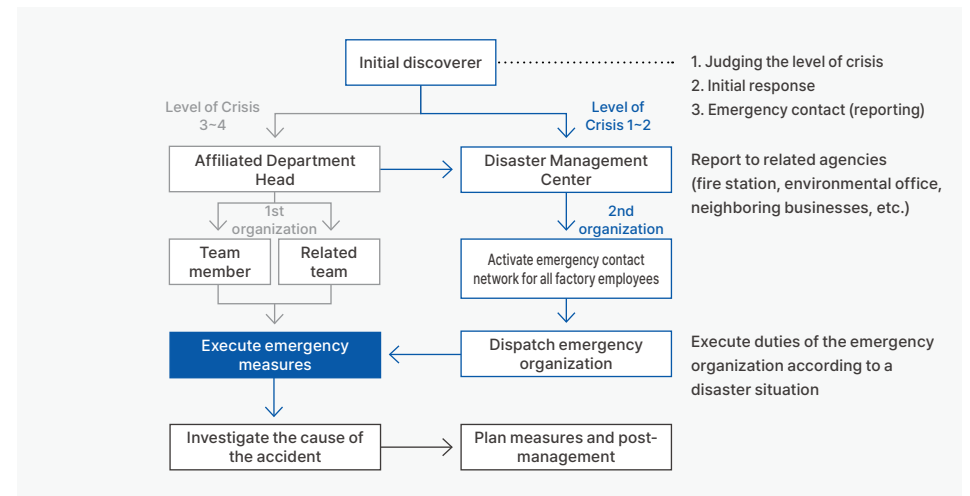
Aekyung Chemical is preventing safety accidents by conducting safety walk activities, safety exercises, safety education, health promotion activities, joint fire training, etc., to manage occupational health and safety and prevent serious industrial accidents. In addition, regular training is performed how to use fire extinguishers and outdoor fire hydrant hoses to ensure the firefighting capabilities of all employees and partner companies. Table Top Exercises (simulation training) are conducted for production team employees to encourage the ability to respond to accidents and take appropriate measures in case of accidents. Furthermore, in order to maintain the responsiveness of professional control personnel who are deployed first in case of an emergency, biannual regular professional firefighting agent training is conducted, and efforts are being made to improve safety management levels and prevent major accidents. Efforts are being made to internalize occupational health and safety culture.



Accident Response Process

Aekyung Chemical operates a post-management process for reporting, investigating, and taking measures to prevent the recurrence of various accidents or potential accidents. The aim is to prevent the same type of accident by investigating and analyzing the root cause and problems of accidents and potential accidents inside and outside the plant and establishing and implementing improvement measures. When an accident occurs, the situation is reported to nearby local institutions to minimize damage to the community. It identifies the cause of the accident to solve problems and reflects the results aggregated through accident analysis when establishing a safety management operation plan and conducting accident prevention activities for potential risk factors.

Emergency Response System



Levels of Crisis	Damage Prevention Range	Contact Range
1	Severe (Fire/explosion injury, chemical leakage over 200kg, death of more than 1 person)	All employees
2	Warning (Major flaw, chemical leakage less than 200kg, unconscious injury)	The concerned team and each team manager
3	Caution (General fire, explosion, chemical leakage less than 200kg, the injured person is conscious)	The concerned team and each team manager
4	Attention (Detector operation, chemical leakage less than 5kg, the injured person can move)	The concerned team and each team manager

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution
Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and
Cultivation

Expansion of Human Rights
Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Safety and Health Management

Safety and Health Education

Aekyung Chemical carries out safety, health, and human rights education as part of its workplace accident prevention activities. The company assigns education hours quarterly, making it mandatory for employees to complete their education. This helps to reinforce awareness of safety, health, and human rights accidents and prepare for them in advance.

Major subjects include industrial safety and health education, environmental job training, PSM-related education, external worker education, prevention of workplace harassment/harassment education, and improvement of disability awareness education. Going forward, we plan to enhance the safety awareness of employees including members of partner companies and support establishing an autonomous safety system by operating various education programs, including continuous in-house and external education, external lecturer-invited education, and safety and health education for the cooperative company.

Safety and Health Environment

Aekyung Chemical provides various facilities and programs to protect the health of its employees and create a pleasant working environment. We operate a healing terrace and a healing rest room (massage chair) at our head office, Aekyung Tower, to support health consultation and management. At each plant, we strive to minimize odorous and harmful factors originating from the process by installing odor-prevention facilities.



Managing Occupational Accidents in Plants

Aekyung Chemical continuously carries out safety education and campaigns and invests in facilities with the aim of 'Zero industrial accidents.' The rate of environmental improvements for the issues identified through the safety and health check in 2022 reached 98%, and the company is continuously making efforts to improve our safety and health inspection results and minimize risk factors by continuously establishing measures.

Furthermore, we are on the way with a plan to improve outdated odor emission sources and wastewater treatment plants and are doing our best to achieve the goal of 'Zero' industrial accidents by removing and reducing risks in safety and health through environmental safety investment activities such as occupational accident investigation and analysis, MSDS and warning sign management.

Summary of Occupational Accidents and Accident Rates at Plants

Category	2020	2021	2022	Goals for 2023	Remarks
Ulsan Plant	Occupational accidents	1	2	-	-
	Permanent employees	149	154	177	182
	Accident rate	0.72	1.25	0.00	0.00
Cheongyang plant	Occupational accidents	-	-	-	-
	Permanent employees	231	216	220	235
	Accident rate	-	-	-	-

Plant Environment Management

Aekyung Chemical complies with the law on integrated management of environmental pollution facilities. We establish permit standards according to the preventive plans for chemical accidents and conduct environmental facility monitoring to strive for legal compliance and environmental improvement. Moreover, we monitor compliance with regulations through self-measurement of air/water/soil and air TMS management and are working to create a management environment to achieve ZERO violations of regulations.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Product Safety and Quality

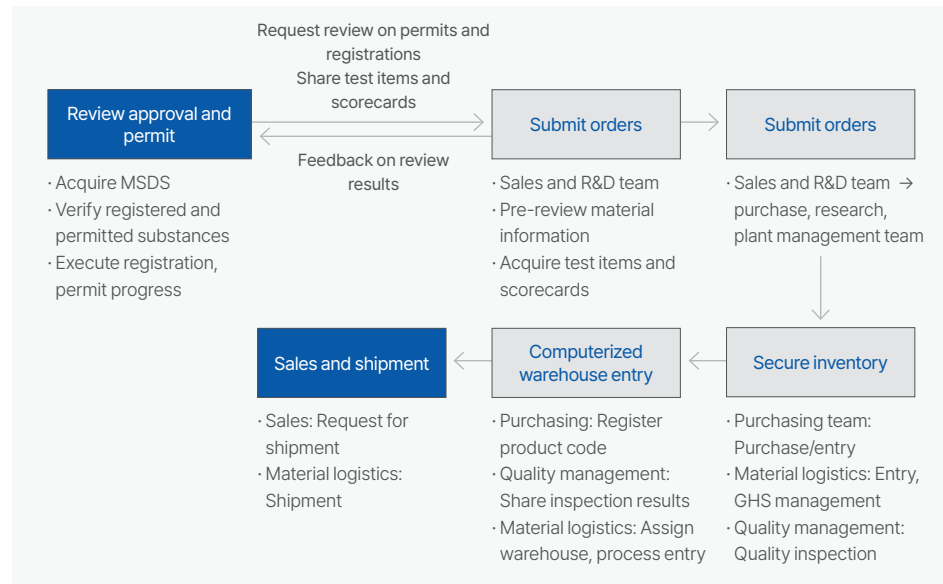
Product Safety and Quality

Product Safety Quality Process

Aekyung Chemical provides customers with reliable and safe products through verification of harmful substances in raw materials and inspection/test of product safety. Product safety is an essential element for sustainable growth and in order to gain trust of customers. With the increase in social interest in ESG, the responsibility of companies for product quality and safety is being strengthened, and the results of product hazard assessments have a significant impact on the company's internal and external image.

Aekyung Chemical, which regards trust of customer as the most important thing, established purchase and sales process that can be implemented after checking the violation of laws. Also, we strictly comply with established procedures for handling chemical substances and for managing facilities to prevent environment accidents by chemical substances and minimize environmental impact.

Hazardous Chemical Verification Process



Hazard Assessment

Aekyung Chemical conducts hazard assessments from step of raw materials purchasing to ensure the production of safe products. We are getting trust of customer by managing potential impacts of products from the raw material purchasing step and ensuring the safety. We require to check harmfulness in advance as purchasing of raw and subsidiary materials which are treated as chemical substances, and the procedure cannot be proceeded in case of identification of risks. The harmfulness of chemical raw materials can be verified in the Material Safety Data Sheet (MSDS*) during purchase. Chemical substances are assessed suitability from the quality management team if the substances which need to be confirmed is not registered. Even during product development, safety tests, and inspections are required to be reviewed the suitability from the quality management team.

Chemical Substance Registration and Management

Aekyung Chemical continuously monitors regulatory compliance to minimize the environmental impact of chemical substances. In case of using, storing, or transporting of chemical substances over a certain amount defined by regulation and the company, we register the case based on the Chemicals Control Act. Also, we keep the chemical substances safely under relevant regulations in our storage. We appoint a manager for these facilities and inspect them regularly.

* Material Safety Data Sheet

This is a safety and health data document for substances, recording 16 items such as the name and composition of chemical substances, physical and chemical properties, hazardousness, and fire prevention measures in case of an explosion. It is distributed to departments that use chemical substances. Regular MSDS training is conducted for safety managers, and training is also carried out before using new chemical substances.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Talent Acquisition and Development

The Human Resource Policy of Aekyung Chemical

The Corporate Culture of Aekyung Chemical

We are expanding the image of qualified employee of Aekyung Chemical, 'Aekyung Chemicalicious', by establishing a human resource policy so that members encourage their professionalism and demonstrate their capabilities. As part of our pursuit of sustained innovation and growth, we strive to foster a corporate culture that allows for co-prosperity and mutual growth with our members. We cultivate personnels who are pursuing challenges and innovations through horizontal organizational culture, and strive to provide competitive members with proper compensation. In response to changes in business portfolios, we maintain a flexible organizational structure and operate a personnel policy based on job professionalism.



Equitable and Transparent Performance Evaluation System

We provide feedback for growth of employees through fair and objective evaluation system. We have established and operated appropriate evaluation process for each job group, and we conduct performance evaluations fairly and objectively according to the evaluation indicators. Performance evaluations are conducted based on the KPIs, and competency evaluations are categorized by position to assess whether the expected roles have been appropriately fulfilled. We actively provide feedback on evaluations to facilitate mutual complement and growth among members, and we are enhancing the responsibility of team leaders to cultivate their team members. We determine individual salaries based on individual roles and annual evaluation results, and we implement performance-based compensation by differentially distributing profits from business performance according to individual achievements.

Employee Diversity

Aekyung Chemical is an organization that ensures diversity, allowing all employees to maximize their potential. We operate a process to create a fair organization without discrimination based on gender, educational background, disability, place of origin, or nationality. National merit holders and disabled people, who are employment protection targets, are actively recruited with preference according to relevant laws. Through the operation of disabled sports teams, we have contributed to the activation of disabled sports and the creation of jobs for the disabled. In the future, we will continue to enhance the sense of belonging of the sports teams and increase the understanding of diversity among members through continuous interaction and support among employees.

Aekyung Chemical has made consistent efforts to increase gender diversity among its members. As a result, 35 out of 116 new recruits in 2022 were women (30%), and we plan to continuously increase the proportion of female members.

As of the end of 2022, 4 foreign workers are employed, and in the first half of 2023, we are actively promoting the recruitment of foreigners, including 4 more, to expand our global capabilities. After recruitment, we apply a non-discriminatory compensation system based on the same standards as domestic employees, and we carry out various support activities to allow the exertion of professional competencies in a stable work environment. The HR department regularly holds meetings to improve the working environment for foreign members and actively supports solutions as issues such as visas arise.

Employee Diversity

(Unit: people)

Category		2021	2022
Gender balance	Total number of female employees	74	98
	Number of female executives	1	1
	Number of female managers	5	9
Employment of the disabled	Total	14	15
Employment of the veterans	Total	24	24
Employment of foreigners	Total	1	4
	China	-	2
	Philippines	1	1
	Malaysia	-	1
Total number of employees		683	709

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Securing Outstanding Talents

Recruitment Process and Policies for Attracting Outstanding Talents

Recruitment Process

Personnels who we are pursuing. We carry out open recruitment for new employees and recruitment from time to time for experienced employees every the first and second half year.

We are enhancing our recruiting procedures to identify whether recruited personnels are suitable for our company and they possessed the requested skills and qualifications for the jobs. Based on the positions we are recruiting for, we execute systematic evaluation procedures and conduct interviews with practical professionals and executives based on objective standards. Regular training is given to cultivate interviewers who can accurately diagnose the necessary capabilities of applicants and evaluate them objectively, thereby enhancing our evaluation competence. Furthermore, we require applicants to give presentations to verify their knowledge and expertise required for the job. For experienced professionals, we conduct reputation inquiries at their previous workplaces to verify their performance and perform additional checks to identify their strengths in the workplace and areas that need improvement.

New Employee Recruitment Process

01 Application

Fill out and submit basic personal information, academic/experience/qualification, and self-introduction (application is available via our recruitment website)

02 Document Screening

Comprehensively evaluates required capabilities and qualifications for each job category based on submitted application information

03 Personality and Aptitude Test

Assess an applicant's organizational adaptability, job suitability, etc.
* For specific roles (research), there could be tests to identify the level of professional knowledge

04 First Interview

An interview with professionals to ascertain the level of specialist knowledge and job competence of the applicant.
* Depending on the job category, only a first interview may be conducted.

05 Second Interview

An interview with executives to evaluate the applicant's character, organizational suitability, potential, etc.

06 Medical Check-up

Conduct medical check-ups for hiring or special check-ups before assignment.

07 Employment

After a review of the entire selection process, successful applicants will undergo orientation, introductory training, on-the-job training (OJT), and probation

Policies for Attracting Outstanding Talents

Aekyung Chemical is implementing various policies to secure excellent talents. Since 2022, we have held recruitment briefing sessions at universities running MBA programs to introduce the company's vision, roles by business division, and job responsibilities. To secure excellent R&D talents, we have conducted job consultations at major chemical-related conferences. Moreover, we focus on nurturing global players in our headquarters and overseas corporations, including China and Vietnam, to accelerate our global business expansion.

From 2022 to the beginning of 2023, we have hired 7 global talents for R&D, overseas sales, procurement, and general administrative roles from countries such as China, Vietnam, Thailand, Malaysia, and Kazakhstan. In 2023, we plan to actively secure global talents by signing agreements on recruitment-linked internships with top universities in the host countries at our Vietnam corporation.



MOU for cultivating and recruiting local university talents in Vietnam



Top job provider in South Korea



Recruitment briefing session



Held celebration events for new employees who become regular employees

Introduction

Environment:
Together with Environment

Society:
Happy Society

- Diverse Social Contribution Activities
- Occupational Safety and Health
- Product Safety and Quality
- Talent Recruitment and Cultivation**
- Expansion of Human Rights Management
- Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Capability Enhancement Training

Employee Education System and Status

Aekyung Chemical provides a variety of training programs to nurture talents that align with 'Aekyung Chemicalicious'. We provide programs to help new employees adjusting stably to the company and programs for existing employees to enhance their professionalism and personal growth.

