



More than Chemistry

LOTTE CHEMICAL 2017 SUSTAINABILITY REPORT

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ABOUT THIS REPORT

The 2017 Sustainability Report is the 11th sustainability report for Lotte Chemical. Lotte Chemical communicates with our stakeholder, reflecting our economic, social, and environmental performance and the objectives in this report in a transparent manner. For this year's report, we focus more on sharing our business performance, including research and development, and new business initiatives, in order to shed light on the sustainable future of Lotte Chemical through centering our activities as suggested by the United Nations Sustainable Development Goals (SDGs). Moving forward, Lotte Chemical will maintain our growth and reflect the opinions of our external stakeholders through the publication of annual sustainability reports.

Introduction

This report covers the sustainable development activities and performance of Lotte Chemical from January 1 to December 31, 2017. For key information that may influence the decisions and judgment of our stakeholders, this report also incorporates performance up to the first half of 2018. To ensure a better understanding of changing trends, this report provides quantitative data for the past three years. Year-on-year data is based on December 31 of each fiscal year and some data with a period gap is reported with additional statements.

Reporting Principle

This report is written in accordance with Core Option of GRI (Global Reporting Initiative) Standards. Financial data in this report was prepared based on consolidated financial statements in accordance with Korean International Financial Reporting Standards (K-IFRS).

Reporting Scope

The financial data used in this report covers the performance of Lotte Chemical and our subsidiaries. Non-financial data such as environmental and social data in the report was prepared based on Lotte Chemical's Head Office, Daejeon Research Institute, Yeosu Plant, Daesan Plant and Ulsan Plant, collectively from which 99% of sales are generated. Our subsidiaries and overseas plants are also mentioned with respect to certain issues.

Assurance

A Third Party Assurance institution verified the credibility of the contents of this report. The results are stated on pages 105~106.

Inquiry and Access

All of the sustainability reports published by Lotte Chemical can be found and downloaded on the website of Lotte Chemical (<http://www.lottechem.com>). For any inquiries or additional information, please refer to the following contact information. We are always open to your opinions to help us become a better company.

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The history of Lotte Chemical began in 1967.

As a leading chemical company in world, Lotte Chemical stands proudly as a top-tier sustainable company that will open up a prosperous future and life for people.



LETTER FROM THE CEO



Greetings to our distinguished stakeholders,

It is my absolute privilege to publish Lotte Chemical's 11th annual Sustainability Report since our first publication in 2007. I would like to thank all of you for your interest and support.

2017 was a year that confirmed our status and potential.

Last year, Lotte Chemical had outstanding results following off of 2016, reaching record-high business profits. Additionally, despite the uncertain business environment and world affairs, we carried through with successful projects and joint ventures and reached a new milestone as we established our position as the nation's top chemical company.

Our subsidiary, Lotte Chemical Titan, is now listed in the Malaysian stock market, and we completed the construction of special rubber production facilities through our venture with Italy's nationally operated petroleum chemical company Versalis. We also had a busy year doing joint ventures to build ethane crackers in North America and proceeding with the NC expansion of Lotte Chemical Titan.

We are taking the leap towards becoming the world's top chemical company.

These days, we predict even more uncertainty in the world economy due to the fluctuating domestic and foreign politics and economics. However, Lotte Chemical's head employees are not settling for the present performance, and are putting forth their best efforts to ensure competence and internal stability in order to become a global leader and the industry's best. We will also continue our production operations and formation of a stable business portfolio based on investment decisions made at the right time and place and anticipative demand predictions.

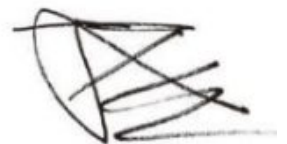
Due to the expansion of the Yeosu NC plant expansion, the ECC business in the US, and the success of other new businesses through the Daegu water treatment membrane factory completion, we are laying down the foundation for us to become a future new growth engine. We are also constructing the basis for a sustainable management that corresponds to our global enterprise status.

Lotte Chemical is implementing various actions in order to keep the global level of sustainable management.

Through active investment in and construction of an environmental management process that corresponds with the international standard for lowering safety risk factors, we are concentrating our efforts on safety- and environment- based thorough management and awareness reformation. In addition, our compliance team is carrying out a diversified law-abiding management program in order to establish just, transparent business management and a global level of ethical awareness. Moreover, we are putting our efforts towards making a workplace that keeps a good balance between work and life by implementing a personal welfare system to create a worker- friendly office culture. Similarly, as a company that seeks to fulfill the needs of both our various stakeholders and society, we are continuing efforts towards the reformation and value creation of Lotte Chemical so that it can be born again.

Through the continuous efforts for reforms and changes based on the love and trust of our stakeholders, Lotte Chemical plans on becoming the world's top chemical company. We will lead a new business culture while simultaneously creating continuous results on not only the national, but international stage. We ask all of our shareholders to continue their warm interest and encouragement as we, Lotte Chemical, open the doors to a new future.

Thank you.



July 2018

President & CEO, Lotte Chemical Corp. **Kim Gyo-hyun**

ABOUT LOTTE CHEMICAL

More than Chemistry

As a leading chemical company of Korea, Lotte Chemical contributes to the healthy and affluent life of mankind based on trust and love for nature.

General Information

| Category | |
|-----------------------|--|
| Company Name | Lotte Chemical Corporation |
| Date of Establishment | March 16, 1976 |
| President & CEO | Shin Dong-bin, Huh Soo-young, Kim Gyo-hyun |
| Head Office | Lotte World Tower, 300, Olympic-ro, Songpa-gu, Seoul |
| Industry | Petrochemical Industry |
| Main Products | <ul style="list-style-type: none"> · Polymer (PE, PP, PC, PET, EVA, etc) · Monomer (EG, EOA, MMA, SM, BD, PIA, PTA, etc) · Basic Chemicals (BD, BZ, TL, XL, etc) · MEGATREND (UF Membrane for water treatment) |

Total Assets (based on consolidated financial statements)

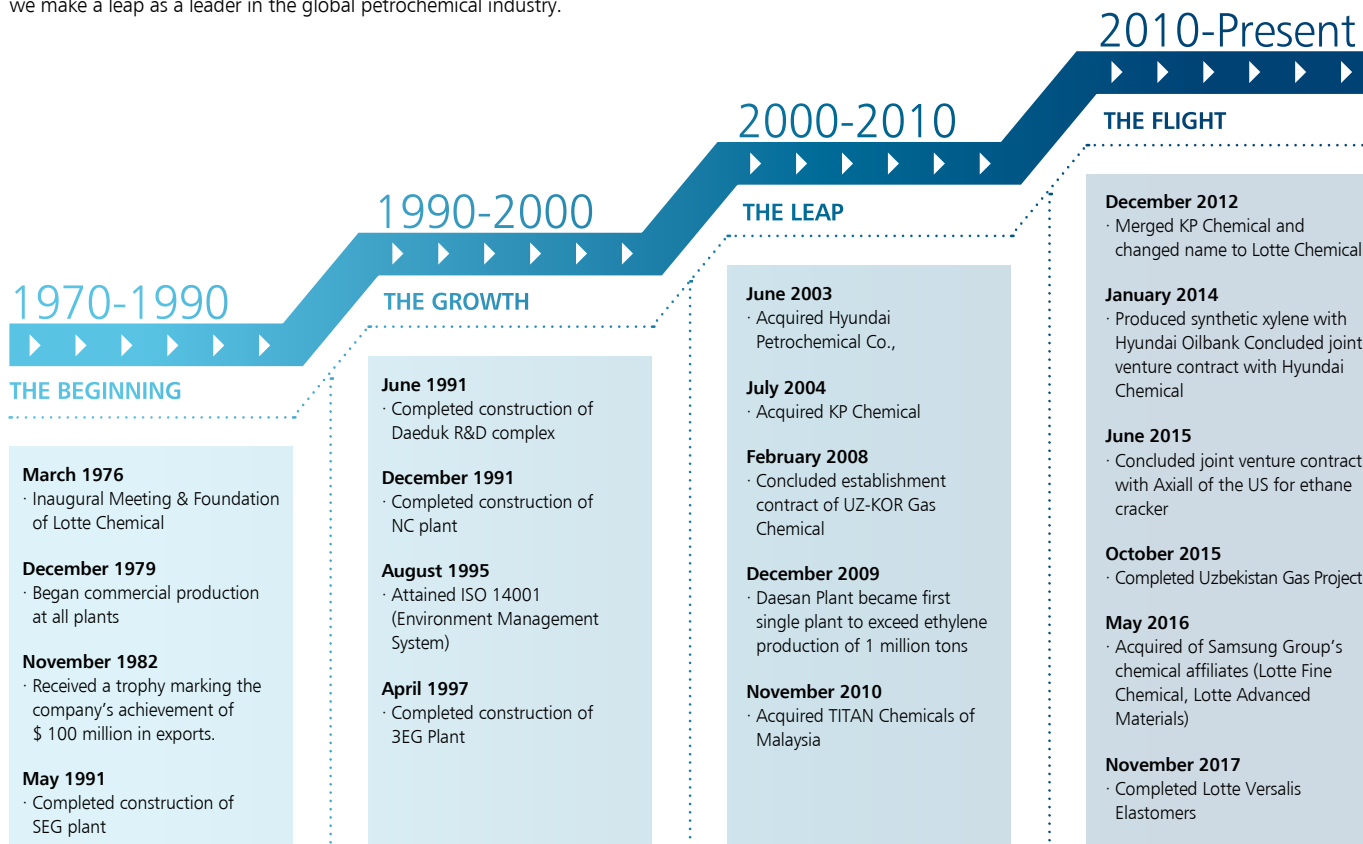
KRW
19 trillion and
551 billion

Number of Employees

5,537 persons

History

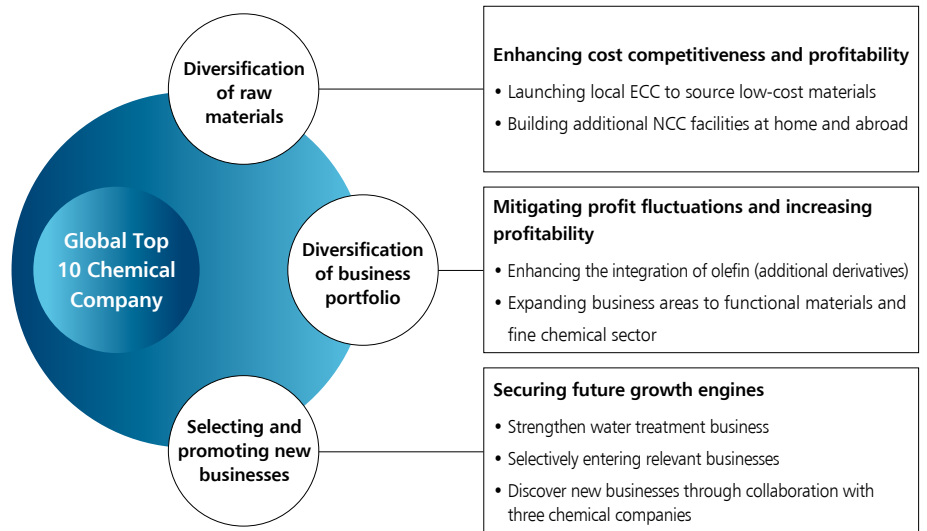
Since our establishment in 1976, Lotte Chemical pioneered the petrochemical industry, leading the domestic heavy chemical industry for the past 40 years. Based on the history of challenge and innovation, we make a leap as a leader in the global petrochemical industry.



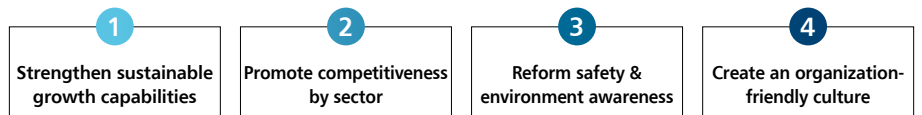
Vision 2020

Fueled by the motto 'VISION 2020', Lotte Chemical is poised to make a leap as one of the 'Global Top 10 Chemical Companies.'

We strive to grow into a top-tier sustainable company by strengthening our global sustainable growth capabilities through the diversification of raw materials and lines of business portfolio, and selection of new businesses, in line with safety awareness reform and creation of an organization-friendly culture.



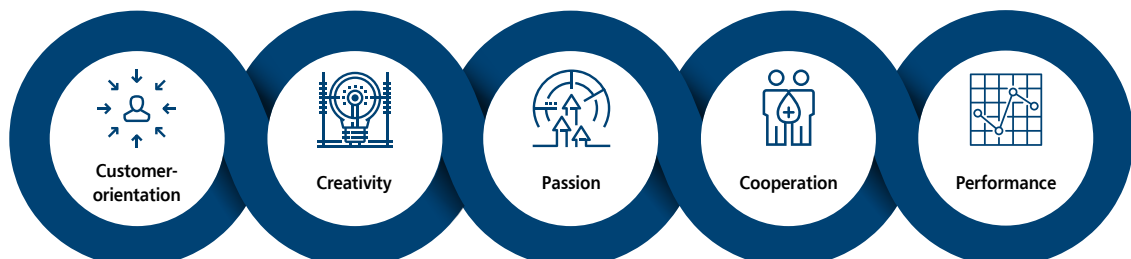
Key Practices in 2018



Management Policies



Core Values



INTRODUCTION OF BUSINESS

Introduction of Lotte Chemical

Lotte Chemical, a leading chemical company in Korea established in 1976, secured its production capacity by building global production facility lines in Yeosu, Daesan, and Ulsan, which are Korea’s major petrochemical complexes. Lotte Chemical successfully creates stable profits through its business portfolio consisting of continuous plant expansion and business expansion. At the same time, we export our excellent products to 120 countries around the world by establishing overseas branch offices in China (sales subsidiary), Japan, Hong Kong, Russia, USA, Peru and Turkey. Most notably, we achieved an all-time high operating profit in 2017 thanks to our superior cost competitiveness, stable business operation capability, efficient business portfolio and new market development efforts. In this spirit, Lotte Chemical will grow beyond the leader of the petrochemical industry in Korea and become a 'Global Top 10 Chemical Company' through commitment to creating continuous financial performance and fulfillment of social responsibilities.