Unique Academy				Chemistry Class	Global Course	Legal Requirements	Group Education
TEAM LEADER	P job category	A job category	E job category				
Team leader course	P3 course	Course for P job category transition		Product education	Foreign language & culture	Legal requirements	Internal selection
Organizational vision/team strategy linkage and performance contribution	Performance creation based on expertise	Separate development support		Plasticizer business division	Foreign language & culture	Occupational safety and health	Future manager
	Strategic thinking					Sexual harassment prevention	
Teamwork	Facilitator			Synthetic resin business division	Foreign language & culture	Harassment prevention	Strategic leader
	Coaching					Improvement of disability awareness	
	P3 promotees course	A2 course	E1-E4			Personal information protection	Innovative leader
Coaching	P2 course	P1 course equivalent	Support for the desired course	Care chemicals business division		Pension scheme	
	Independent job performance						
Interviewer	Logical thinking			Bio & energy business division	New expatriate education support		Potential leader
	Presentation						
	Leadership						
	P2 promotees course	A1 course				Others	New employees
	P1 course	Support for the desired course				Prevention of unfair stock trading	New recruits
Acquisition of job performance capabilities			Fair trade practice (Sales/Partners)	Experienced hires			
Logical thinking			Fair trade practice (Sales/Partners)				
Presentation							
Leadership							

Onboarding Program for New Employees

We conduct an onboarding program to aid the rapid adaptation and job competency enhancement of new employees. On the day of joining, we conduct an orientation which includes signing an employment contract, company introduction, briefing on the HR system, and welfare benefits. We actively facilitate an improvement of understanding of work through On-the-Job Training (OJT) and company site tours. In addition, we establish periodic communication with management through CEO interviews and Welcome Dinners, fostering a vibrant working environment.

Competency Training by Positions

Training for New Team Leaders

We operate a master course on report writing to enhance document communication skills for new team leaders. The course is carried out once a year, for new team leaders for five weeks. It includes personal correction guidance as part of the practice. After regular training, an internal report on results is presented, followed by individual feedback from the CEO.

Training for Employees Who Was Promoted

We provide learning opportunities for leadership and other necessary competencies to meet the expected roles in the new position for those who are promoted. The training is carried out by position, including pre and post-learning through books and articles and non-face-to-face collective training for one day. From 2023, we will transition to offline collective training and add a congratulatory ceremony for those promoted at the beginning of the year. The transition provides an opportunity to those who are promoted to gather together and to take courses of internal and external lecturers.

Competency Training for Team Leaders and Members

We conduct competency training for team leaders, covering teamwork, coaching, and interview skills five times a year. For team members, we conduct an annual position-based competency training with renowned individuals. The competency training for team leaders is organized to be directly applicable to tasks, and linked with recruitment and evaluation schedules. The competency training for team members is carried out on the themes of teamwork, communication, and problem solving, inviting renowned figures such as Professor Kim Kyeong-il from the Department of Psychology at Ajou University, and Kim Yoon-na, author of 'Mal Geureut' (Language Dish) and head of the center.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Job Training

Aekyung Chemical operates a 'Chemistry Class' every year for employees to strengthen their product expertise through basic chemical knowledge and education about our products.

The class is operating by internal lecturers who are in charge of developing of each products, and they directly develop education course and participate in the course. Through the course, we aid in enhancing product expertise by increasing the understanding of the total value chain, from basic chemical knowledge to raw materials, research/development, production/process, and market information of our products. This content is also made available for constant learning on our internal learning platform as online education.

In 2023, we plan to subdivide the contents of the Chemical Class and improve participation proportion of employees.

Global Competency Enhancement Education

Foreign Language Learning Support

We run a foreign language learning support program to enhance the global competency of all employees. Employees can freely choose the type and schedule of learning in English, Chinese, Japanese, and Vietnamese. We support enhancing employees' language skills by offering various language lecture contents in external language institutes and on our internal online education platform, including 1:1 telephone English.

Education for New Expatriates

We support to improve a communication skill that is necessary for global business to whom appointed as a new expatriate. We support the early settlement of expatriates by providing education programs not only for understanding the role perception and problem-solving ability as an expatriate, communication skills, but also, cultural understanding of the host country.

We also support expatriates who resume to their official duties educating for the adaption of accompanying families before one month from returning.

Online Education Infrastructure: Learning Platform

Aekyung Chemical conducts company-produced content such as mandatory legal and product education for employees through an online e-learning platform. The learning platform provides various contents in the form of microlearning for jobs, rank, foreign language, etc., supporting learning for self-development.



Education Status Data (2022)



Introduction

Environment:
Together with Environment

Society:
Happy Society

- Diverse Social Contribution Activities
- Occupational Safety and Health
- Product Safety and Quality
- Talent Recruitment and Cultivation
- Expansion of Human Rights Management**
- Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Expansion of Human Rights Management

Promotion System for Human Rights Management

Human Rights Management

The corporate responsibility for ESG (Environmental, Social, and Governance) activities is increasing and has a significant impact on stakeholders' decision-making. Aekyung Chemical recognizes human rights as an important factor in its business activities, taking responsibility for respecting human rights as a fundamental principle of its business.

Aekyung Chemical respects and supports international standards and norms on human rights, such as the UN Universal Declaration of Human Rights, the OECD Guidelines for Multinational Enterprises, and the UN Convention on the Rights of the Child. We respect the fundamental rights of all stakeholders through the company's products and services, contracts, and purchases, among other business activities. We have established a human rights management policy and charter to prevent direct and indirect human rights violations in all workplaces.

Managing Human Rights Risk by Stakeholder

Aekyung Chemical recognizes that there may be potential human rights risks in the course of conducting business activities. To implement happiness and high quality of life for all stakeholders, Aekyung Chemical identifies human rights risks for each stakeholder and devises prevention or remediation measures.

In the future, we plan to prepare a human rights impact assessment process to fulfill our responsibility for respecting human rights. We will periodically carry out human rights impact assessments and, based on the assessment results, we will develop appropriate preventive or remedial measures.



Stakeholders	Main Concerns	Issue Content	Prevention or Remediation Measures
Employees	Creating a healthy organizational culture	Sexual harassment and workplace bullying	· Operating a reporting channel for sexual harassment and workplace bullying and implementing mandatory legal education on sexual harassment and workplace bullying
	Freedom of association and collective bargaining	Collective agreement	· Guaranteeing the activities of union members · Operating the Unique Committee (labor-management council)
	Differentiated, equal pay	Improvement in employee awareness of diversity and inclusivity	· Implementing education on disability awareness during human rights training · Hiring foreign workers
Children	Child labor, human trafficking	Understanding the situation of child labor both domestically and internationally	· Prohibition of child labor under domestic and international laws · No hiring of minors as they are not needed for any jobs
Customers	Consumer rights protection	Responding to consumer damage	· Establishing a customer complaint-handling process · Operating a reporting channel on the website
Business partners	Responsible supply chain management	Understanding the labor situation of business partners	· Management through adherence to the Partner Code of Conduct · Conducting meetings and training for partners
	Fair trade	Damage from unfair trade	· Introducing and operating Fair Trade Compliance Program (CP) · Operating a reporting channel for unfair trade
Local communities	Obligation to protect environmental rights	Environmental protection in the area where the plant is located	· Reviving the Endangered Species in Cheongyang-gun · Local environmental cleanup activity, 'Jubging, Together'

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Human Rights Impact Management and Evaluation




Human Rights Protection Process of the Company

Aekyung Chemical inspects the status of protection of human rights by tracking number of reports and handling cases related to human rights, number of regulatory violations, and the status of completion various education related to human right educations.

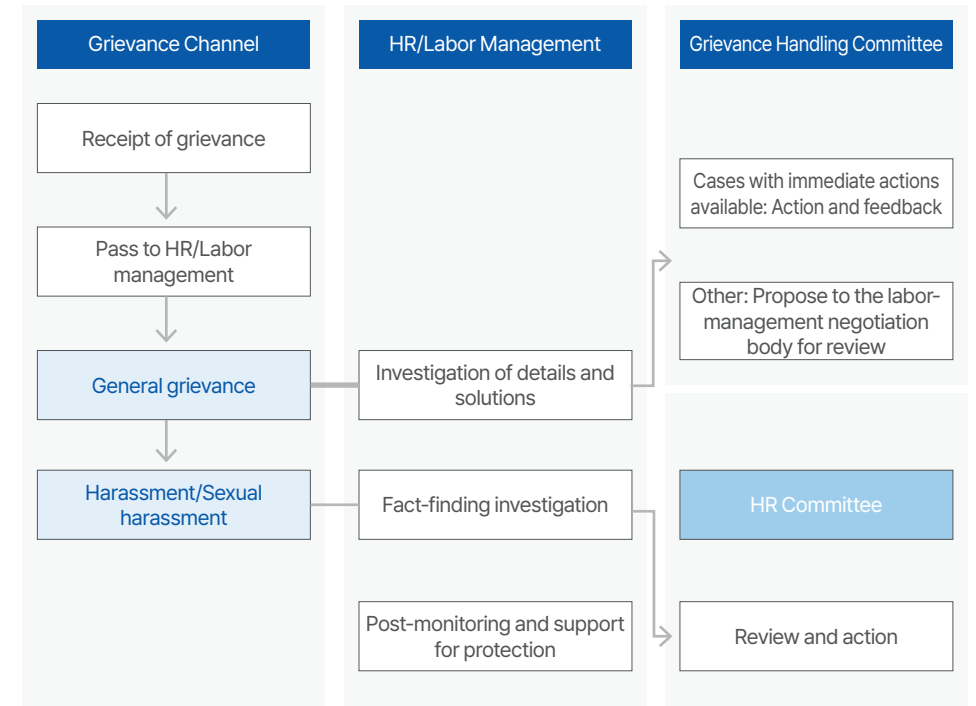
We strive to create a healthy organizational culture by adhering to the Labor Standards Act, employment regulations, and collective agreements. As part of this effort, We are preventing risks of human rights in advance, and educating of the prevention of workplace harassment, sexual harassment, and improvement of disability awareness for all employees including new members to raise awareness of human rights.

In the event of a human rights issue, we have established a process (grievance channel) for the victim to report the issue. Upon receipt of a report, we take appropriate measures to prevent additional harm. For reported or identified human rights issues, we conduct a thorough investigation and handle the matter according to principles. We perform post-monitoring to prevent secondary harm and recurrence and implement measures to protect the victims' rights. The Personnel Committee imposes disciplinary actions in cases confirmed as workplace harassment, sexual harassment, discrimination, and other human rights violations.

Principles for Handling Workplace Human Rights Issues (Workplace Harassment / Sexual Harassment)

 Prevention	<ul style="list-style-type: none"> Regular education/inspection for prevention in advance
 Detection	<ul style="list-style-type: none"> Fact-based investigation Protection of the victim (claimant) Protection of the accused before case confirmation
 Response	<ul style="list-style-type: none"> Action to be taken based on principles Prevention of secondary harm and recurrence Monitor and support for protection

Reporting and Processing System for Workplace Harassment / Sexual Harassment



Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution
Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and
Cultivation

Expansion of Human Rights
Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Internal Grievance Resolution Rate

The records of internal grievances and human rights-related reports and their resolutions are as follows. There was 1 report in 2022 over the last three years, and it was handled according to internal regulations and procedures. There have been no human rights-related regulatory violations in the past three years.

Internal Grievance Resolution Rate (Human Rights Related)

Item	Unit	2020	2021	2022
Human rights-related reports	Cases	-	-	1
Human rights-related resolutions	Cases	-	-	1
Discrimination incident occurrence	Cases	-	-	-

Human Rights-Related Legal Violations

Item	Unit	2020	2021	2022
Number of violations	Cases	-	-	-
Administrative fines	KRW	-	-	-
Penalties	KRW	-	-	-

Human Rights Education

Implementing Education for Human Rights Protection

Aekyung Chemical is conducting human rights education for all members to internalize human rights management culture and to prevent potential human rights issues in advance. All members have taken the 'Workplace Harassment Prevention Training', 'Sexual Harassment Prevention Training', and 'Disability Discrimination Prohibition Training'.

Welfare System

Operating a Welfare System for the Happiness of Members

Aekyung Chemical operates various systems for members' happiness and the balance between work and life. We continuously improve the work environment, including relocating and remodeling the head office and improving the working conditions at plants to create a happy environment for the members. We also actively support the balance between work and life by introducing a flexible work hours. We are enhancing family-friendly policies (encouraging parental leave, family care leave system, shortened work hours during child-raising) for members during pregnancy and child-raising, and have been operating housing and life stability support systems for a stable life. Also, various welfare systems for members, such as health checkup support, in-house club support, and resort use benefits, are operated for the health and leisure activities of members and their families.

Aekyung Chemical believes that the happiness of members and their families should be prioritized for the company to grow together, and we will do our best to provide necessary welfare systems to members for a happy company life.

Gathering Opinions from Members for the Improvement of the Welfare System

Aekyung Chemical is dedicated to improving the working environment for its members. In November 2021, we established the 'Unique Committee', a labor-management council, to gather all employees' opinions. Committee members are employee representatives elected through open election procedures at each business site, currently playing a central role in labor-management bodies such as the labor-management council, labor representative under the Labor Standards Act, Welfare Fund Council, and Industrial Safety and Health Committee.

The Unique Committee has a meeting at least once a quarter, appropriate actions are taken for decided matters, and feedback is given on the implementation status of the matters.



Introduction

Environment:
Together with Environment

Society:
Happy Society

- Diverse Social Contribution Activities
- Occupational Safety and Health
- Product Safety and Quality
- Talent Recruitment and Cultivation
- Expansion of Human Rights Management**
- Shared Growth with Partners

Governance:
Equitable Governance

Appendix

Various Welfare Systems



Improvement of the Working Environment

- Relocation and remodeling of the head office
- Improvement of the working environment for plant workers
 - Remodeling of office buildings, expansion of parking spaces, installation of fitness centers, etc.
- Improvement of work convenience facilities
 - Installation of office phone booths, collaboration spaces, and standing desks, personal lockers
- Securing rest facilities
 - Installation of an in-house cafeteria and common/women-only rest areas, placement of air purifiers and air-purifying plants



Family-Friendly Policies

- Active parental leave
- Support for entrance and tuition fees for elementary, middle, high school, and university students
- Support for condolence money/leave
- Optional mutual aid service support
- ※ Acquired family-friendly certification in 2022



Balancing Work and Life

- 4-team 2-shift work system for production workers
 - Introduced in Ulsan Plant in 2022, pilot operation in Cheongyang plant in April 2023
- Flexible work hours system for office and production workers
- Conducting a campaign to promote the use of annual leave



Rest area in Daejeon R&D Center



Chain-type seating arrangement in the head office



Family invitation event



Acquired Family-Friendly Company Certification in 2022

Introduction

Environment:
Together with Environment

Society:
Happy Society

- Diverse Social Contribution Activities
- Occupational Safety and Health
- Product Safety and Quality
- Talent Recruitment and Cultivation
- Expansion of Human Rights Management
- Shared Growth with Partners

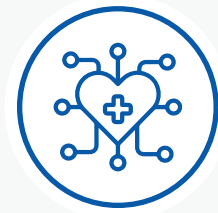
Governance:
Equitable Governance

Appendix



Housing and Living Stability Policy

- Loan support: Housing fund loans (Jeonse, Purchase), stability fund
- Providing gifts for anniversaries and holidays: Labor Day, Foundation Day, Seollal/Chuseok
- Support for disaster compensation benefits
- Support for assignment expenses



Health Promotion Policy

- Support for health check-ups (including spouses)
- Support for accident and disease insurance, support for Quadrivalent flu vaccination
- Operation of health education
 - CPR, prevention of cardiovascular diseases, prevention of musculoskeletal disorders, prevention of job stress
- Support for health/psychological counseling
 - Operation of Healing Terrace in the head office and online counseling service 'Mind Cafe'