Main Products

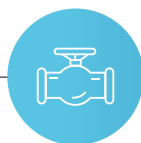
Lotte Chemical has a diverse business portfolio from polymer and monomer to megatrend. Our products are being applied extensively to produce household appliances, agricultural tools, industrial tools, medical devices, automobiles and new state-of-the-art materials.

Revenues in 2017

KRW
 15 trillion and
 874.5 billion

Operating Profits in 2017

KRW
 2 trillion and
 929.7 billion



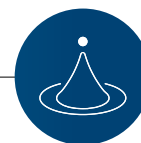
Polymer

- HDPE (High Density Polyethylene)
- LLDPE (Linear Low Density Polyethylene)
- LDPE (Low Density Polyethylene)
- EVA (Ethylene Vinyl Acetate)
- PP (Polypropylene)
- PC (Polycarbonate)
- PC Compound (Polycarbonate Compound)
- PET (Polyethylene Terephthalate)
- Performance Materials



Monomer

- EG (Ethylene Glycol)
- EOA (Ethylene Oxide Adduct)
- GE (Glycol Ether)
- MMA (Methyl Methacrylate)
- BD (Butadiene)
- SM (Styrene Monomer)

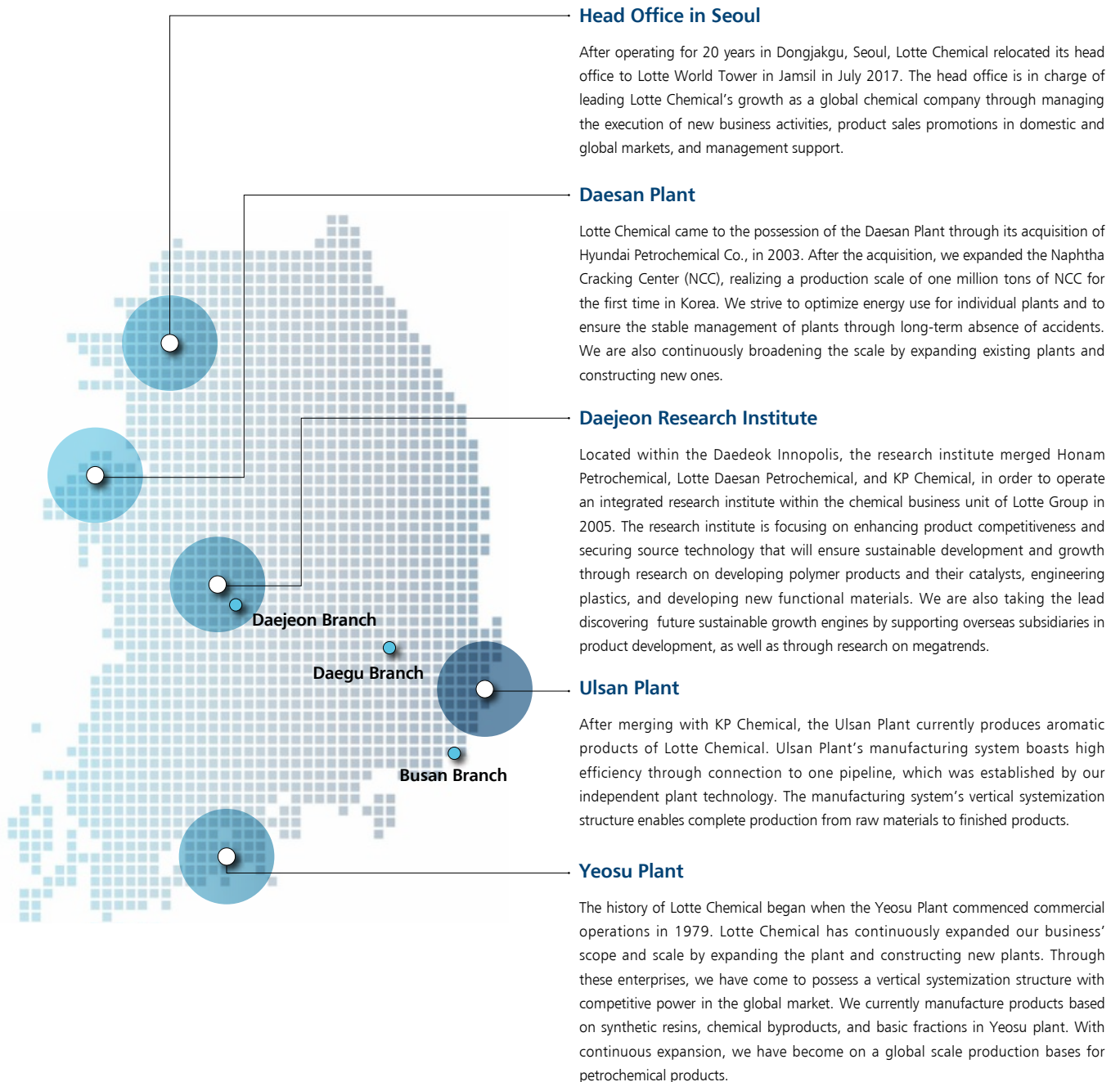


Basic Petrochemicals, Chemical Fiber, Megatrend

- BTX (Benzene, Toluene, Mixed Xylene)
- PTA (Purified Terephthalic Acid)
- PIA (Purified Isophthalic Acid)
- UF Membrane for water treatment

Domestic Plants and Research Institute

Lotte Chemical possesses large-scale plants in Korea's top three petrochemical complexes in Yeosu, Daesan, and Ulsan, as well as the Head Office in Seoul and Lotte Chemical Research Institute located within the Daedeok Innopolis. The company maximized advantages by optimizing the operations of each of its plants. Lotte Chemical has also secured a stable production capacity by expanding its plants and by constructing new plants. Moreover, Lotte Chemical has enhanced its competitiveness in the global market through vertical systemization of production from raw materials to finished products. In addition, by capitalizing on its operations situated in several petrochemical complexes, Lotte Chemical achieved systematic and stable distribution as well as product manufacturing that specializes in products that maximize upon the characteristics of each region.



Global Network

To strengthen its position in the global petrochemical industry, Lotte Chemical is active in entering overseas markets. We have strengthened global competitiveness by acquiring Malaysia's Titan Chemical, completing the Surgil project in Uzbekistan, conducting an ethane cracker project and ethylene glycol project in the USA, and acquiring Samsung Group's chemical affiliates. Lotte Chemical is also establishing future growth engines by expanding its business into the megatrend field. Lotte Chemical is stepping up its efforts to become a global top 10 chemical company beyond Asia.

Plants

| | |
|---------------------|-----------------------|
| Head Office: | Seoul |
| Research Institute: | Daejeon |
| Production Plants: | Yeosu, Daesan, Ulsan |
| Sales Offices: | Daejeon, Daegu, Busan |

Subsidiaries and Joint Enterprises

| | |
|-------------------------------------|------------------|
| Lotte MRC CORP.: | Daesan, Chungnam |
| Seetec: | Daesan, Chungnam |
| KPCHEMTECH: | Ulsan |
| SambarkLFT Co, Ltd.: | Yesan, Chungnam |
| DACC Aerospace Co., Ltd.: | Wanju, Jeonbuk |
| Lotte Mitsui Chemicals Inc.: | Yeosu, Jeonnam |
| Lotte Versalis Elstomers Co., Ltd.: | Yeosu, Jeonnam |
| Lotte Advanced Materials Co., Ltd.: | Yeosu, Jeonnam |
| LOTTE Fine Chemical Co., Ltd.: | Ulsan |

Overseas Subsidiaries

| | |
|---------------------|--------------------------------------|
| LC Shanghai Trades: | Shanghai, China |
| LC Jiaxing: | Zhejiang, China |
| LC Jiaxing EP: | Zhejiang, China |
| LC Hefei EP: | Anhui, China |
| LC Shenyang EP: | Liaoning, China |
| LC Sanjiang: | Zhejiang, China |
| LC Titan: | Johor Malaysia Jakarta, Indonesia |
| LC Alabama: | Alabama, USA |
| LC UK: | Wilton UK |
| LC PL: | Karachi Pakistan |
| LC Poland: | Warsaw, Poland |
| LC USR: | Malaysia |
| LC USA: | Delaware, USA |
| LACC: | Louisiana, USA |
| LCLA: | Louisiana, USA |

Overseas Sales Offices

| | |
|------------|--------------------|
| Japan: | Tokyo Office |
| USA: | Houston Office |
| Hong Kong: | Hong Kong Office |
| Russia: | Moscow Office |
| Turkey: | Istanbul Office |
| Vietnam: | Ho Chi Minh Office |
| Peru: | Lima Office |

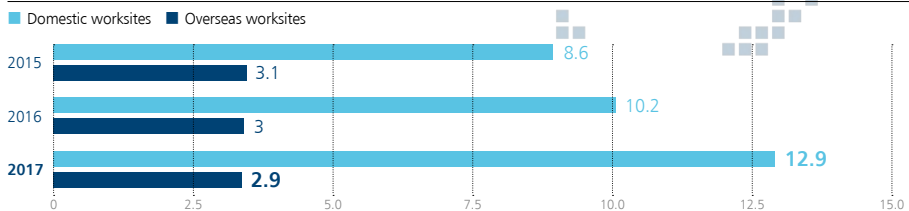
- Head Office, Plants, Research Institute
- Overseas Subsidiaries
- Overseas Branches





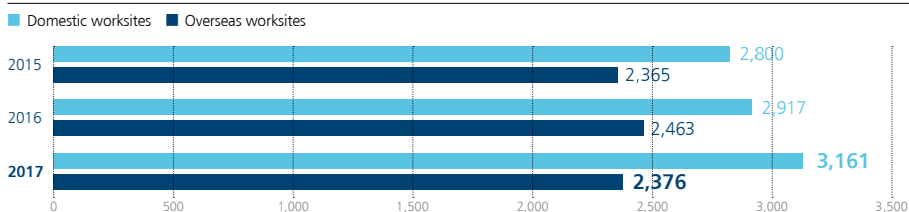
Sales in Domestic & Overseas Sites

Unit: KRW Trillion



Employees in Domestic & Overseas Sites

Unit: Persons



PRODUCT INTRODUCTION

Lotte Chemical in Your Everyday Life





Lotte Chemical is much closer to us than we think it is. Products of Lotte Chemical, which enhance the value of life, can be seen everywhere from basic household appliances to medical devices and state-of-the-art aviation materials.



POLYMER

PE

Polyethylene

Lotte Chemical has introduced and rolled out various products tailored to new purpose of use with our self-developed High Activity Catalysts based on consistent development of manufacturing process.

Taking over Hyundai Petrochemical Co., in 2004, which launched into a new level as 'Lotte Daesan Petrochemical', we acquired LDPE. EVA and LLDPE process. Also, we were able to provide broader products to the market and our customers through systematizing our PE products.



HDPE(High Density Polyethylene)

HDPE is a type of PE (Polyethylene) resin that is a well-known petrochemical product. It has high resistance to both low and high temperatures as well as to damage, and has excellent processability. It is used to produce household containers, fishing nets, rope, beverage caps, insulated cables, chemical containers, automobile fuel tanks, pipes, and film for agricultural, industrial, and packaging purposes.

LDPE (Low Density Polyethylene)

LDPE is a type of polyethylene resin that is another well-known petrochemical product along with PE. It is easy to modifiable and flexible to enable various designs according to the purpose of use, and it is widely used for container lids and household goods. In addition, it is resistant to moisture and water and has excellent transparency, and is also used in agricultural and packaging film, wire coating, and various lapping. The coating film on paper cups to prevent leakage is made with LDPE.

LLDPE (Linear Low Density Polyethylene)

LLDPE is used for agricultural film, wrap, and more as its mechanical strength and transparency can be increased by modifying the molecular weight distribution. Having great processability, heat-resisting stability, and transparency, it is used for making water tanks, toys, and various containers and household products.

EVA(Ethylene-vinyl acetate)

This substance is similar to both rubber and plastic in certain ways. EVA has excellent adhesiveness, and is used as the raw material for high-quality glue. EVA has drawn great attention lately as a replacement for PVC because it can be designed to have various properties according to the customer needs and can also be used for wire clothing. It is both soft and can absorb shock well, and also has insulating properties that are suitable for the outer soles of shoes.

PP

Polypropylene

Polypropylene has various strengths including high stiffness, impact resistance, transparency, and flowability. It is widely used for automobile plastic materials, home electronic appliances, disposable syringes, various transparent containers, sanitary staple fibers, packaging film, and more. Based on decades of production and development technology, the company produces a full line-up of polypropylene including homo-polypropylene, block copolymers, and random copolymers. The company is also investing heavily in the R&D of next-generation polypropylene products.



Injection

The production process involves melting thermoplastic resin to turn the material into a fluid state and then injecting it into the mold to let it harden. Areas of application include various household products, containers, home appliances, toys, and more.