Support for Leisure Activities

- Cafeteria-style welfare point system
- Support for in-house club activities
 - Table tennis, bowling, futsal, cycling, basketball, board games, golf, etc.
- Resort benefits



Job Stress Prevention Education

CPR Training



Club Activities

Introduction

Environment:
Together with Environment

Society:
Happy Society

Diverse Social Contribution Activities

Occupational Safety and Health

Product Safety and Quality

Talent Recruitment and Cultivation

Expansion of Human Rights Management

Shared Growth with Partners

Governance:
Equitable Governance

Appendix

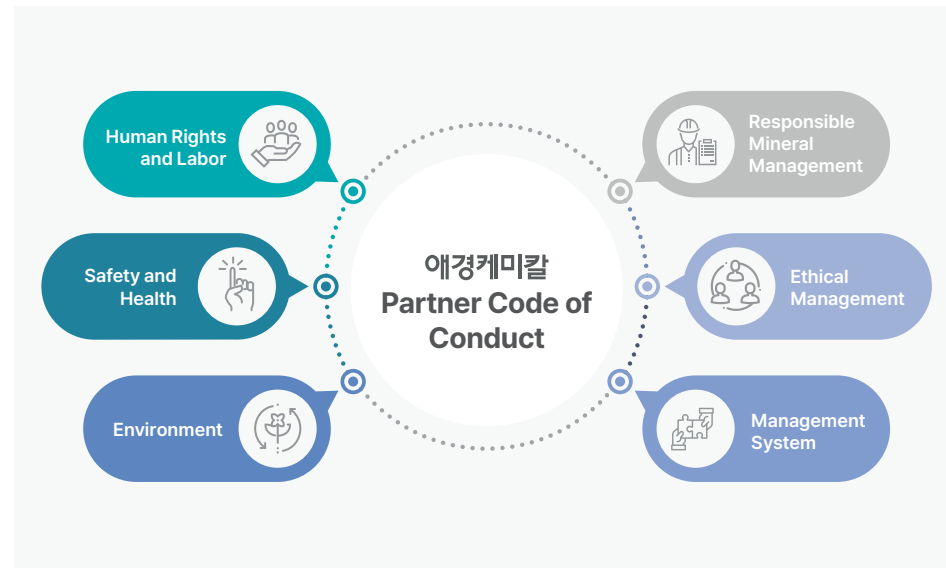
Shared Growth with Partners

Promotion of Mutual Cooperation and Shared Growth with Partners

Partnership System Based on Communication and Trust

Aekyung Chemical practices 'love and respect' for its partners based on Aekyung's corporate ideology, "Ae-in-gyeong-cheon", and builds a strategic partnership for long-term Win-win. More significant value can be created when we cooperate, communicate, and support our partners. We make decisions based on the management policies of shared growth with partners, safety first, ethical management, and fair trade.

To strengthen the mutual growth management system for supply chains, which includes raw material suppliers, logistics, and various service providers such as service companies at each business site, we established the 'Partner Code of Conduct' in 2022 to provide supply chain ethical management and human rights and labor, safety, and health, environmental supply chain code of conduct guidelines. Through the "Integrity Contract Performance Pledge," we also promote a transparent and fair trade culture and corporate management without corruption. Based on this, Aekyung Chemical strives to build a strategic partnership for coexistence and mutual prosperity with its partners, and to continue collaboration for cooperation and shared growth based on mutual trust.



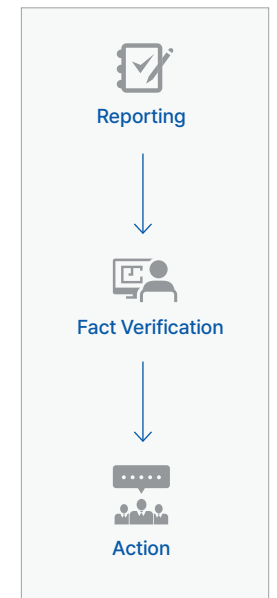
Complaints and Grievances Application / Handling Process for Partners

Aekyung Chemical has been operating a reporting channel on its website since 2022 to handle various grievances from its partners. We accept all behaviors that violate the code of ethics, including unethical and dishonest behaviors related to our company and behaviors that harm a sound corporate culture, and continuously maintain and manage to prevent the recurrence of complaints and grievances from our partners.

Website Reporting Channel

The screenshot shows a web form for reporting grievances. It includes a title '공정거래/부패방지', a header with '공시사항' and '제보하기', and a main section with a warning message: '에경케미칼과 관련된 부정 및 비윤리적 행위, 건전한 기업문화를 해치는 행위에 대해 제보를 받습니다.' Below this are input fields for '연락처(선택사항)', '회사 제보주소', and '회사 전화번호'. A '제보내용' section contains a warning about confidentiality and a text area for the report. At the bottom, there are fields for '제보자명' and '제보일자'.

Grievances Application / Handling Process



Number of Complaints Reported and Handled

Category	2020	2021	2022	Remarks
Number of Reports	-	-	-	No reports or cases handled

Introduction

Environment:
Together with Environment

Society:
Happy Society

- Diverse Social Contribution Activities
- Occupational Safety and Health
- Product Safety and Quality
- Talent Recruitment and Cultivation
- Expansion of Human Rights Management
- Shared Growth with Partners**

Governance:
Equitable Governance

Appendix

Support Program for Partners

Communication with Partners

Aekyung Chemical operates a channel to resolve safety and health-related grievances from workers of partner companies. We listen to the difficulties and suggestions of our partners through regular partner consultation meetings to practice mutual growth. Furthermore, we have promoted a plan to strengthen the partnership for shared growth with our partners. We are establishing strategies to activate various exchange activities and support programs in technology and management.

Consultation Meeting Frequency	Target	Main Contents
At least once a month	Participation of 40 partner companies	<ul style="list-style-type: none"> · Operation plan for 2022 consultation meeting/routine inspection · Emphasis on safety and health initiatives · Sharing accident cases · Serious Accidents Punishment Act – Soliciting and sharing opinions and improvements · Sharing instructions on how to create a Safety and Environment Management Plan · Request to improve the working environment in the security office of partner companies · Sharing emergency contact information of the company and partner companies · Sharing results of monthly communication issues · Request for compliance with safety regulations of internal construction companies · Request for compliance with safety regulations for vehicles · Sharing safety rules for walking within the business premises

Strengthening Safety Activities with Partner Companies

Aekyung Chemical enhanced safety activities to build 'Safe workplace for all of us' with partner companies. All entrants are required to undergo safety education, and after completing the education, they are required to wear a safety helmet with an attached 'Safety Education Certificate'. Hazardous machinery and equipment can only be used after undergoing mandatory safety checks, and a 'Safety Inspection Certificate' is required.

We prevent potential accidents through quarterly joint inspections and strive to create a safer work environment.



Safety inspection training



Joint routine inspection



Partner consultation meeting



Joint fire training with partners

Strengthening Board Integrity	69
Ethical Management and Compliance	71
Shareholder Rights Protection	76
Comprehensive Risk Management	78
Strengthening Information Security	79

Equitable Governance



Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Strengthening Board Integrity

Board Structure

Operational Regulations of the Board

The Board of Directors (BOD) of Aekyung Chemical determines the company's management objectives and strategies for the benefit of the company and its shareholders, supervises management effectively by complying with relevant laws and the company's Articles of Association, and diligently performs its duties. According to the board regulations, the Board of Directors of Aekyung Chemical is divided into regular and extraordinary board meetings. Regular board meetings are held once a quarter, and extraordinary board meetings are held as needed. In May 2022, Aekyung Chemical established a system of mutual check and balanced corporate governance by enacting the 'Corporate Governance Charter' to ensure fairness, independence, and transparency of its governance structure. In the future, we plan to appoint an outside director as the board's chairman to enhance the board's independence.

Responsibilities and Structure of the Board

The BOD effectively supervises and advises the management through checks and balances, supporting responsible and rational decision-making. To this end, the BOD is composed of inside directors, who are executives, and independent and professional outside directors. We appoint outside directors whose independence has been verified for efficiency and transparency in decision-making. Through this, we have established a governance structure that meets the requirements of articles of incorporation and prevents conflicts of interest. The tenure of directors is determined at the general shareholders' meeting within 3 years, and the tenure of outside directors is 3 years, and can be reappointed only once.

Principles for Appointing Non-Executive Directors

We recommend outside director candidates primarily considering the candidates' experience and expertise. To appoint non-executive directors whose professionalism and independence have been verified, we have established a Non-Executive Director Nomination Committee, and we select non-executive director candidates based on the following principles to form a board where checks and balances are guaranteed.

Expertise
Require professional knowledge and experience suitable for job performance

Independence
No transactional and conflicting interests with the company

Responsibility
Possess ethical consciousness and responsibility suitable for job performance

Aekyung Chemical Board of Directors

(as of December 2022)

Name	Category	Roles (Area of Work)	Major Career	Term
Pyo Kyoung-won	Executive director	CEO, Chairman of the Board, Member of the Non-Executive Director Nomination Committee	(Current) CEO of Aekyung Chemical (Former) CEO of Aekyung Chemical (Former) CEO of Hyosung Tns Inc.	2021.09.30 ~ 2024.09.29
Jang Yeong-sin	Executive director	Overseeing Operations	(Current) Chairman of Aekyung Group (Former) Chairman of Korean Women Entrepreneurs Association (Former) Vice Chairman of the Federation of Korean Industries	2012.09.03 ~ 2024.03.22
Park Saeng-hwan	Executive director	Director of Plasticizer Business Division	(Current) Director of the Plasticizer Business Division at Aekyung Chemical (Former) Director of the Global Business Division at Aekyung Petrochemical Co., Ltd. (Former) Division Director at Aekyung (Ningbo) Chemical Co., Ltd.	2018.03.23 ~ 2024.03.22
Kim Seong-wan	Executive director	Director of Management Administration Division (CFO)	(Current) Director of Management Administration Division at Aekyung Chemical (Former) Director of Business Planning Division at AK Chemtech (Former) Executive of Business Planning Division at AMPLUS Asset Development Inc.	2022.03.28 ~ 2025.03.27
Lee Jang-hwan	Other non-executive director	Member of the Non-Executive Director Nomination Committee	(Current) CFO of AK Holdings (Former) Head of the Finance and Investment Group at Lotte Insurance (Former) Head of Alternative Investment Team at Lotte Insurance (Former) Senior Researcher at Lotte Policy Headquarters Future Strategy Center	2022.03.28 ~ 2025.03.27
Yeon Tae-jun	Non-executive director	Chairman of the Non-Executive Director Nomination Committee, Audit Committee (Legal Expert), Internal Transaction Committee, The Non-Executive Director Nomination Committee	(Current) Vice President of Homeplus (Former) Vice President, Executive Director of GSK Korea	2019.03.22 ~ 2025.03.27
Wu Yong-sang	Non-executive director	Chairman of Internal Transactions, Audit Committee (Accounting Expert), Internal Transaction Committee	(Current) Non-executive Director & Chairman of the Audit Committee at GAON CABLE Co., Ltd (Current) Associate Professor of Accounting at Ewha Woman's University (Former) Associate Professor of Accounting at The Catholic University of Korea	2022.03.28 ~ 2025.03.27
Ju Seong-do	Non-executive director	Chairman of Audit Committee, Audit Committee (Finance Expert), Internal Transaction Committee, Non-Executive Director Nomination Committee	(Current) Auditor at UBCare Co Ltd (Former) Chairman of the Audit Committee at Aju Capital (Former) CEO of SCI Information Service	2022.03.28 ~ 2025.03.27

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Committees within the Board of Directors

Aekyung Chemical establishes and operates three committees within the Board of Directors (Audit Committee, Internal Transaction Committee, Outside Director Candidate Recommendation Committee) under the Articles of Association and board regulations. Each committee has established separate regulations, which have been disclosed on the website. To ensure the expertise of decision-making and improve operational efficiency, each committee operates primarily with non-executive directors, delegating significant authority to them. The roles and responsibilities of each member have been clearly defined to maintain checks and balances among the members of the Board of Directors.

Audit Committee

The Audit Committee performs audit tasks regarding accounting, finance, and the company's overall business under laws and regulations. The Audit Committee receives relevant documents such as financial statements from the financial and accounting departments of the company for accounting audits, reviews the audit procedures and results of the accounting firm, and reports from the CEO or internal accounting manager on the operation of the internal accounting control system established to enhance the reliability of accounting information.

Internal Transaction Committee

The Internal Transaction Committee reviews and approves transactions between the company and special-related parties, the largest shareholder, major shareholders, related companies, and other stakeholders as specified by law under the regulations of the Internal Transaction Committee. Despite having regulations on transactions with internal stakeholders, the Internal Transaction Committee is operated to ensure systematic, transparent, and fair transactions by monitoring transaction details.

Non-Executive Director Nomination Committee

On January 26, 2022, Aekyung Chemical established the Non-executive Director Candidate Nomination Committee through the Board of Directors to recommend non-executive director candidates. The committee has the right to recommend candidates for non-executive directors to be appointed at the shareholders' meeting, and to ensure independent status in recommending candidates, more than half of the committee is composed of non-executive directors.

Board Evaluation and Remuneration System

The remuneration limit of directors is determined by the resolution of the shareholders' meeting under Article 388 of the Commercial Law and Article 39 of the Articles of Association. Within this limit, payment is made in accordance with the internal salary regulations. Non-executive directors and members of the Audit Committee receive remuneration according to the contract at the time of appointment. Management and executives are evaluated based on a comprehensive assessment of job competence, and compensation is determined based on this. The director's remuneration limit resolved at the 2022 regular shareholders' meeting was 5.5 billion KRW, and the total amount of director's remuneration paid in 2022 was approximately 1.525 billion KRW. Meanwhile, in accordance with related laws, from 2013, individual directors' remuneration of 500 million KRW or more and major resolutions are disclosed through business reports to provide transparent information to stakeholders.

Remuneration of Directors and Auditors

(Unit: Million KRW, as of the end of December 2022)

Category	Member	Total remuneration	Avg. remuneration per person	Remarks
Registered director	5	1,399	280	Pyo Kyoung-won/Jang Yeong-sin/Park Saeng-hwan/Kim Seong-wan/Lee Jang-hwan
Audit Committee Member(*)	3	126	42	Yeon Tae-jun/Wu Yong-sang/Ju Seong-do

(*) The remuneration of Lee Mun-il, an auditor who resigned in March 2022, is excluded

Board Activities

The board reviews and approves the company's major investments and businesses for smooth and sound management. Aekyung Chemical held a total of 12 board meetings in 2022. The average attendance rate of incumbent directors at the board meetings was approximately 93% as of the end of 2022, maintaining a high level. The total number of agendas proposed at the 2022 board meeting was 42, with 37 resolution agendas and 5 report agendas. The 2022 activity details of the committees within the board are as follows:

Category	Number of Meetings	Agenda	Approval	Report
Audit Committee	4	6	4	2
Internal Transaction Committee	7	7	4	4
Non-Executive Director Nomination Committee	1	2	2	-

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Ethical Management and Compliance

Main Ethical Management Programs

Ethical Management System

Aekyung Chemical aims to be a company that contributes to society by creating a prosperous and happy life with leading ideas, technology, and management based on love and respect. We adhere to the ethics charter as a standard for fulfilling social responsibilities as a corporate and inherent roles. We will realize ethical management by building mutual trust with various stakeholders, such as customers, shareholders, employees, competitors, and partners, in the process of continuous growth.

Proclamation of Ethics Charter and Code of Ethics

Aekyung Chemical recognizes the company's legal and ethical responsibilities and strives to fulfill its social responsibilities. We contribute to the enhancement of social and corporate values through the practice of ethical management and the promotion of correct ethical awareness. Aekyung Chemical has established an ethics charter and a code of ethics, which are standards for employees' correct behavior and value judgments. The Ethics Charter and the Code of Ethics, which all employees must abide by, are posted on the website.