Blow

Polypropylene for blow molding and sheets has excellent extrusion processability and physical properties as an end product with a proper balance of rigidity and impact resistance. Its areas of applications include vacuum formed trays, Danpla sheets, plane sheets, and other various types of blow containers. Of particular note, the ultra-high transparent random polypropylene recently developed has a transparency that is high enough to replace polycarbonate (PC).

Film

With great transparency, processability, and mechanical strength, it is a good product to maintain products in a clean and safe manner.

Yarn, Fiber

Polypropylene for fibers shows excellence for fiber molding with its narrow molecular weight distribution. Its superb rigidity and elongation characteristics offer applications in belt yarn, rope, wig yarn, staple fibers, diapers, sanitation pads, and agricultural non-woven fabrics.

PC

Polycarbonate

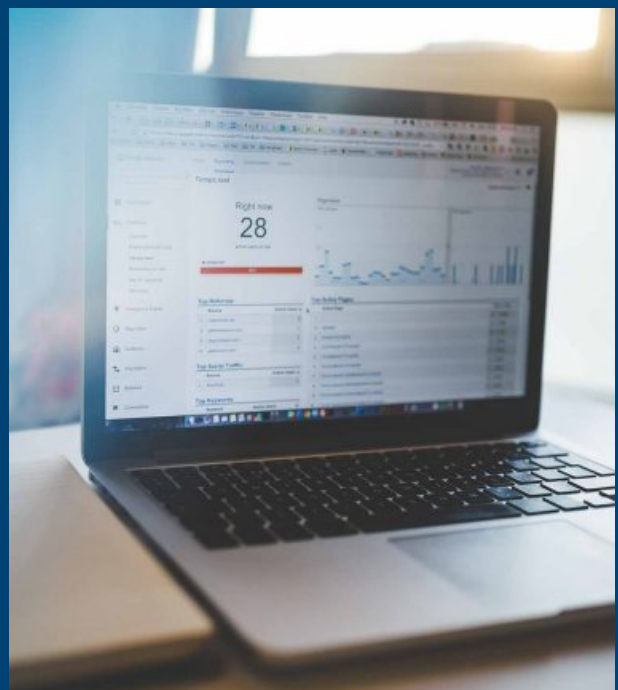
PC is a polycarbonate resin with high impact strength, temperature resistance, and exceptional clarity. These unique properties have resulted in applications such as compact disks, DVDs, automotive headlamp lenses, sound walls, electronic products, etc. Lotte Chemical's PC products are manufactured through eco-friendly processes. Unlike existing PC processes, Lotte Chemical's PC is characterized by the absence of extremely toxic phosgene. All grades of PC consume a global warming gas, CO₂ (carbon dioxide), as a raw material and all the intermediate materials in the process are fully recycled.



PC Compound

Polycarbonate Compound

Lotte Chemical produces polycarbonate compounds by mixing functional additives and fillers. PC-ABS compounds are also produced to improve the processability and chemical resistance of polycarbonate. PC compounds and PC-ABS compounds have applications to various fields, such as electric-electronic products, OA equipment, automotive parts, LED lamp covers, etc., because the rigidity, flame retardancy, flowability, impact resistance, heat resistance, etc. may be customized as required.



Performance Materials

The industrial applications of PP are expanding with the development of the PP composites, which have an increased function of polypropylene. With its excellent high-impact resistance, strength, thermal resistance, tensile stress, and processability, composite resin's usage has expanded its use, ranging from automotive parts such as bumpers, airbag covers, dashboard covers, and interior materials requiring safety and durability, to household products and other industrial materials. Based on our accumulated technological capabilities in the field of reactive extrusion, we are in development of functional polymer products required for the eco-friendly society of the future. In particular, LOTTMER, a highly functional thermoplastic elastomer, ADPOLY, an adhesive resin, and high-melt strength polypropylene (HMS-PP), have been successfully developed and are currently in the market.



LOTTMER

LOTTMER is a TPEV (Thermo-Plastic Elastomer Vulcanized) material developed by Lotte Chemical. It has the elasticity of thermosetting rubber and the moldability of thermoplastic resin. With its high elasticity, it can substitute for soft PVC or thermosetting rubber and makes products lighter with its low specific gravity.

ADPOLY

ADPOLY is an adhesive resin developed with Lotte Chemical's own technology. Heat reaction makes it adhere to polyolefin, gas barrier resin, or metal, allowing for co-extrusion with various structures. It is widely used with various molding methods to make bottles, sheets, films, and pipes. It is also often used as a compatibilizer in the compound sector.

GENPOLY

GENPOLY is non-halogen, eco-friendly modified PP resin which replaced Chlorinated PP (CPP). Developed through Lotte Chemical's proprietary technology, it provides special adhesive characteristics for nonpolar polyolefin materials through various types of coating technologies. It can be used as a primer for plastic materials such as car bumpers, adhesive of multilayer films, binder of gravure ink, and heat-seal adhesives, etc.

TPO

TPO is created by mixing PP or PE with additives that can add properties and functionality that normal plastics cannot have. Its weight can be minimized in comparison to other conventional substances while having high stability. TPO has been successfully applied to automotive parts and has expanded its applicability to electronic components and building materials.

LFT

LFT is a product developed through Lotte Chemical's proprietary fiber fraction technology. It is produced by mixing unique fibers with plastic. LFT has outstanding mechanical properties, such as high strength, stiffness, stability, and high heat deflection. As it is very moldable compared to other substances, it has applicability to automotive parts in place of metals.

HMS-PP (High Melt Strength PP)

It is a product that maintains the rigidity and heat resistant properties of polypropylene while improving on the melt strength, capable of being used for extrusion forming, thermoforming, and high-speed extrusion coating forming.

EPP

EPP is a PP composite resin which improves upon the functionality of polypropylene (PP). Developed using Lotte Chemical's proprietary technology, it is utilized for applications such as home appliances, helmets, and automobile components like interior materials, headlinings, dashboards, airbag covers, and bumpers, which require materials which provide safety and durability while also being light and sturdy with excellent heat insulation properties.

PET

Polyethylene Terephthalate

PET resin is a raw material for PET bottles used for food and beverage containers commonly used in our daily lives. It is also an eco-friendly product that can be recycled into fibers post-consumer use as food and beverage containers. PET has transparency, lightweightness, processability, and economic feasibility. In particular, the PET made by Lotte Chemical can be molded at a lower temperature, which has the effect of decreasing production costs, and it is rapidly replacing existing glass bottles and aluminum cans based on its unique non-toxicity, transparency, lightweightness, and outstanding quality.





MONOMER

EO·EG

Ethylene Oxide·Ethylene Glycol

Our EO is produced by using the oxidation response of ethylene produced by one of our plants. We make the EO react to water to produce MEG, DEG, and TEG. EG has a low freezing point and has applicability to antifreeze for automobiles. It is also reacted with terephthalic acid to produce a representative synthetic textile, polyester.