Ethics Charter

- 01** We respect laws and social norms and do not engage in illegal or unfair activities.
- 02** We prioritize trust with customers and strive for customer happiness.
- 03** We respect shareholders' rights and increase the company's value through transparent and efficient management.
- 04** We respect the diversity of employees, do not discriminate, and trust and cooperate.
- 05** We respect the principle of fair trade and pursue the value of a sound market order and co-prosperity.
- 06** We faithfully perform the social roles and responsibilities required of the company as a member of society.

Key Contents of the Code of Ethics

Category	Key Contents
Compliance with Law	<ul style="list-style-type: none"> · Compliance with domestic and foreign laws · Efforts to prevent unfair conduct · Prohibiting stock trading using internal information acquired from work · Protecting company assets and important information, prohibiting unfair trade practices · Preventing all forms of sexual harassment, including physical, verbal, and visual language and actions · Prohibiting to receive money and benefits from all stakeholders
Attitude towards Customers	<ul style="list-style-type: none"> · Maintaining trust through the provision of products and services that can satisfy customers · Pursuing customer happiness
Attitude towards Shareholders	<ul style="list-style-type: none"> · Respect for shareholder rights · Fair and equal treatment of all shareholders, including minority shareholders · Providing accurate management information in a timely manner in accordance with relevant laws and regulations
Attitude towards Employees	<ul style="list-style-type: none"> · Providing fair opportunities based on ability and qualifications and fair evaluation · Creating a healthy and safe working environment
Attitude towards Competitors and Partners	<ul style="list-style-type: none"> · Fair and legitimate competition with competitors according to the principle of free competition · Pursuing mutual development through fair trade with partner companies
Basic Ethics for Employees	<ul style="list-style-type: none"> · Sincere performance of the mission assigned by empathizing with the goals and values pursued by the company · Striving to prevent the occurrence of actions or relationships that conflict with the company's interests · Prohibiting to use the company's organization, personnel, and property for political purposes · All employees must faithfully comply with the Code of Ethics

The Practice of Ethical Management

Pledge of Ethical Management

All members pledge their commitment to ethical management annually.

Operation of Report System on the Website

We operate a reporting channel on our website to allow various internal and external stakeholders to report unethical activities. All received matters are treated confidentially, and the whistleblower's protection is prioritized under any circumstances.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

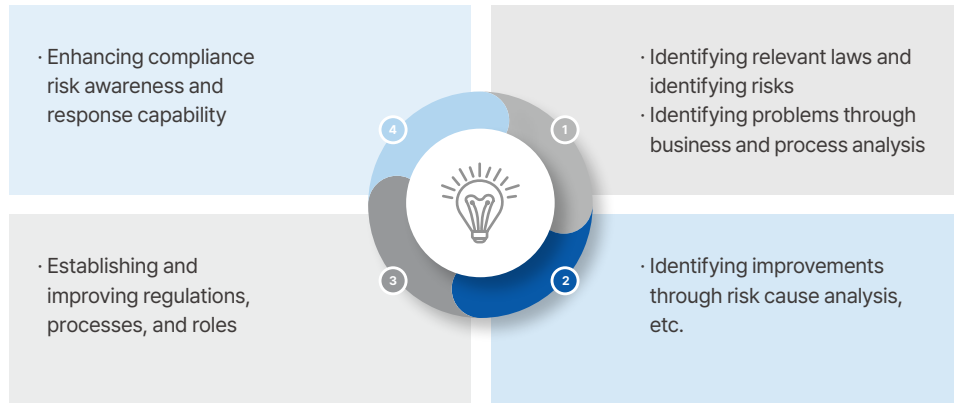
Appendix

Compliance

Compliance Management System

The demand for corporate social responsibility and legal regulation is strengthening. Aekyung Chemical conducts compliance activities in the Compliance Office directly under the CEO to enhance the awareness of fair trade risk among employees and establish a compliance management system. The Legal Affairs Team is always practicing review of contracts and legal advice and organizing internal regulations related to compliance activities. Also, the team strives to ensure compliance of legal standards and fair competition and transaction in overall processes by periodic on and off-line educating. Every year, we select legal risks closely related to the tasks of the working departments and perform compliance support activities to mitigate or eliminate risk factors. We aim to introduce a company-wide compliance system that can regularly self-assess compliance.

Compliance Organization



Compliance Support Activities

Compliance Education	New employees	· Education on contract drafting and review processes
	All employees	· Education on the protection of trade secrets, anti-corruption, fair trade, and practical contract drafting
Contract Review and Legal Advice	All employees	· Providing contract reviews and legal advice through the operation of an in-house legal affairs system (LSS) · Using standard contracts reflecting the latest amendments to laws and regulations
	All employees	· Legal risk advice on projects requiring reviews, such as large-scale investments
Monitoring Activities	All employees	· Sending compliance letters (changes in laws and regulations) · Conducting inspections such as the status of original contract storage, compliance with subcontracting laws, and regulations

Introduction of Legal System for Compliance Management



Contract · Advice

- Contract review, legal advice
- Legal review of new business
- Response to international issues



Dispute Management

- Litigation response
- Response to investigations and examinations

Sending Compliance Letters



Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Compliance Program and Education

Aekyung Chemical conducts compliance education to enhance employees' legal awareness and conducts online and collective education. In addition, we are expanding our advice on laws related to compliance, such as fair trade and anti-corruption, issuing compliance letters to all employees on amendments to laws and regulatory trends, and introducing and expanding standard contracts to prevent risks in advance and strive for transparent and fair transactions.

Especially, Aekyung Chemical will continue providing support for drafting standard contracts, conducting compliance education, and sharing compliance letters for overseas corporations and subsidiaries to establish the compliance system.

Media

"Properly Understanding and Practicing ESG Management"



Aekyung Chemical continuously improves corporate transparency and fairness and consistently carries out ESG management activities. Aekyung Chemical held 'ESG and Legal Education' for all employees on June 9, pledging to build a cleaner and more ethical corporate culture. In this education session, they provided legal information to prevent corporate corruption and conduct fairer transactions. So far, Aekyung Chemical has set up a dedicated organization, such as the Compliance Team and the EHS Strategy Team, established an ESG management system, and is operating it stably. It monitors ESG risks and opportunities encountered during business operations to create an environment to fulfill the company's social and legal responsibilities and contribute to a sustainable society. This legal education is also an extension of such efforts. Aekyung Chemical said, "The key point in ESG management is to improve the awareness of our employees and increase their participation. We will introduce various policies, related systems, and devices to establish the foundation of ESG management and increase the understanding of ESG among our employees through repeated education."

Execution of Compliance Education

Education on Contract Management Process	Time	· April 25, 2022. 09:00 ~ 10:00 (Araum Hall, held online simultaneously)
	Content	· Understanding the importance of contracts and compliance with the contract management process
	Target	· All employees
Education on Anti-Corruption and Fair Trade	Time	· June 09, 2022. 10:00 ~ 11:30 (Araum Hall, held online simultaneously)
	Content	· Understanding domestic and foreign anti-corruption laws and policy trends and the company's ethical regulations · Preventing and enhancing legal awareness of legal violation risks that can occur during work, such as unfair joint actions and unfair trade practices
	Target	· All employees
Education on Subcontracting Law	Time	· September 15, 2022. 10:00 ~ 11:00 (Araum Hall, held online simultaneously)
	Content	· Understanding major concepts related to subcontracting · Preventing and enhancing legal awareness of legal violation risks that can occur in subcontracting transactions
	Target	· All employees
Education on Trade Secret Protection	Time	· October 24, 2022. 10:00 ~ 11:00 (Araum Hall, held online simultaneously)
	Content	· Understanding major concepts related to technology and trade secret protection · Enhancing awareness of the problem by sharing cases of technology and trade secret leaks by current and former employees
	Target	· All employees

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Voluntary Compliance Activities for Fair Trade

Fair Trade Compliance Program

Aekyung Chemical introduced a voluntary compliance program (CP, Compliance Program) in December 2022, the first year after the merger of its affiliates (November 1, 2021), through a resolution of the board of directors to voluntarily comply with fair trade regulations and conduct transparent and creative corporate activities.

In particular, under the overall management of the voluntary compliance manager appointed by the CEO, the Legal Affairs Team, the management department, operates the Fair Trade Compliance Program. The Legal Affairs Team is establishing a system to provide employees with standards of behavior for compliance with fair trade regulations and to prevent and improve measures against violations of fair trade-related laws. They are also strengthening a substantial compliance control system for fair trade and co-prosperity, such as producing and distributing a voluntary compliance booklet for fair trade and implementing fair trade law education for employees. Through the Fair Trade Compliance Program, we will enhance the compliance awareness of our members and prevent legal violations in advance, thereby improving the company's internal and external credibility.



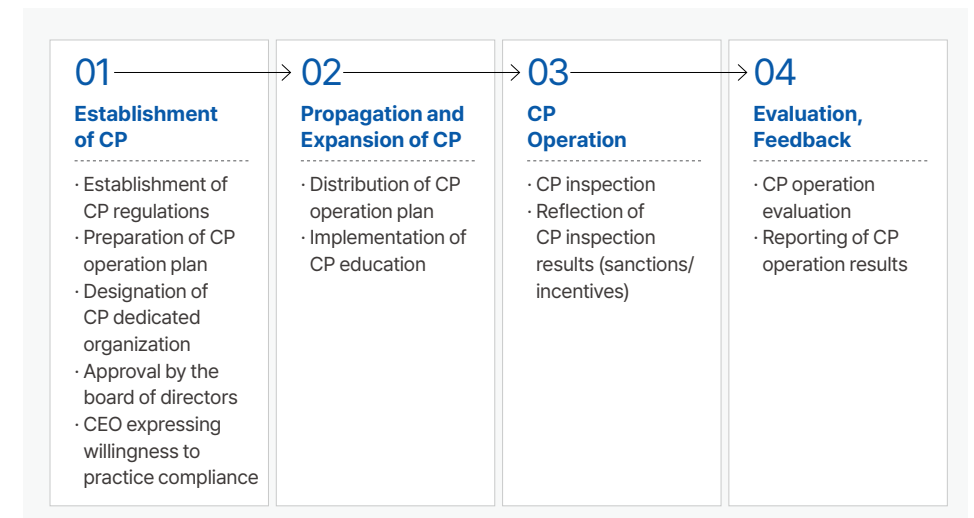
Media

"Introduction of Fair Trade Compliance Program, Strengthening ESG Management"

Aekyung Chemical has introduced a voluntary fair trade (CP) compliance program to respond to the global competitive era and strengthen ESG management. The fair trade compliance system is an internal compliance system and code of conduct that companies establish and operate independently to comply with fair trade-related laws. Not only educational programs for prevention are needed, but also processes which can detect and correct violations in early stages need to be established. Aekyung Chemical explained that it decided to introduce a fair trade voluntary compliance system to proactively establish a fair trade culture, as violations of fair trade-related laws are becoming a serious risk that threatens the survival of companies. They plan to further strengthen ESG management in the future by introducing the fair trade compliance program.



Fair Trade Compliance Program (CP)



Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Supply Chain Compliance Activities

Supply chain management has recently emerged as a major issue in evaluating companies, making the systematic management of supply chain compliance risks increasingly important. To respond to this, Aekyung Chemical conducts preemptive legal risk checks related to subcontracting transactions, continually monitors them with employee education, and strives to create sustainable management and fulfill social responsibilities.

Aekyung Chemical concludes an integrity contract compliance pledge with partners when signing a contract to create transparent and fair transactions, applies standard contracts of the Fair Trade Commission, and continuously deploys supply chain compliance through the expanded use of standard contracts to foster cooperation with small and medium-sized enterprises.

Details of Supply Chain Compliance Activities

Subcontracting Transaction Inspection (Plan for 2023)	<ul style="list-style-type: none"> Inspecting the obligation to issue and retain documents under the Subcontracting Act Inspecting subcontract payment terms and response to the disclosure
Creating and distributing a standardized subcontracting agreement and its explanation	<ul style="list-style-type: none"> Using standard contracts reflecting the Subcontracting Act and the Mutually Beneficial Cooperation Act Collecting pledges for contract compliance from cooperative companies and reflecting anti-corruption clauses Creating and distributing explanatory materials for standard contracts (plan for 2023)
Education on the Fair Trade Act and Subcontracting Act	<ul style="list-style-type: none"> Education for staff in charge of subcontracting Employee education on corruption prevention and fair trade
Creating and Distributing Fair Trade Compliance Booklet	<ul style="list-style-type: none"> Regulations of the Fair Trade Act and Subcontracting Act, main types of legal violations, guidelines for subcontracting tasks, etc.

Aekyung Chemical actively encourages its partners to jointly sign a contractual agreement incorporating an Integrity Contract Compliance Clause and a separate Integrity Contract Performance Pledge. This is part of Aekyung Chemical's efforts to manage supply chain compliance risks, prevent legal risks, and promote transparent and fair business practices.

Key Anti-Corruption Provision

Article 51 Obligation to Comply with Anti-Corruption Regulations

- ① The Principal Contractor and the Subcontractor hereby confirm that securing the fairness of transactions is a crucial precondition for the execution and maintenance of this contract. Each party (including relatives or associates equivalent to the party in question), their employees, and any third parties related to this contract, must abstain from any direct or indirect actions that could compromise the fairness of transactions as specified below.
1. Providing cash, gift certificates, or other forms of securities
 2. Offering memberships, access rights, or other physical gifts
 3. Offering hospitality at inappropriate venues, engaging in gambling activities, or offering golf outings
 4. Providing travel or vacation support (including transportation, lodging, and tourism), offering equipment, or sponsoring events. However, the provision of low-value souvenirs or promotional items that are equally offered to all participants at the official, work-related events are exempted.
 5. Engaging in any money or real estate transactions, such as lending, leasing, repaying debts, guaranteeing, buying, and selling
 6. Offering or promoting investments in company stocks or properties of the party or related entities
 7. Providing opportunities for (joint) investments or property acquisitions or proposing concurrent employment in the party's company
 8. Offering future security in the form of employment promises or job referrals
 9. Engaging in any other activities that could obstruct the other party's ability to perform their duties in a fair and effective manner Standard Contractual Agreement



Standard Contractual Agreement



Pledge of Compliance with the Integrity Contract



Fair Trade Compliance Manual

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Shareholder Rights Protection

Stock Ownership and Shareholder Composition

The maximum number of shares that we can issue according to our Articles of Association is 200 million shares, and the total number of shares issued to date is 48,648,709. The largest shareholder, Aekyung Holdings Co., Ltd., and its special relations hold 66.31% of the shares, and none of our officers own company shares.

Aekyung Chemical split its shares according to the split ratio when it was established by the division on September 3, 2012. After deciding to acquire treasury shares on March 14, 2017, it acquired 460,000 by May 12 of the same year. As of the end of 2022, it holds 476,432 shares acquired due to fractional shares generated during the merger process on November 1, 2021, and there is no plan to purchase or cancel treasury shares as of the report writing date.

Shareholder Status		
(As of the end of 2022, based on common shares)		
Category	Number of owned shares (shares)	Shareholding ratio (%)
Aekyung Holdings Co., Ltd., and 5 others*	32,260,411	66.31
Treasury shares	476,432	0.98
National Pension Service	697,368	1.43
Other shareholders	15,214,498	31.28
Total	48,648,709	100

*Aekyung Holdings Co., Ltd., and 5 others refer to the largest shareholder and special relations.

Convocation Method of Shareholders' Meeting

Aekyung Chemical ensures to convey the relevant content to all shareholders by disclosing information on the date, place, and agenda of the shareholders' meeting through the electronic disclosure system and the corporate website, in accordance with the procedures stipulated in the Commercial Law and Articles of Association, two weeks before the shareholders' meeting. We send separate notices of convening to shareholders with a shareholding ratio of 1% or more.

Article 19 of the Articles of Association (Notice and Public Notice)

- ① When convening a general meeting of shareholders, the meeting's date, place, and agenda must be notified to the shareholders in writing or by electronic document two weeks before the meeting date.
- ② A public notice, which can be substituted for the notice of convening in Paragraph 1, stating the intention to convene a general meeting of shareholders and the agenda can be made twice or more in the Maeil Business Newspaper and JoongAng Ilbo, published in Seoul, two weeks prior, or on the electronic disclosure system operated by the Financial Supervisory Service or the Korea Exchange, to shareholders who own shares less than 1/100 of the total issued shares with voting rights.

Aekyung Chemical guarantees the right of shareholders to propose according to Article 363-2 of the Commercial Law. Shareholders who own more than 3% of the total issued shares with voting rights can propose to make matters within the scope allowed by laws or articles of incorporation as the purpose of the shareholders' meeting up to six weeks before the date of the shareholders' meeting. In addition, they can claim to add to the agenda of the meeting and write the outline of the proposal submitted by the shareholder in the notice and announcement of the convening of the general meeting six weeks before the date of the shareholders' meeting. Our communication team and other related departments handle shareholder proposals, and there have been no cases of shareholder proposals to date.

Category		2020	2021	2022
Shares	Ownership ratio by majority shareholders (%)	49.44	62.23	62.23
	National Pension share ratio (%)	4.98	1.77	1.43
	Ownership ratio by owner families (%)	0.02	4.09	4.09
Activating to exercise voting rights	Introduction of electronic voting	X	○	○
	Solicitating proxy voting for all shareholders	○	○	○
Protecting shareholder rights	Avoiding a concentrated date of shareholders' meeting	X	○	○
	Notifying agenda before shareholders' meeting	○	○	○

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Shareholder Rights Protection Activities

Aekyung Chemical determines the schedule of shareholder's meeting after considering the schedule of consolidated settlement including subsidiaries and the date of receipt of the audit report from the accounting firm. In relation to the convening of the shareholders' meeting, we strive to avoid the concentrated convening date of the shareholders' meeting to increase the participation rate of shareholders as much as possible.

In addition, to increase the attendance rate of shareholders and facilitate the exercise of voting rights, we have adopted and implemented the electronic voting system. We encourage shareholders to proxy voting either directly or electronically for the smooth exercise of voting rights, and we are also considering the introduction of various shareholder convenience systems.

We have disclosed the status of the exercise of voting rights at the shareholders' meeting (the number of attending shares and attending voting rights, the results of voting for and against each agenda, etc.) on our website.

The 11th Regular Shareholders' Meeting

Total number of issued shares	48,648,709
Number of shares with voting rights	48,172,277
Number of shares held by attending shareholders*	34,865,773
Number of attending shares excluding majority shareholders and special related parties	3,529,183
Total number of shareholders	17,160
Number of attending shareholders	156

Activities for the Protection of Shareholders' Rights

- 01 Holding shareholders' meetings avoiding concentrated dates
- 02 Implementing the electronic voting system
- 03 Solicitating proxy voting
- 04 Publicly disclosing the status of exercising voting rights at the shareholders' meeting



* 74.58% of the number of shares with voting rights

Dividend

Aekyung Chemical carries out an annual cash dividend settlement as part of its efforts to return profits to shareholders. Dividend-related information is announced through the 'Disclosure of Cash/In-kind Dividend Decision' two months before the shareholders' meeting.

Our dividend policy is to maintain a stable cash dividend level over the long term, with a consolidated dividend propensity of around 30% for shareholder returns. The basic principle is to expand dividends in a stable and gradual manner, and we will unfold our shareholder return policy by maintaining a stable cash dividend level over the long term, taking into account our financial status, investment plans for sustainable growth, enhancement of shareholder value, mid-term business plans, financial structure, dividend stability, cash flow, etc.

The scale of shareholder returns (dividends) in 2022 is 550 KRW per share (a total of 26.5 billion KRW in size), and the dividend yield is 5.7%. This is higher than the average dividend yield of listed companies during the same period, and we will continue to strive to enhance shareholder value in the future.

Category	Settlement month	Aekyung Chemical cash dividend / Other listed companies' cash dividend status				
		Dividend per share	Dividend yield	Dividend propensity (separate)	Dividend yield	Dividend propensity (separate)
2022	December	550	5.7%	47.1%	2.91%	35.4%
2021		550	4.9%	42.9%	2.43%	31.1%
2020		350	3.8%	28.6%	2.42%	42.4%

* Refer to the main dividend statistics of listed companies with a December settlement in the Data Room of the Listed Companies Association.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Comprehensive Risk Management

Risk Management System

Aekyung Chemical identifies and responds to potential risk factors that can arise across the business through systematic risk management. We manage risks comprehensively and systematically, ranging from financial risks that are generally possible to non-financial risk areas closely related to ESG, such as environment, safety, information security, and ethics/compliance.

The Compliance Office and Management RM team, directly under the CEO, oversees overall risk management, defining potential risks in advance and assigning responsible departments. When identifying risks, such as changes in industrial structure, market changes, and the emergence of global issues, the responsible department identifies and analyzes the risk and decides the level of response to the analyzed risk. The response results are monitored, and we receive the support and monitoring of the ethics/compliance department, internal audit system, and internal control system to strengthen the system for preventing recurrence and pre-emptive prevention.

Aekyung Chemical aims to minimize losses due to risks by establishing a risk management system, including analysis of risk by type and establishing response strategies. We plan to form committees and councils that can comprehensively analyze risk management status to improve the system. By improving the risk management system, we will strive for stable and sustainable growth by appropriately responding to uncertainties that can arise in the process of corporate activities.



Risk Management Plan

Aekyung Chemical prepares to identify and respond to various risks that can occur for sustainable management at all times.

Category	Types of risk	Content	Response strategy	Responsible department
Financial	Economy/Finance	Risk of loss that can occur due to fluctuations in financial markets such as interest rates, exchange rates, and changes in raw materials, oil prices, and trade disputes	<ul style="list-style-type: none"> Monitor financial markets and conduct foreign exchange risk-hedging transactions Regularly monitor and report on international oil prices and raw material trends Diversify raw material supplies 	Purchasing Division, Fund Team
	Credit	A risk that can occur due to changes in the creditworthiness of the counterparty	<ul style="list-style-type: none"> Set different total credit limits based on credit investigations of suppliers Operate an Accounts Receivable Management Council and manage potential bad debt suppliers 	Management RM Team
	Liquidity	Potential risks during the process of operating funds shortage and funds procurement	<ul style="list-style-type: none"> Regularly monitor and report on cash flow and liquidity status 	Fund Team
	Taxes	Tax-related risks that can occur in overall management activities	<ul style="list-style-type: none"> Fulfill tax obligations according to the regulations of the country where the business is located Comply with OECD Transfer Pricing Guidelines Manage the implementation status of BEPS reports and transfer pricing reports 	Finance Team
Non-financial	Environment	Risk of regulatory violations (damage to corporate image, payment of fines, etc.) according to the strengthening trend of environmental policies and related regulations	<ul style="list-style-type: none"> Organize EHS management Reduce greenhouse gases and other carbon emissions Increase the production of eco-friendly products and purchase eco-friendly raw materials Add ESG agenda items to the board of directors 	EHS Strategy Team
	Waste	Potential for environmental pollution accidents caused by waste	<ul style="list-style-type: none"> Establish waste management regulations 	EHS Strategy Team, Safety Environment Team
	Occupational Safety	Potential for occupational accidents involving workers	<ul style="list-style-type: none"> Acquire ISO45001 (Occupational Health and Safety Management System) Establish and operate an Occupational Safety and Health Committee Conduct joint safety/health inspections through the establishment of a cooperation company council 	EHS Strategy Team, Safety Environment Team
	Human Rights	Labor issues, such as workplace harassment, discrimination, and gender issues, such as gender discrimination	<ul style="list-style-type: none"> Prevent human rights issues such as workplace harassment and gender discrimination through education Establish a human rights management policy and charter (plan human rights impact assessments) Operate ethics management education and channels 	HR Strategy Team, Management RM Team
	Ethics/ Compliance	A risk that can arise from inappropriate internal processes, personnel, or systems	<ul style="list-style-type: none"> Operate a balanced board of directors through the Audit Committee Strive to gain trust from all stakeholders through ethical management Design and operate an internal accounting management system 	Management RM Team, Legal Team

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Strengthening Board Integrity

Ethical Management and Compliance

Shareholder Rights Protection

Comprehensive Risk Management

Strengthening Information Security

Appendix

Strengthening Information Security

Structure

Aekyung Chemical protects corporate and personal information to protect key strategic assets (information on product and technology development) and effectively prevent damage from security threats such as hackers' viruses and various malicious programs (including ransomware). We carry out various information security and personal information activities, classified into 'human security', 'physical security', and 'IT service security'. We have established information protection policies and regulations to protect the company's information assets and personal information in compliance with domestic security-related laws and regulations such as the Unfair Competition Prevention and Trade Secret Protection Act, and Privacy Act. We are implementing information protection procedures under related policies and regulations. Aekyung Chemical has appointed a chief information security officer (CISO) for systematic information protection management and has been conducting information protection disclosure since 2022 as a subject of information protection disclosure obligation under the Information Protection Industry Act.

Activities

Category	Responsible Department	Content
Human Security (Personal Information Protection)	HR Strategy Team	We collect information security pledges from new hires and investigate their past career details, such as handling company secrets at their previous job and any employment restrictions with other companies. All employees must sign an ethics management (related to information security) pledge each year and complete personal information processing training and regular security training at least once a year. We conduct an annual review of security management status, the status of job secrecy, security of external companies and personnel, control of outsider access, and security guard training.
Physical Security	Organizational Culture Team Business Support Team	We have set up and operate restricted and controlled areas to protect company secrets, special materials, and facilities. We have established our security plans for these protected areas and conduct security services under authorized procedures.
IT Service Security	Management RM Team	With the rise of digital transformation and remote work, IT service security is becoming increasingly important. Accordingly, Aekyung Chemical has introduced solutions such as DLP* and AVG antivirus to prevent information leaks in advance, and to perform network and application system access control and management.

* DLP: Data Loss Prevention

Awareness Promotion

The employees of Aekyung Chemical write an information protection and confidentiality pledge separately from the annual ethical management pledge. Reflecting recent trends, we have enhanced information protection awareness by writing a separate notebook information protection compliance pledge in line with the creation of a smart office environment where we can work from home or outside the office.

Employees regularly complete training on personal information protection and alternatives to cyber-attacks yearly. When dealing with important company information, we sign a separate confidentiality agreement with the contracting party, and we not only protect the company's information assets but also comply with the duty of confidentiality of the counterparty's information assets and work on the business.

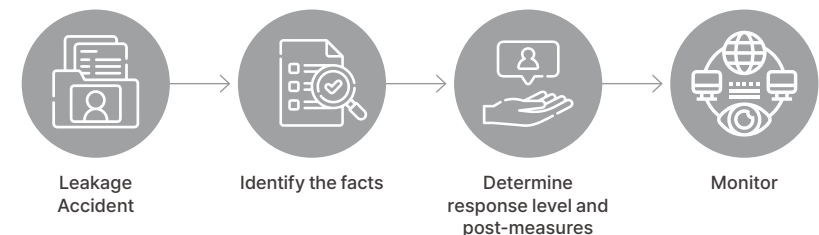
We run campaigns to make employees aware of the importance of information protection activities



Response Process

Aekyung Chemical operates a system to prevent information security and personal information leakage. Despite this, in case of violation of information protection regulations or related laws or serious security leakage accidents, we have established and implemented an accident response system to minimize damage. In 2022, no incidents or accidents related to information security and personal information leakage occurred.

Process



ESG Facts & Figures	81
GRI Index	91
SASB Index	93
UN SDGs Activities	94
Awards and Membership	95
GHG Verification Opinion	96
Independent Auditors' Report	97

Appendix



Financial Performance

Consolidated Financial Position

(KRW in millions)

Classification	2020	2021	2022
Assets			
Current assets	296,203	604,836	591,670
Cash and cash equivalents	68,239	62,948	99,291
Trade receivables	63,509	201,288	189,308
Other receivables	585	8,844	1,156
Financial assets measured fair value through profit or loss	67,672	-	-
Amortized cost	47	8,036	8,281
Other current assets	20,542	45,785	25,432
Inventory	75,609	277,935	256,528
Derivatives assets	-	-	2,820
Assets held for sale	-	-	8,854
Non-current assets	235,948	640,130	642,413
Long-term trade receivables	232	15	10
Other long-term receivables	693	1,073	1,332
Financial assets measured fair value through other comprehensive income	1,441	6,959	6,286
Amortized cost	68	28	-
Financial assets measured fair value through profit or loss	-	16	16
Derivatives assets	-	1,293	-
Investments in associates	33,700	39,980	32,403
Tangible assets	176,149	508,697	551,691
Right-of-use asset	1,753	23,666	24,929
Intangible asset	11,997	22,305	20,843
Investment property	8,923	27,971	1,816
Other non-current assets	871	1,885	1,959
Deferred tax assets	-	6,242	1,128
Net defined benefit assets	121	-	-
Total assets	532,151	1,244,966	1,234,083

(KRW in millions)

Classification	2020	2021	2022
Liabilities			
Current liabilities	126,114	481,911	473,849
Trade payables	53,603	153,458	123,372
Short-term borrowings	33,487	131,749	186,460
Current portion of long-term borrowings	1,714	81,081	47,485
Current long-term lease liabilities	435	717	1,434
Accounts payable and other debts	19,251	84,180	78,024
Derivatives liabilities	-	146	-
Accrued tax liabilities	7,481	16,798	19,839
Other current liabilities	10,143	13,782	17,235
Non-current liabilities	14,831	73,930	32,088
Long-term borrowings	10,286	46,512	7,631
Non-current lease liabilities	81	5,644	7,349
Long-term accounts payable and other liabilities	1,288	9,073	10,267
Defined benefit obligation	-	4,427	1,451
Other long-term employee liabilities	840	2,569	2,475
Deferred tax liabilities	2,336	3,757	1,468
Other non-current liabilities	-	1,948	1,447
Total liabilities	140,945	555,841	505,937
Equity			
Equity owned by the controlling company	394,517	692,906	728,118
Capital stock	16,020	24,324	24,324
Capital surplus	114,152	338,240	338,240
Other components of equity	(5,235)	(5,114)	(5,039)
Accumulated other comprehensive income	(438)	2,659	4,304
Retained earnings	270,018	332,797	366,289
Non-controlling interest	(3,311)	(3,781)	28
Total equity	391,206	689,125	728,146
Total liabilities and equity	532,151	1,244,966	1,234,083

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Consolidated Comprehensive Income Statement

(KRW in millions)

Classification	2020	2021	2022
Sales	908,852	1,570,090	2,176,437
Cost of sales	802,639	1,412,201	1,954,291
Gross profit	106,213	157,889	222,146
Selling and administrative expenses	48,725	64,628	127,059
Operating profit	57,488	93,261	95,087
Other income	7,521	8,309	36,115
Other costs	6,221	19,666	35,343
Financial income	5,549	6,036	7,930
Financial cost	8,292	6,776	16,415
Equity method investment in associates	1,401	16,474	5,398
Net profit before tax	57,446	97,638	92,772
Corporate tax	13,120	20,349	33,408
Net profit	44,326	77,289	59,364
Attribution of net income			
Net profit attributable to the parent company	44,406	77,372	60,148
Non-controlling interests	(80)	(83)	(784)
Other comprehensive income	(2,173)	(846)	1,605
Items that may be reclassified to profit or loss	(1,081)	2,524	2,297
Foreign exchange difference	(915)	2,224	2,480
Amount of equity in associates' other comprehensive income	(166)	373	(256)
Gain (loss) on derivatives valuation	-	(73)	73

(KRW in millions)

Classification	2020	2021	2022
Items that are not reclassified to profit or loss	(1,092)	(3,370)	(692)
Remeasurement component of net defined benefit liability	(1,087)	(3,557)	(177)
Gain or loss on valuation of financial assets measured at fair value through other comprehensive income	(5)	187	(515)
Total comprehensive income	42,153	76,443	60,969
Attribution of total comprehensive income			
Equity owned by the parent company	42,254	76,913	61,616
Non-controlling interest	(101)	(470)	(647)
Earnings per share			
Basic earnings per share (KRW)	1,407	2,302	1,249
Diluted earnings per share (KRW)	1,406	2,300	1,248

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Environmental Performance

Greenhouse Gas Emissions

(Unit: tCO₂eq)

Classification		2020	2021	2022
Direct GHG emissions*	Ulsan Plant	96,511	108,621	101,368
	Cheongyang Plant 1	7,825	7,261	8,413
	Cheongyang Plant 2	5,721	4,566	4,045
	Jeonju Plant	243	278	158
	Daejeon Plant	115	126	133
	Headquarters, etc.	-	232	166
Subtotal		110,415	121,084	114,283
Indirect GHG emissions*	Ulsan Plant	45,381	47,872	46,632
	Cheongyang Plant 1	6,020	6,134	6,710
	Cheongyang Plant 2	8,696	7,873	7,132
	Jeonju Plant	2,135	2,784	1,479
	Daejeon Plant	1,784	1,478	1,509
	Headquarters, etc.	-	575	852
Subtotal		64,016	66,716	64,314
Total		174,431	187,800	178,597
GHG intensity		19.19	11.96	8.21

* The above data are based on the standard emissions at the time of submission of emission permits in 2022. We will report the data based on the certified amount of emission permits submitted until the 3rd planning period (2021-2025) of the emission trading system.