HPEO (High Purity Ethylene Oxide)

HPEO is used as a raw material for UPR, polyurethane intermediate, cutting fluids, and emulsifying agents.

MEG (Monoethylene Glycol)

MEG is used to produce polyethylene resin, fiber, film, automobile anti-freeze solutions, and refrigerants.

DEG (Diethylene Glycol)

DEG is used to produce polyester resin, intermediate of polyurethane, glues, gelatin, cork, cigarettes, wetting agents and plasticizer for cosmetics, cellulose, film, synthetic resin, and emulsifiers.

TEG (Triethylene Glycol)

TEG is used to produce plasticizers, synthetic resin, emulsifiers, glues, gelatin, cork, cigarettes, and wetting agents for cosmetics.

EOA

Ethylene Oxide Adduct

Lotte Chemical has excellent processing capacity to manufacture products with excellent coloration and purity while maintaining the highest standards of batch consistency. The vertical systematization of raw materials and products ensures a stable market supply of innovative products that meet the needs of users. EOA products are widely used in detergents, shampoos, personal hygiene products, emulsifiers, and cleansers. The raw materials for construction admixtures have huge growth potential and are forming an essential product line in the EOA business.



GE

Glycol Ether

Glycol Ether is an eco-friendly solvent with high hydrophilicity. It is used as a solvent or industrial intermediate raw material for semiconductors, electronics, paints and varnishes, ink, dyes, cleansing solvents, machine oils, brake fluids, and anti-freeze solvents.



BG (Butyl Glycol Ether)

A colorless, transparent liquid with a hint of sweet fragrance, BG is easily solvable in water, ethanol, acetone, and benzene, and has low toxicity. As it dissolves oil and fat, natural resin, and nitrocellulose, BG is used as a solvent for nitrocellulose to make print ink, dyes, and liquid, industrial, and dry cleaning detergents.

BDG (Butyl Di Glycol Ether)

A colorless and transparent liquid with a slight alcohol fragrance, BDG is soluble in organic solvents such as water, ethanol, and ether. It is the main ingredient for paints, varnishes, and dyes, and also has applicability to PVC intermediate material, LCDs, and cleansing solvents.

BTG-BPG (Butyl Tri Glycol Ether-Butyl Poly Glycol Ether)

BTG-BPG is used for solvents, coloring agents, and brake fluids as well as a raw material for metal cleansing fluids to remove oil stains and paints.

MMA

Methyl Methacrylate

MMA is a transparent liquid product with an ester odor. Lotte Chemical's MMA manufacturing process uses direct oxidation and etherification of isobutylene extracted from C4 fraction. This is an eco-friendly process which reduces the amount of waste produced during the conventional ACH method, which uses acetone and liquidation. MMA has applicability to acrylic polymer, ink, artificial marble, polyvinyl chloride, and shock butter. Of particular note, acrylic polymer boasts strength that is strong enough to be used in aquariums.

SM

Styrene Monomer

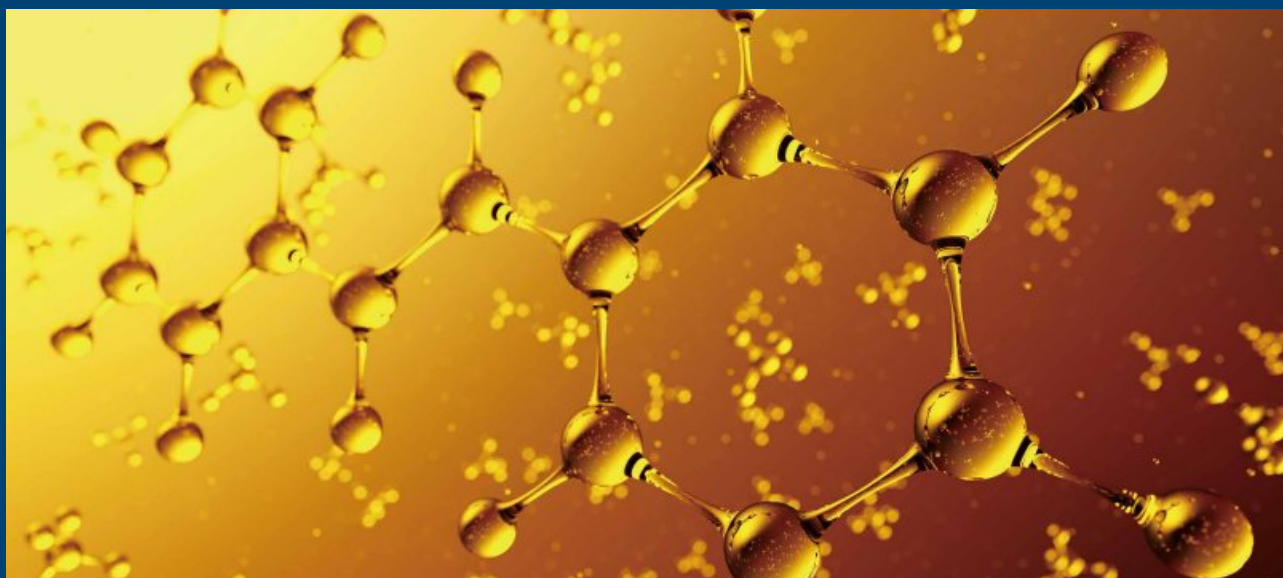
SM products are colorless liquids produced using ethylene and benzene. It is used for polystyrene (PS) (used for making stationary, toys and disposable coffee containers), ABS used for electronic products, and raw materials for paint paints.

BD

Butadiene

Butadiene is a raw material of synthetic rubber that replaces natural rubber and exists in a colorless gas state in room temperature. It is a high value-added product used in industrial ingredients, tires, and rubber hoses.





BASIC PETROCHEMICALS

BTX

Benzene, Toluene, Mixed Xylene

BTX refers to benzene, toluene, and mixed xylene which are aromatic products produced from thermal decomposition gasoline, which is a byproduct of ethylene production. It is a high value-added product used as a raw material for the construction, electronics, and textile industries. Lotte Chemical has an efficient vertical systemization structure from raw materials to finished products.

BZ (Benzene)

BZ is a representative compound of aromatic hydrocarbon with a unique odor. It is a colorless and volatile liquid which is used as a raw material for synthetic resin, synthetic detergents, medical supplies, fragrances, and more.

TL (Toluene)

TL is a colorless liquid with a unique odor which is broadly used in dyes, chemicals, bleach, TDI (a raw material for polyurethane), and benzene additives.

Mixed Xylene

Mixed Xylene is a colorless liquid that does not dissolve in water but mixes well with organic solvents including ether and benzene. It is used as a raw material for dyes, organic pigment, fragrances, plasticizer, drug medicines, and normal solvents for paints, varnishes and pesticides.