* tCO₂eq / sales (KRW 100 millions)

Energy Consumption

Classification		2020	2021	2022
Energy consumption (Unit: TJ)	Ulsan Plant	1,419	1,534	1,376
	Cheongyang Plant 1	269	262	276
	Cheongyang Plant 2	294	254	228
	Jeonju Plant	48	64	33
	Daejeon Plant	39	33	34
	Headquarters, etc.	12	12	19
Total		2,081	2,159	1,966
Energy intensity*		0.23	0.14	0.09
Renewable energy consumption (Unit: kwh)	Ulsan Plant	-	-	-
	Cheongyang Plant 1	-	-	-
	Cheongyang Plant 2	64,400	54,764	65,149
	Jeonju Plant	-	-	-
	Daejeon Plant	-	-	-
Total		64,400	54,764	65,149

* TJ / sales (KRW 100 millions)

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Water Consumption

(Unit: t)

Classification	2020	2021	2022
Ulsan Plant	1,184,731	1,464,335	1,557,421
Cheongyang Plant 1	57,944	58,066	73,485
Cheongyang Plant 2	137,687	151,211	135,190
Jeonju Plant	21	27	2
Daejeon Plant	33,284	31,523	34,357
Total	1,413,667	1,705,162	1,800,455

Percentage of Reused Water

(Unit: %)

Classification	2020	2021	2022
Ulsan Plant	-	4.86	14.95
Cheongyang Plant 1	-	-	-
Cheongyang Plant 2	-	-	-
Jeonju Plant	-	-	-
Daejeon Plant	-	-	-

Waste Discharge

(Unit: t)

Classification	2020	2021	2022
Ulsan Plant	8,809	8,852	8,568
Cheongyang Plant 1	1,159	1,301	886
Cheongyang Plant 2	925	1,153	1,050
Jeonju Plant	33	25	28
Daejeon Plant	175	173	167
Total	11,101	11,505	10,698
General waste	-	-	4,229
Designated waste	-	-	6,470
Total	-	-	10,698

Waste Recycling

(Unit: t)

Classification	2020	2021	2022
Ulsan Plant	5,855	5,557	5,269
Cheongyang Plant 1	803	837	402
Cheongyang Plant 2	413	546	630
Jeonju Plant	-	-	-
Daejeon Plant	-	-	-
Total	7,071	6,940	6,301

Chemicals Emission

(Unit: kg)

Classification	2020	2021	2022
Ulsan Plant	16,118	13,267	12,056
Cheongyang Plant 1	8,000	6,847	6,281
Cheongyang Plant 2	2,917	2,438	2,197
Jeonju Plant	-	-	-
Daejeon Plant	563	473	487
Total	27,598	23,025	21,021

Hazardous Chemicals Consumption

(Unit: t)

Classification	2020	2021	2022
Ulsan Plant	176,576	188,209	174,853
Cheongyang Plant 1	6,257	19,221	17,605
Cheongyang Plant 2	12,087	10,919	8,833
Jeonju Plant	632	776	383
Daejeon Plant	1,882	2,092	2,100
Total	197,434	221,217	203,774

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Air Pollutants Emission

(Unit: kg)

Classification		2020	2021	2022
Sulfur Oxides (SOx)	Ulsan Plant	-	363	163
	Cheongyang Plant 1	1,026	216	1,050
	Cheongyang Plant 2	111	0	407
	Jeonju Plant	-	-	-
	Daejeon Plant	679	2,765	1,021
Total		1,816	3,344	2,641
Nitrogen Oxides (NOx)	Ulsan Plant	-	11,172	16,760
	Cheongyang Plant 1	6,266	14,237	3,411
	Cheongyang Plant 2	4,333	4,073	4,702
	Jeonju Plant	-	-	-
	Daejeon Plant	-	21	354
Total		10,599	29,503	25,227
Nitrogen Oxides (NOx) TMS	Ulsan Plant	-	-	-
	Cheongyang Plant 1	15,484	15,484	11,159
	Cheongyang Plant 2	12,114	11,961	11,807
	Jeonju Plant	-	-	-
	Daejeon Plant	-	-	-
Total		27,598	27,445	22,966
Dust	Ulsan Plant	421	8,011	10,897
	Cheongyang Plant 1	749	1,566	564
	Cheongyang Plant 2	796	1,487	1,114
	Jeonju Plant	3,543	4,514	2,324
	Daejeon Plant	72	90	194
Total		5,581	15,668	15,093

Water Pollutants Emission

(Unit: kg)

Classification		2020	2021	2022
Biochemical Oxygen Demand (BOD)	Ulsan Plant	4,525	1,732	963
	Cheongyang Plant 1	4,445	4,572	1,580
	Cheongyang Plant 2	4,955	1,017	2,114
	Jeonju Plant	-	-	-
	Daejeon Plant	68	67	65
Total		13,993	7,388	4,722
Chemical Oxygen Demand (COD)	Ulsan Plant	6,787	4,782	4,450
	Cheongyang Plant 1	2,153	5,112	3,701
	Cheongyang Plant 2	3,558	2,328	2,229
	Jeonju Plant	-	-	-
	Daejeon Plant	165	102	101
Total		12,663	12,324	10,481
Suspended Solids (SS)	Ulsan Plant	10,636	2,748	625
	Cheongyang Plant 1	823	360	403
	Cheongyang Plant 2	12,282	614	1,312
	Jeonju Plant	-	-	-
	Daejeon Plant	419	171	165
Total		24,160	3,893	2,505
Total Organic Carbon (TOC)	Ulsan Plant	-	4,370	2,763
	Cheongyang Plant 1	-	-	3,691
	Cheongyang Plant 2	-	-	2,806
	Jeonju Plant	-	-	-
	Daejeon Plant	-	-	-
Total		-	4,370	9,260

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

- GRI Index
- SASB Index
- UN SDGs Activities
- Awards and Membership
- GHG Verification Opinion
- Independent Auditors' Report

Drum Consumption

(Unit: EA)

Classification	2020	2021	2022
Ulsan Plant	361,988	143,809	269,596
Cheongyang Plant 1	208,620	185,860	180,646
Cheongyang Plant 2	314,849	268,372	254,198
Jeonju Plant	-	-	-
Daejeon Plant	83,858	61,579	69,588
Total	969,315	659,620	774,028

Use of Regenerative Drum

(Unit: EA)

Classification	2020	2021	2022
Ulsan Plant	276,191	66,736	159,642
Cheongyang Plant 1	65,313	55,118	43,125
Cheongyang Plant 2	187,728	147,049	162,752
Jeonju Plant	-	-	-
Daejeon Plant	80,868	56,844	60,477
Total	610,100	325,747	425,996
Consumption rate (%)	62.94	49.38	55.04

Sales of Eco-friendly Products

(Unit: KRW 100 million)

Classification	2020	2021	2022
Sales of eco-friendly products	2,689	3,883	5,087
Eco-friendly sales compared to total sales (%)	23.4	25.5	29.7

Purchase of Eco-certified Products and Services

(Unit: KRW in thousands)

Classification	2020	2021	2022
Eco-certified products	-	-	4,545

Environmental Fines or Penalties

(Unit: KRW)

Date	Sanctioned by	Worksite	Punishment or Measures	Fine or Penalty
Feb 22, 2022	Ministry of Environment Central Squad	Daejeon Plant	Fines for negligence under Article 33-1 of the Water Environment Conservation Act	640,000
Aug 26, 2022	Ministry of Employment and Labor	Cheongyang Plant	Fines for negligence under Article 115-2 of the Occupational Safety and Health Act	80,000
Sep 15, 2022	Ministry of Employment and Labor	Ulsan Plant	Fines for negligence under Article 67-1 of the Occupational Safety and Health Act	8,000,000
Dec.15, 2022	Ministry of Environment	EHS Strategy Team	Fines for negligence under Article 17 of the Act on Allocation and Transaction of GHG Emission Permits	1,600,000

Patents

(Unit: cases)

Classification	Domestic	Overseas	Applied
Plasticizer	35	6	-
Surfactant material	24	3	4
PU material	3	-	3
Coating material	37	6	-
Composite material	6	-	-
New material	16	2	3
Hard carbon	7	9	-
Total	128	26	10

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Social Performance

Employees

(Unit: person)

Classification	2021	2022
Total number of employees*	683	709

Employment Status

(Unit: person)

Classification	2021	2022
Total number of employees	683	709
By age		
Under 30	152	173
30~49	408	394
50 and older	123	142
By employment type		
Regular	585	586
Non-regular	68	94
Subtotal	653	680
Male	24	25
Female	6	4
Subtotal	30	29
Total	683	709

Labor Union Membership

(Unit: person)

Classification	2021	2022
Number of union members	123	141
Total number of employees	683	709
Union membership rate	18%	20%

Employee Diversity

(Unit: person)

Classification	2021	2022
Gender		
Total female employees	74	98
Female executives	1	1
Female managers	5	9
Disabled		
Total	14	15
Veteran		
Total	24	24
Foreigner		
Total	1	4
China	0	2
Philippines	1	1
Malaysia	0	1
Total number of employees	683	709

New Employment

(Unit: person)

Classification	2021	2022
Total number of new employees	73	128
Female	57	91
Male	16	37

Turnover

(Unit: person)

Classification	2021	2022
Average tenure of employees	11.5년	11.3년
Number of turnover	75	78
Total number of employees	683	709
Turnover rate	8.5%	11.0%

* The number of employees in this report is counted at the end of each year through an internal HR management system.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Parental Leave

(Unit: person)

Classification	2021	2022
Employees subject to parental leave	147	135
Parental leave users	6	5
Employees who returned to work after parental leave	5	5
Rate of return after parental leave	83%	100%
Employees who have worked for more than 12 months after returning	5	4
Rate of employees who have worked for more than 12 months after returning	100%	80%

Training Cost

(Unit: KRW in thousands)

Classification	2021	2022
Total number of employees	683	709
Total training cost	224,707	255,439
Training cost per employee	329	360
Training hours per employee	40 hours	48 hours

Welfare Benefits

(Unit: KRW in thousands)

Classification	2021	2022
Welfare benefits	4,697,933	7,541,317
Sales	1,116,312,988	1,712,779,790
Percentage	0.4%	0.4%

Retirement Pension

(Unit: person, KRW in thousands)

Classification	2021	2022	
Operation of retirement pension (Defined Benefit)	Number of subscribers	492	623
	Amount (estimated)	34,135,599	36,309,081

Industrial Accident

Classification	2020	2021	2022	2023 Goal	
Ulsan Plant	Industrial accidents (cases)	1	2	-	-
	Number of full-time employees	149	154	177	182
	Accident rate (%)	0.72	1.25	0.00	0.00
Cheongyang Plant	Industrial accidents (cases)	-	-	-	-
	Number of full-time employees	231	216	220	235
	Accident rate (%)	0.00	0.00	0.00	0.00

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

- GRI Index
- SASB Index
- UN SDGs Activities
- Awards and Membership
- GHG Verification Opinion
- Independent Auditors' Report

Governance Performance

BOD Operation

Classification		2020	2021	2022
BOD operation	Number of meetings held	15	14	12
	Attendance rate (average)	94.28%	94.3%	92.7%
	Number of agendas (cases)	29	51	42
	Number of votes (total)	27	49	37
	Report (cases)	2	2	5

Major Resolutions of the BOD in 2022

Session	Date	Agendas and Reports	Attendance of Outside Directors
1	Jan. 26	Separate and consolidated financial statements and business report	1/1
		Cash dividend for the 2021 fiscal year	
		Revision of internal accounting management regulation	
		Plans for occupational safety and health in 2022	
		Establishment of the Outside Director Nominating Committee	
2	Feb.18	Outside Director Nominating Committee operation regulation (draft)	1/1
		Convocation of the 10th general shareholders' meeting	
		Implementation of electronic voting system	
		Report on internal accounting management system operation	
		Revision of the BOD regulation	
3	Mar.18	Cancellation of stock option grant	1/1
		Separate and consolidated financial statements and business report	
		Dividend plan	
		Internal accounting management system operation status evaluation	
4	Mar.28	Audit Committee operation regulation	3/3
		Establishment of the Internal Transaction Committee	
		Appointment of Internal Transaction Committee members	
		Internal Transaction Committee Operation regulation	

Session	Date	Agendas and Reports	Attendance of Outside Directors
4	Mar.28	Revision of the Outside Director Nominating Committee operation regulation	3/3
		Appointment of the Outside Director Nominating Committee members	
5	May 13	Separate and consolidated financial statements for 1Q 2022	3/3
		Enactment of corporate governance charter	
		Determination of method for granting stock options	
		Disposal of real estate (Guro Aekyung Building)	
6	Jun.10	Revision of the BOD regulation	3/3
		Extension of guarantee for Aekyung (NINGBO) Chemical (Shanghai Branch of CITI Bank)	
		Agreement on guarantee for Aekyung (NINGBO) Chemical (Shanghai branch of Hana Bank)	
7	Jul.14	Aekyung (Haiyang) Chemical liquidation procedure proceeding	-
		Progress of the "Occupational Safety and Health Plan"	
		ESG management activity progress	
8	Jul.27	Establishment of a hydrogenated plasticizer plant facility (Ulsan Plant)	2/3
		Increase of trading objects and limit with Aekyung (NINGBO) Chemical	
9	Aug.12	Increase of trading objects and limit with AK&MN Biopharm	3/3
		Concluding a joint venture cancellation contract with Maruhanichiro	
10	Sep.30	Separate and consolidated financial statements for 2Q 2022	3/3
11	Nov.14	Agreement on taking shares of VINA Plasticizers Chemical Company	3/3
12	Dec.14	Separate and consolidated financial statements for 3Q 2022	3/3
		Revision of the BOD regulation	
		Setting base date for shareholder register	
		Setting base date for profit distribution	
		Transactions with companies such as directors	
		Introduction of the CP and appointment of the Compliance Officer	

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Major Resolutions of the Internal Transaction Committee in 2022

Session	Date	Agendas and Reports	Attendance of Committee Member
1	Mar. 28	Appointment of the Internal Transaction Committee Chairman	4/4
2	May 13	Internal transaction results in 1Q 2022	-
3	Jun. 10	Extension of guarantee for Aekyung (NINGBO) Chemical's bank loan limit extension	4/4
4	Jul. 27	Changes in transaction with AK&MN Biopharm and approval of transaction	3/4
5	Aug. 12	Internal transaction results in 1H 2022	-
6	Nov. 14	Internal transaction results in 3Q 2022	-
7	Dec. 14	Approval of transactions with companies such as directors in 2023	4/4

Major Resolutions of the Outside Director Nominating Committee in 2022

Session	Date	Agendas and Reports	Attendance of Committee Member
1	Jan. 26	Appointment of the Outside Director Nominating Committee Chairman Recommendation of outside director candidates	2/2

* On March 28, 2022, two additional outside director candidates were appointed through the Board of Directors, so there are a total of four outside director candidates.