RAW MATERIALS FOR CHEMICAL FIBER

PTA

Purified Terephthalic Acid

PTA is a pure white powder produced through the oxidation and reduction processes of Para-Xylene (PX). Since production first commenced in 1990, Lotte Chemical's PTA boasts world-class quality through accumulated manufacturing technology. Based on its excellent thermal resistance, electric insulation, mechanical strength, and water and wear resistance, PTA is also used as a raw material for polyester textiles, PET films, PET bottles, threads, and paints.

PIA

Purified Isophthalic Acid

PIA is a raw material for PET bottles, paints (for automobiles and ships), adhesives, and coating agents. It is a high value-added, capital-intensive product produced by only seven companies from seven countries including the USA, Japan, Spain, Singapore, and Korea. Lotte Chemical developed PIA with the world's 5th original technology and is currently the only domestic producer. PIA has been exported to countries all over the world including China, Asia, Europe and America. Lotte Chemical is the No. 1 company in the global market based on market share. Lotte Chemical also produces MeX which is the main ingredient of PIA. As a result, we have competitive power in the market through a secure supply of the raw material. Nominated by the Ministry of Commerce, Industry and Energy as world-class goods (in the high technology parts and materials category), PIA has excellent durability, processability, corrosion-resistance, and glossiness. PIA also has applicability to PET bottles, automobile and ship paints, and adhesives, and is highly recognized by customers from all over the world based on its excellent quality.





MEGATRENDS

*Megatrends: Lotte Chemical's mid- and long-term core businesses

UF Membrane for Water Processing

Ultrafiltration Membrane

Lotte Chemical is continuing research on membrane production technology for water processing in order to secure a future growth engine. As a result of our efforts, hollow fiber membrane filters developed by Lotte Chemical have excellent strength while having low weight. Ultrafiltration membrane has both strong resistance to chemical substances and contaminating materials, as well as high strength, which allows it to be used for a long term period of time. It is an excellent product that can completely remove pathogenic microorganisms including germs as well as pollutants. The ultrafiltration membrane is expected to prove its usefulness in applications to electronics, food, chemicals, and industrial water processing as well as water purification and waste water reclamation.



BUSINESS HIGHLIGHT

16 Why we Invest In R&D

23 How to do Global Business



Lotte Chemical is growing as a global chemical company.
Based on excellent products and technology, we will stand as Korea's
representative company that leads the global market.



WHY WE INVEST IN R&D

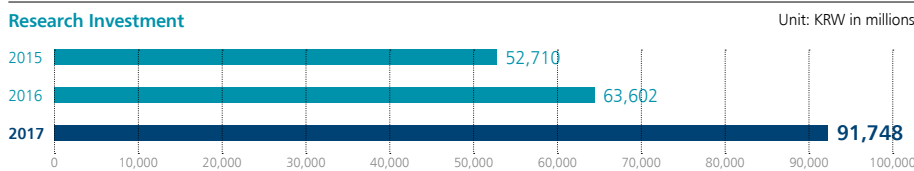


Lotte Chemical Research Institute

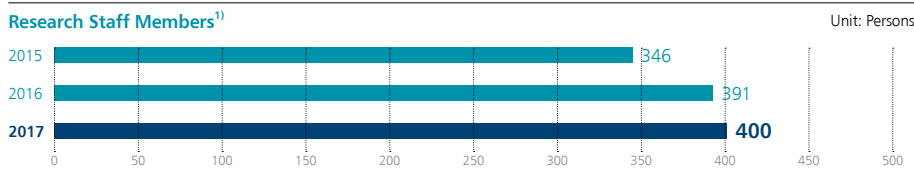
Lotte Chemical emphasizes its objective of promoting R&D projects that go hand in hand with customers and the future. Since establishing an integrated chemical research institute within Lotte Group in 2005, Lotte Chemical strives to expand its business and secure source technology for sustained growth. The research institute also takes the lead in pioneering new markets through R&D in polymer products and their catalysts, functional new materials, and basic chemicals and megatrends. Lotte Chemical has grown to become a global R&D hub by expanding product development and technology support to overseas subsidiaries, including LC Jiaxing EP (in China), LC Titan (in Malaysia and Indonesia) and LC Alabama (in the USA). Lotte Chemical is stepping up its efforts to become a global top 10 chemical company beyond Asia by expanding our research capability and through product development.

Current Research Status

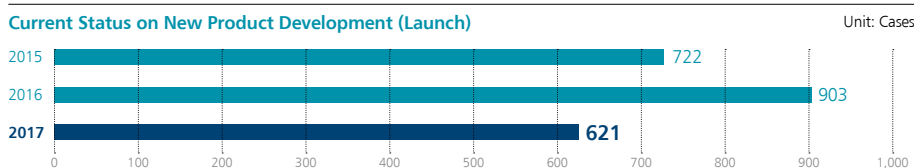
Research Investment



Research Staff Members¹⁾



Current Status on New Product Development (Launch)



1) Including personnel such as manager members, TF members, office support members