Information Security Related Data

Classification	Unit	2021	2022
Total number of information leaks	Cases	-	-
Number of leaks related to customer information	Cases	-	-
- Fine	KRW	-	-
- Administrative fine	KRW	-	-
Rate of privacy protection training completion (employees)	%	100	100

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

GRI Index

Aekyung Chemical published its Sustainability Report containing activities and performances from January 1, 2022 to December 31, 2022 in accordance with the GRI Standard 2021. In addition, nine requirements in GRI 1 (2021) were complied with. Since the Chemicals Sector Standard has not been announced, there is no separate Sector Standard applied. For Aekyung Chemical's material issues in 2022, please refer to the "Materiality Assessment" section of this report.

General Disclosure

Disclosure		Page
The organization and its reporting practices		
2-1	Organizational details	7, 17~18
2-2	Entities included in the organization's sustainability reporting	17
2-3	Reporting period, frequency and contact point	2
2-4	Restatements of information	-
2-5	External assurance	-
Activities and workers		
2-6	Activities, value chain and other business relationships	12~16
2-7	Employees	87
2-8	Workers who are not employees	87
Governance		
2-9	Governance structure and composition	69~70
2-10	Nomination and selection of the highest governance body	69
2-11	Chair of the highest governance body	69
2-12	Role of the highest governance body in overseeing the management of impacts	69
2-13	Delegation of responsibility for managing impacts	-
2-14	Role of the highest governance body in sustainability reporting	-
2-15	Conflicts of interest	69
2-16	Communication of critical concerns	70
2-17	Collective knowledge of the highest governance body	70
2-18	Evaluation of the performance of the highest governance body	70

Disclosure		Page
2-19	Remuneration policies	70
2-20	Process to determine remuneration	70
2-21	Annual total compensation ratio	70
Strategy, policies and practices		
2-22	Statement on sustainable development strategy	6
2-23	Policy commitments	6
2-24	Embedding policy commitments	26~28, 50, 62~63, 69~70, 77
2-25	Processes to remediate negative impacts	54, 62, 66
2-26	Mechanisms for seeking advice and raising concerns	62, 66
2-27	Compliance with laws and regulations	72~75
2-28	Membership associations	95
Stakeholder engagement		
2-29	Approach to stakeholder engagement	61
2-30	Collective bargaining agreements	63, 87

Material Topic

Disclosure		Page
Disclosures on material topics		
3-1	Process to determine material topics	23
3-2	List of material topics	24
3-3	Management of material topics	24

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

GRI 200, 300, 400 : Topic standard

Material Issue

Disclosure		Page
GRI 201 : Economic Performance		
201-2	Financial implications and other risks and opportunities due to climate change	30, 32~39, 44~45
GRI 305 : Emissions		
305-1	Direct(Scope 1) GHG emissions	83
305-2	Indirect(Scope 2) GHG emissions	83
305-3	Other indirect (Scope 3) GHG emissions	-
305-4	GHG emissions intensity	83
305-5	Reduction of GHG emissions	42
305-6	Emissions of ozone-depleting substances (ODS)	-
305-7	Nitrogen oxides(NOx), sulfur oxides(SOx), and other significant emissions	85
GRI 306 : Waste		
306-1	Waste generation and significant waste-related impacts	-
306-2	Management of significant waste-related impacts	39
306-3	Waste discharged	84
306-4	Waste diverted from disposal	84
306-5	Waste directed to disposal	84

Disclosure		Page
GRI 403 : Occupational Health and Safety		
403-1	Occupational health and safety management system	54~55
403-2	Hazard identification, risk assessment, and incident investigation	54~55, 78
403-3	Occupational health services	65
403-4	Worker participation, consultation, and communication on occupational health and safety	54~55, 63
403-5	Worker training on occupational health and safety	55
403-6	Promotion of worker health	65
403-7	Prevention and mitigation of occupational health and safety impact directly linked by business relationships	54~55
403-8	Workers covered by an occupational health and safety management system	87
403-9	Work-related injuries	55
403-10	Work-related ill health	-
GRI 413 : Local Communities		
413-1	Operations with local community engagement, impact assessments, and development programs	50~53
413-2	Operations with significant actual and potential negative impacts on local communities	-

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Topic		Category	Code	Response
Greenhouse Gas Emissions	① Gross global Scope 1 emissions	Quantitative	RT-CH-110a.1	Page 83, 96
	② percentage covered under emissions-limiting regulations (eg. K-ETS)	Quantitative	RT-CH-110a.1	Page 83
	Long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets	Qualitative	RT-CH-110a.2	Page 44, 83
Air Quality	① NOx emissions	Quantitative	RT-CH-120a.1	Page 85
	② SOx emissions	Quantitative	RT-CH-120a.1	Page 85
	③ VOCs emissions	Quantitative	RT-CH-120a.1	-
	④ HAPs emissions	Quantitative	RT-CH-120a.1	-
Energy Management	① Total energy consumed	Quantitative	RT-CH-130a.1	Page 83
	② Percentage grid electricity	Quantitative	RT-CH-130a.1	-
	③ Percentage renewable	Quantitative	RT-CH-130a.1	-
	④ Total self-generated energy	Quantitative	RT-CH-130a.1	-
Water Management	① Total water withdrawn in regions with high or extremely high baseline water stress	Quantitative	RT-CH-140a.1	-
	② Total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	RT-CH-140a.1	-
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	RT-CH-140a.2	-
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Qualitative	RT-CH-140a.3	Page 42
Hazardous Waste Management	Amount of hazardous waste generated	Quantitative	RT-CH-150a.1	Page 84
	Percentage recycled	Quantitative	RT-CH-150a.1	Page 84
Community Relations	Processes to manage risks and opportunities associated with community interests	Qualitative	RT-CH-150a.1	Page 50~53
Workforce Health & Safety	① Total recordable incident rate (TRIR)	Quantitative	RT-CH-320a.1	Page 55, 88
	② Fatality rate for direct employees and contract employees	Quantitative	RT-CH-320a.1	-
	Efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Qualitative	RT-CH-320a.2	Page 55

Topic		Category	Code	Response
Product Design for Use-phase Efficiency	Revenue from products designed for use-phase resource efficiency	Quantitative	RT-CH-410a.1	Page 56
Safety & Environmental Stewardship of Chemicals	① Percentage of products that contain Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances	Quantitative	RT-CH-410b.1	- **
	② Percentage of such products that have undergone a hazard assessment	Quantitative	RT-CH-410b.1	
	① Manage chemicals of concern	Qualitative	RT-CH-410b.2	Page 40
	② Discussion of strategy to develop alternatives with reduced human and/or environmental impact	Qualitative	RT-CH-410b.2	Page 32~39
	Genetically Modified Organisms	Percentage of products by revenue that contain genetically modified organisms (GMOs)	Quantitative	RT-CH-410c.1
Management of the Legal & Regulatory Environment	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Qualitative	RT-CH-530a.1	Page 71~75, 78
Operational Safety, Emergency Preparedness & Response	① Process Safety Incidents Count (PSIC)	Quantitative	RT-CH-540a.1	Page 88
	② Process Safety Total Incident Rate (PSTIR)	Quantitative	RT-CH-540a.1	Page 88
	③ Process Safety Incident Severity Rate (PSISR)	Quantitative	RT-CH-540a.1	Page 88
	Number of transport incidents	Quantitative	RT-CH-540a.2	-

* SASB: Sustainability Accounting Standards Board

** Aekyung Chemical restricts the use of substances that have been investigated to be highly harmful to the human body or the environment more strictly than legal standards. Product safety and chemical management systems are listed on page 56.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities













Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

UN SDGs Activities

The UN Sustainable Development Goals (SDGs) are goals that the international community must implement by 2030 to realize sustainable development around the world, and Aekyung Chemical is participating in the implementation of 12 goals.

UN SDGs	Major Activities	Page	UN SDGs	Major Activities	Page
 5 GENDER EQUALITY	Gender Equality Securing and nurturing talents > Employee diversity	57	 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Responsible Consumption and Production Management of hazardous chemicals and waste Establishment of a virtuous cycle of resources	40~41 46~48
 7 AFFORDABLE AND CLEAN ENERGY	Affordable and Clean Energy Energy management	43	 13 CLIMATE ACTION	Climate Action GHG emission management Climate change response strategy	44~45
 8 DECENT WORK AND ECONOMIC GROWTH	Decent Work and Economic Growth Occupational safety and health Shared growth with suppliers	54~55 66~67	 14 LIFE BELOW WATER	Life Below Water Water resources management > Minimizing water pollution	42
 9 INDUSTRY INNOVATION AND INFRASTRUCTURE	Industry, Innovation and Infrastructure Expanding environmental investment	32	 15 LIFE ON LAND	Life on Land Social contribution program > Sponsorship of endangered species project in Cheongyang	53
 10 REDUCED INEQUALITIES	Reduced Inequality Securing and nurturing talents > Employee diversity	57	 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Peace, Justice, and Strong Institutions Shareholder rights protection	76~77
 11 SUSTAINABLE CITIES AND COMMUNITIES	Sustainable Cities and Communities Management of hazardous chemicals and waste Social contribution program > Facility environment Improvement	40~41 50~53	 17 PARTNERSHIPS FOR THE GOALS	Partnerships for the Goals Practice of environmental management (internalizing EHS management, strengthening environmental awareness)	26~31

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

Awards and Membership

Awards

Award Name	Date	Awarded by
Korea's Best Job Creating Company	Aug. 9, 2022	Ministry of Employment and Labor
Encouragement Award at the Firefighting Contest	Sep. 22, 2022	Chungcheongnam-do Office
Firefighting citation	Oct. 17, 2022	Chungcheongnam-do Office
Commendation on Firefighting Day	Nov. 8, 2022	National Fire Agency
Nakdong River Basin Environmental Office Award (Valps Plus Chemical Safety Campaign)	Dec. 5, 2022	Nakdong River Basin Environmental Office

Association Membership

Korea Petrochemical Industry Association	Korea Occupational Health Association	Daejeon Chungnam Environmental Preservation Association	Ulsan Shipper Logistics Council
Korea Polyurethane Industry Association	Process Safety Council	Korea Bio Energy Association	Korea Vinyl Environment Association
Korea International Trade Association	Korea Fire Safety Institute	Korea Chemical Substance Management Association	Korea Thermal Management Association
Korea Polyurethane Society	Chemical Safety Community Council	Ulsan Environmental Engineers Association	Korea Electrical Engineers Association
Korea Industrial Safety Association	Korea Environmental Engineers Association	Ulsan Chamber of Commerce and Industry	Korea Mechanical Construction Contractors Association

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

GHG Verification Opinion

Verification Scope

Korean Standards Association has conducted verification for GHG emissions based on GHG report provided by AEKYUNG CHEMICAL CO., LTD. which includes Scope1 and Scope2 emissions.

Verification Standards and Guidelines

To conduct verification activities, verification team applied verification standards and guidelines. The standards and guidelines are as follows.

- Guidance for reporting and verification of GHG emissions trading scheme (No. 2022-279 provided by Ministry of Environment, Republic of Korea)
- ISO 14064-1, 3 : 2006
- 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Level of Assurance

AEKYUNG CHEMICAL CO., LTD.'s GHG emissions satisfies the under Reasonable Assurance(less than ±5% of total emissions).

Verification Conclusion

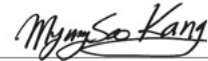
As a result of verification activities, verification team has found no significant errors, omissions, and misstatements. Therefore, Korean Standards Association confirms that following emissions data are adequately quantified.

2022 Emissions(Scope1, Scope2)

- Year : 2022
- Scope 1 : 130,256.704 tCO₂eq
- Scope 1 : 64,339.839 tCO₂eq
- Total : 194,590 tCO₂eq

* Decimal place is not considered when calculating the emission of each workplace.

June 15, 2023



KOREAN STANDARDS ASSOCIATION

GHG Verification Opinion

AEKYUNG CHEMICAL CO., LTD

✔ Verification Scope

Korean Standards Association has conducted verification for GHG emissions based on GHG report provided by AEKYUNG CHEMICAL CO., LTD. which includes Scope1 and Scope2 emissions.

✔ Verification Standards and Guidelines

To conduct verification activities, verification team applied verification standards and guidelines. The standards and guidelines are as follows.

- Guidance for reporting and verification of GHG emissions trading scheme (No. 2022-279 provided by Ministry of Environment, Republic of Korea)
- ISO 14064-1, 3 : 2006
- 2006 IPCC Guidelines for National Greenhouse Gas Inventories

✔ Level of Assurance

AEKYUNG CHEMICAL CO., LTD.'s GHG emissions satisfies the under Reasonable Assurance(less than ±5% of total emissions).

✔ Verification Conclusion

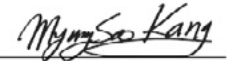
As a result of verification activities, verification team has found no significant errors, omissions, and misstatements. Therefore, Korean Standards Association confirms that following emissions data are adequately quantified.

•2022 Emissions(Scope1, Scope2)

(Unit : tCO ₂ eq)			
Year	Scope 1	Scope 2	Total
2022	130,256.704	64,339.839	194,590

* Decimal place is not considered when calculating the emission of each workplace.

June 15, 2023



KOREAN STANDARDS ASSOCIATION

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

감사보고서

애경케미칼 주식회사 주주 및 이사회 귀중

감사의견

우리는 애경케미칼 주식회사와 그 종속기업들(이하 "연결회사")의 연결재무제표를 감사하였습니다. 해당 연결재무제표는 2022년 12월 31일 현재의 연결재무상태표, 동일로 종료되는 보고기간의 연결포괄손익 계산서, 연결자본변동표, 연결현금흐름표 그리고 유의적인 회계정책의 요약을 포함한 연결재무제표의 주석으로 구성되어 있습니다.

우리의 의견으로는 별첨된 연결회사의 연결재무제표는 연결회사의 2022년 12월 31일 현재의 연결재무상태와 동일로 종료되는 보고기간의 연결재무성과 및 연결현금흐름을 한국채택국제회계기준에 따라, 중요성의 관점에서 공정하게 표시하고 있습니다.

감사의견근거

우리는 대한민국의 회계감사기준에 따라 감사를 수행하였습니다. 이 기준에 따른 우리의 책임은 이 감사보고서의 연결재무제표감사에 대한 감사인의 책임 단락에 기술되어 있습니다. 우리는 연결재무제표감사와 관련된 대한민국의 윤리적 요구사항에 따라 연결회사로부터 독립적이며, 그러한 요구사항에 따른 기타의 윤리적 책임들을 이행하였습니다. 우리가 입수한 감사증거가 감사의견을 위한 근거로서 충분하고 적합하다고 우리는 믿습니다.

핵심감사사항

핵심감사사항은 우리의 전문가적 판단에 따라 당기 연결재무제표감사에서 가장 유의적인사항들입니다. 해당 사항들은 연결재무제표 전체에 대한 감사의 관점에서 우리의 의견형성 시 다루어졌으며, 우리는 이런 사항에 대하여 별도의 의견을 제공하지는않습니다.

(1) AEKYUNG HONG KONG COMPANY LIMITED 현금창출단위 영업권 손상검사

핵심감사사항으로 결정된 이유우리는 영업권 금액의 규모(2022년 12월 31일 현재 7,124백만원)가 유의적이며, 연결회사의 현금창출단위들의 사용가치 평가에 포함된 미래현금흐름 추정에는 미래 사업에 대한 예상과 할인율에 대한 경영진의 판단이 수반되므로 영업권의 손상검사에 관심을 기울였습니다. 관련 내용은 연결회사의 연결재무제표 주석 14에 표시되어 있습니다.

특히, 우리는 2022년 12월 31일 현재 장부가액이 5,339백만원으로서 영업권 구성 항목 중 가장 유의적인 AEKYUNG HONG KONG COMPANY LIMITED현금창출단위와 관련한 영업권 손상평가에 집중된 감사절차를 수행하였습니다. 연결회사는 AEKYUNG HONG KONG COMPANY LIMITED현금창출단

위와 관련한 영업권에 대하여, 당기 중 2,796백만원의 손상차손을 인식하였습니다. 우리는 관련된 영업권 잔액 및 손상차손의 규모와 사용가치 평가에 유의적인 경영진의 판단이 수반되는 점을 고려하여, 해당 항목을 핵심감사사항에 포함하였습니다.

핵심감사사항이 감사에서 다루어진 방법

핵심감사사항에 대응하기 위하여 우리는 다음을 포함한 감사절차를 수행하였습니다.

- 경영진이 활용한 독립적인 외부전문가의 적격성 및 객관성 평가
- 경영진이 사용가치 추정에 사용한 가치평가 모델의 적절성을 평가
- 경영진의 미래현금흐름 추정과 관련된 절차 및 통제를 이해하고 평가
- 미래현금흐름 추정이 경영진이 승인한 사업계획과 일치하는지 확인
- 추정치에 낙관적인 가정이 포함되었는지 사후적으로 확인하기 위하여 당기 실제 성과와 전기 추정을 비교
- 사용가치 추정에 사용된 주요 가정의 합리성 평가
 - 현금창출단위의 매출성장률, 영업이익률 및 투자활동 예측이 과거성과, 시장상황과 비교하여 일관성이 있는지 확인
 - 경제 및 산업 예측과 장기 성장률을 비교
 - 관측가능한 정보를 사용하여 독립적으로 계산된 할인율을 경영진이 적용한 할인율과 비교
- 주요 가정의 변경이 손상 평가에 미치는 영향을 평가하기 위해 경영진이 수행한 할인율 및 연구성장률에 대한 민감도 분석결과 평가

(2) 애경(영파)화공유한공사 현금창출단위 손상검사

핵심감사사항으로 결정된 이유

연결재무제표에 대한 주석12에 기술되어 있는 바와 같이, 연결회사는 당기 중 애경(영파)화공유한공사 현금창출단위에 대하여 사업계획 대비 당기 실적이 유의적으로 하락하는 등 손상 징후가 존재한다고 판단하여 기업회계기준서 제1036호에 따라 손상검사를 수행하였습니다. 연결회사는 사용가치에 근거하여 산정한 현금창출단위의 회수가능액을 해당 현금창출단위의 장부금액과 비교하였으며, 회수가능액과 장부금액의 차이금액 3,978백만원을 손상차손으로 인식하였습니다.

우리는 애경(영파)화공유한공사 현금창출단위의 사용가치 평가에 포함된 미래현금흐름 추정에는 재무예산의 예측, 성장률 및 할인율에 대한 경영진의 판단이 포함되며, 연결재무제표에 끼치는 영향이 유의적이므로, 이 영역에 관심을 기울였습니다.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

핵심감사사항이 감사에서 다루어진 방법

핵심감사사항에 대응하기 위하여 우리는 다음을 포함한 감사절차를 수행하였습니다.

- 경영진이 활용한 독립적인 외부전문가의 적격성 및 객관성 평가
- 경영진이 사용가치 추정에 사용한 가치평가 모델의 적절성을 평가
- 경영진의 미래현금흐름 추정과 관련된 절차 및 통제를 이해하고 평가
- 미래현금흐름 추정이 경영진이 승인한 사업계획과 일치하는지 확인
- 사용가치 추정에 사용된 주요 가정의 합리성 평가
 - 현금창출단위의 매출성장률, 영업이익률 및 투자활동 예측이 과거성과, 시장 상황과 비교하여 일관성이 있는지 확인
 - 경제 및 산업 예측과 장기 성장률을 비교 - 관측가능한 정보를 사용하여 독립적으로 계산된 할인율을 경영진이 적용한 할인율과 비교
- 주요 가정의 변경이 손상 평가에 미치는 영향을 평가하기 위해 경영진이 수행한 할인율 및 영구성장률에 대한 민감도 분석결과 평가

(3) 사업결합에 따른 매수가격 배분

핵심감사사항으로 결정된 이유

연결재무제표에 대한 주식 39에 기술되어 있는 바와 같이, 연결회사는 2022년 9월 1일 애경바이오팜(주)에 대한 지분 40%를 9,742백만원에 추가 취득하여 지배력을 획득하였고, 한국채택국제회계기준 1103호 사업결합에 따라 회계처리하였습니다.

연결회사는 취득한 자산과 인수한 부채의 공정가치를 평가하여 매수가격을 배분하였으며, 주요 유무형자산의 공정가치를 평가하기 위하여 독립적인 외부전문가를 활용하였습니다.

우리는 매수가격의 규모가 유의적인 수준이고, 매수가격의 배분과 관련하여 유의적인 경영진의 판단이 수반되는 점을 고려하여 해당 항목을 핵심감사사항에 포함하였습니다.

핵심감사사항이 감사에서 다루어진 방법

핵심감사사항에 대응하기 위하여 우리는 다음을 포함한 감사절차를 수행하였습니다.

- 경영진 내부통제의 설계 및 운영의 효과성 평가
- 계약서 열람을 통한 주요 약정사항의 확인
- 경영진이 활용한 독립적인 외부전문가의 적격성 및 객관성 평가
- 공정가치 평가에 대한 감사인측 내부전문가를 활용하여 다음 절차를 수행

- 식별가능한 무형자산, 기타 자산/부채의 공정가치 결정에 사용된 평가모델의 적절성을 평가
- 공정가치 평가에 사용된 주요 가정 및 변수의 합리성을 평가
- 공정가치 계산의 정확성 확인
- 사업결합과 관련하여 주식 공시사항의 적절성 평가

기타사항

연결회사의 2021년 12월 31일로 종료되는 보고기간의 연결재무제표는 한영회계법인이 대한민국의 회계감사기준에 따라 감사하였으며, 이 감사인의 2022년 3월 18일자 감사보고서에는 적정의견이 표명되었습니다.

연결재무제표에 대한 경영진과 지배기구의 책임

경영진은 한국채택국제회계기준에 따라 이 연결재무제표를 작성하고 공정하게 표시할 책임이 있으며, 부정이나 오류로 인한 중요한 왜곡표시가 없는 연결재무제표를 작성하는데 필요하다고 결정한 내부통제에 대해서도 책임이 있습니다.

경영진은 연결재무제표를 작성할 때, 연결회사의 계속기업으로서의 존속능력을 평가하고 해당되는 경우, 계속기업 관련 사항을 공시할 책임이 있습니다. 그리고 경영진이 기업을 청산하거나 영업을 중단할 의도가 없는 한, 회계의 계속기업전제의 사용에 대해서도 책임이 있습니다.

지배기구는 연결회사의 재무보고절차의 감시에 대한 책임이 있습니다.

연결재무제표감사에 대한 감사인의 책임

우리의 목적은 연결회사의 연결재무제표에 전체적으로 부정이나 오류로 인한 중요한왜곡표시가 없는지에 대하여 합리적인 확신을 얻어 우리의 의견이 포함된 감사보고서를 발행하는데 있습니다. 합리적인 확신은 높은 수준의 확신을 의미하나, 감사기준에 따라 수행된 감사가 항상 중요한 왜곡표시를 발견한다는 것을 보장하지는 않습니다. 왜곡표시는 부정이나 오류로부터 발생할 수 있으며, 왜곡표시가 재무제표를 근거로 하는 이용자의 경제적 의사결정에 개별적으로 또는 집합적으로 영향을 미칠 것이 합리적으로 예상되면, 그 왜곡표시는 중요하다고 간주됩니다.

감사기준에 따른 감사의 일부로서 우리는 감사의 전 과정에 걸쳐 전문가적 판단을 수행하고 전문가적 의구심을 유지하고 있습니다.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

ESG Facts & Figures

GRI Index

SASB Index

UN SDGs Activities

Awards and Membership

GHG Verification Opinion

Independent Auditors' Report

또한, 우리는:

- 부정이나 오류로 인한 재무제표의 중요왜곡표시위험을 식별하고 평가하며 그러한 위험에 대응하는 감사 절차를 설계하고 수행합니다. 그리고 감사의견의 근거로서 충분하고 적합한 감사증거를 입수합니다. 부정은 공모, 위조, 의도적인 누락, 허위진술 또는 내부통제 무력화가 개입될 수 있기 때문에 부정으로 인한 중요한 왜곡표시를 발견하지 못할 위험은 오류로 인한 위험보다 큼니다.
- 상황에 적합한 감사절차를 설계하기 위하여 감사와 관련된 내부통제를 이해합니다. 그러나 이는 내부통제의 효과성에 대한 의견을 표명하기 위한 것이 아닙니다.
- 연결재무제표를 작성하기 위하여 경영진이 적용한 회계정책의 적합성과 경영진이 도출한 회계추정치와 관련 공시의 합리성에 대하여 평가합니다.
- 경영진이 사용한 회계의 계속기업전제의 적절성과, 입수한 감사증거를 근거로 계속기업으로서의 존속능력에 대하여 유의적 의문을 초래할 수 있는 사건이나 상황과 관련된 중요한 불확실성이 존재하는지 여부에 대하여 결론을 내립니다. 중요한 불확실성이 존재한다고 결론을 내리는 경우, 우리는 연결재무제표의 관련 공시에 대하여 감사보고서에 주의를 환기시키고, 이들 공시가 부적절한 경우 의견을 변형시킬 것을 요구받고 있습니다. 우리의 결론은 감사보고서일까지 입수된 감사증거에 기초하나, 미래의 사건이나 상황이 연결회사의 계속기업으로서 존속을 중단시킬 수 있습니다.
- 공시를 포함한 연결재무제표의 전반적인 표시와 구조 및 내용을 평가하고, 연결재무제표의 기초가 되는 거래와 사건을 연결재무제표가 공정한 방식으로 표시하고 있는지 여부를 평가합니다.
- 연결재무제표에 대한 의견을 표명하기 위해 기업의 재무정보 또는 그룹내의 사업활동과 관련된 충분하고 적합한 감사증거를 입수합니다. 우리는 그룹감사의 지휘, 감독 및 수행에 대한 책임이 있으며 감사의견에 대한 전적인 책임이 있습니다.

우리는 여러 가지 사항들 중에서 계획된 감사범위와 시기 그리고 감사 중 식별된 유의적 내부통제 미비점 등 유의적인 감사의 발견사항에 대하여 지배기구와 커뮤니케이션합니다.

또한, 우리는 독립성 관련 윤리적 요구사항들을 준수하고, 우리의 독립성 문제와 관련된다고 판단되는 모든 관계와 기타사항들 및 해당되는 경우 관련 제도적 안전장치를 지배기구와 커뮤니케이션한다는 진술을 지배기구에 제공합니다.

우리는 지배기구와 커뮤니케이션한 사항들 중에서 당기 연결재무제표감사에서 가장 유의적인 사항들을 핵심감사사항으로 결정합니다. 법규에서 해당 사항에 대하여 공개적인 공시를 배제하거나, 극히 드문 상황으로 우리가 감사보고서에 해당 사항을 기술함으로써 부정부적 결과가 해당 커뮤니케이션에 따른 공익적 효익을 초과할 것으로 합리적으로 예상되어 해당 사항을 감사보고서에 커뮤니케이션해서는 안 된다고 결

론을 내리는 경우가 아닌 한, 우리는 감사보고서에 이러한 사항들을 기술합니다.

이 감사보고서의 근거가 된 감사를 실시한 업무수행이사는 공인회계사 이기복입니다.

서울특별시 용산구 한강대로 100
삼일회계법인
대표이사 윤훈수

2023년 3월 20일

이 감사보고서는 감사보고서일(2023년 3월 20일) 현재로 유효한 것입니다. 따라서 감사보고서일 후 이 보고서를 열람하는 시점 사이에 별첨된 회사의 연결재무제표에 중요한 영향을 미칠 수 있는 사건이나 상황이 발생할 수도 있으며, 이로 인하여 이 감사보고서가 수정될 수도 있습니다.

Introduction

Environment:
Together with Environment

Society:
Happy Society

Governance:
Equitable Governance

Appendix

Aekyung Chemical Sustainability Report

Contributors to This Report

강인혜	강지연	강효주	고재진	곽찬규	곽창환
구지희	권기형	김경로	김남선	김동필	김민아
김상훈	김영용	김영하	김익균	김장수	김호영
김홍철	민천홍	박기호	박래현	박연희	박찬미
박희수	서경훈	송재욱	송현수	신철	심상혁
안종훈	오주영	위성유	이미리	이진원	이진주
이초결	이호	장재훈	장준길	정윤조	정종환
정직한	조선민	주혜미	진안정	허정반	홍인호
황성태					

* Korean alphabetical order

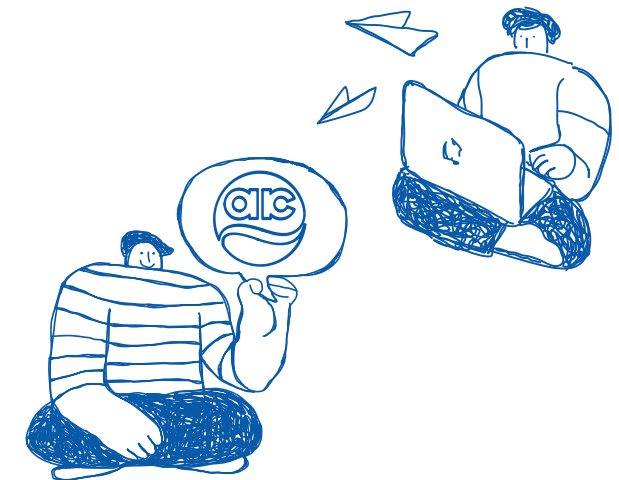
Sustainability Report Publication TFT

김수홍	김영현	김현주	백경렬	백승관	유주상
이경미	이민영	이석현	임종현	정현욱	

* Korean alphabetical order

Department in charge of publishing sustainability report

Management RM Team of Compliance Office





AIC 애경케미칼(주)