Establishment Date

1986

Number of Employees

400 persons

Location

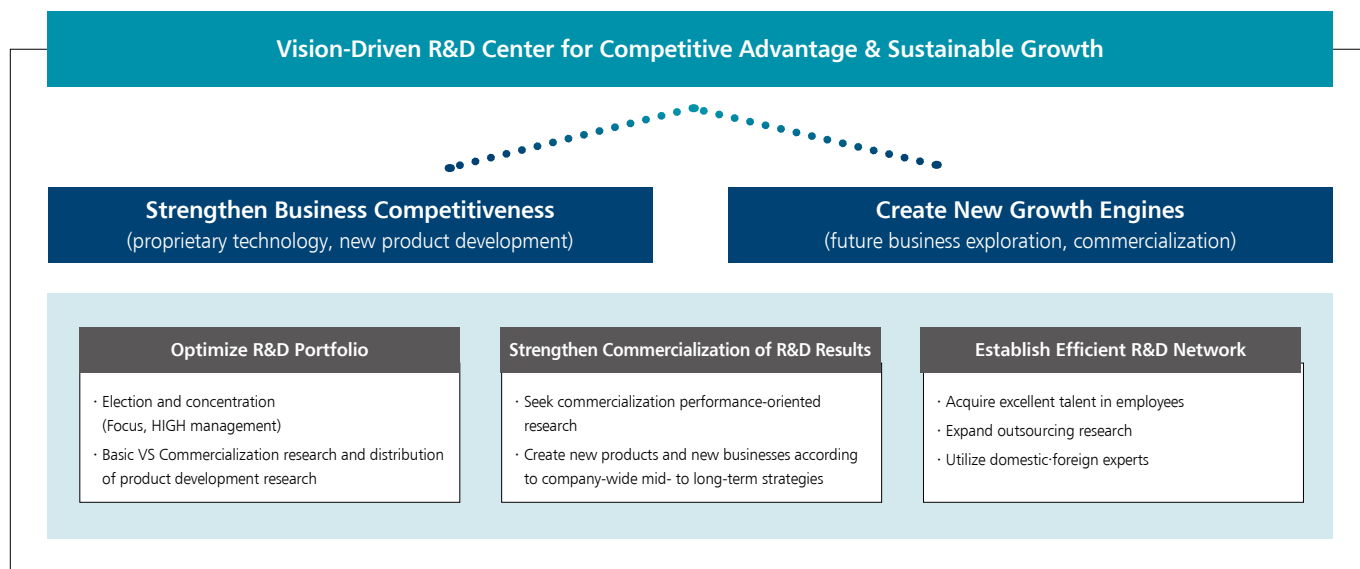
Daejeon
Daedeok Innopolis

Ratio of Female Research Staff Members

27%

Based on late 2017

Research Institute's Vision



Awards for 2017

| No. | Acquisition date | Technology name | Host |
|-----|------------------|---|---|
| 1 | 2017-03-22 | Received Commendation Award for contribution to conservation of water management | Mayor of Daegu Metropolitan City |
| 2 | 2017-08-31 | Received award at the presentation contest on water management best practices and commercialization of new technologies in the second half of 2017 | Comprehensive Water Technology Workshop |
| 3 | 2017-12-06 | Received Commendation Award for Contribution to the appropriate operation and management of environmental pollutant discharge facilities and prevention facilities by the Administrative Deputy Mayor | Daejeon Metropolitan City |
| 4 | 2017-12-21 | Insert injection stiffener manufacturing technology for continuous glass fiber reinforced 3D structure (3D-Tow) | Minister of Trade, Industry and Energy |



Research Field

Polymer Research

Polyolefin-based resin is a typical plastic polymer resin that is widely used in automobiles, home appliances, film, packing materials, household goods and various items found around our everyday lives.

Grounded in four decades of process and production control technology, Lotte Chemical develops and sells a variety of polymer products. We are currently preparing to make another leap to become a global chemical company with 4.5 million tons of ethylene production volume for 2018.



Polymer

HDPE, LDPE, LLDPE, EVA, PP



Engineering Plastics

PET, PC, PC Compounds

Engineering Plastics Research

Engineering plastics are characterized by high heat resistance and rigidity, thereby allowing substitution for metals, and include PET, PC and PMMA. We undertake research on the process and commercialization by individual product and its connection with the T/S activities of end customers.

Functional Materials Research

Functional materials, which are based on reactive extrusion process technology, polymer composite manufacturing technology, and foam technology, have been given new functionality to general-purpose polymers. This is where we will create a new market based on differentiated properties. Major products developed based on environment-friendly concepts include thermoplastic elastomers, adhesive resins, polyolefin functional foam material, and metal-alternative high-strength lightweight composites. In addition to the continuous development of nanocomposites and conductive composites, we lead the development of new and advanced materials for the future through research activities in product design, structural analysis and chemical finishing processing optimization based on CAE.



Functional Materials

BR, EPDM, LFT, TPO, automotive composites, LOTTMER (Functional TPEV), EPP, conductive polymer



Monomer Research

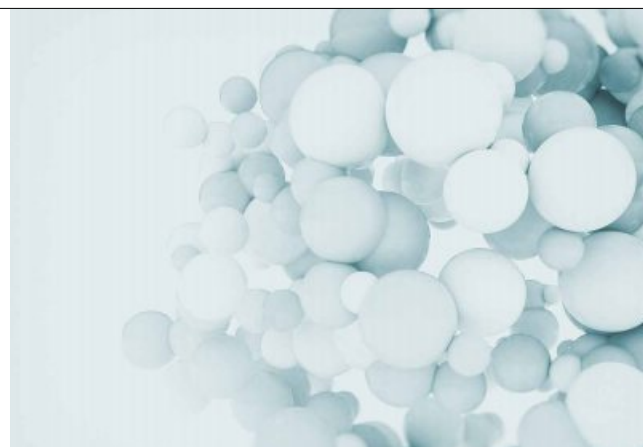
Monomer new process, EO/EOA

Monomer Research

The focal point of monomer research is placed primarily on developing new products and new processes in the fields of olefins, aromatics, and EO derivatives, and on developing related chemical catalysts. Notably, we develop high value-added derivatives that can secure the competitiveness of existing businesses, develop new and advanced technologies such as improving environmentally-friendly processes for reducing energy and CO₂ consumption, research high-value added properties of feedstock, and develop raw materials using non-traditional petroleum-gas.

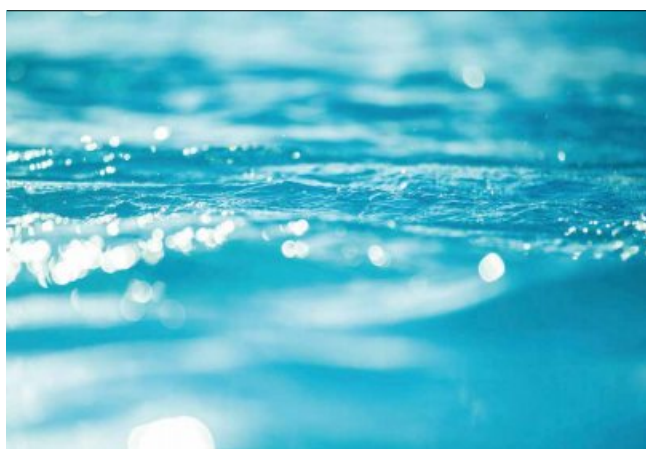
Catalyst and Process Research

Catalyst research is carried out on various polyolefin catalysts such as PE, PP, metallocene catalysts, and catalysts for EP materials. For process research, underway is research on process efficiency improvements through process simulation and development of new and advanced protocols.



Catalyst-Process

Metallocene-Ziegler-Natta Catalyst



Megatrend

Water treatment business, ESS, new market foray

Megatrend Research

This division is responsible for new and advanced technology research that can further strengthen the company's fundamental business and provide opportunities to discover new business opportunities. Currently, areas of research include water treatment, ESS (energy storage system), and biochemicals.

Providing Convenience to Customers' Lives

Lotte Chemical makes products that are conveniently available anywhere, from basic household necessities to medical and advanced aircraft materials. Lotte Chemical makes value of life available to our customers' reach and offers a variety of products and technologies that enhance the convenience of our customers in their everyday lives.

Contributing to Strengthen Industrial Infrastructure

Based on over 40 years of process-production controlling technology, Lotte Chemical was the first company in Korea to develop hot water and heating pipes and automotive fuel tanks. Our polypropylene resin for extrusion coating, which demonstrates outstanding adhesive properties and processability, was selected as a World-Class Korean Product and contributed greatly to increasing exports. Lotte Chemical is also active in developing adhesive resin which adds functionality to commodity plastics and in developing composites that are highly intensive and lightweight to adapt to automobile components and electronic appliances.

Securing Source Technology for Sustainable Growth

Lotte Chemical is committed to securing source technology and developing new products in order to lead the future market and achieve continuous growth as a world-class chemical company. In addition to developing polymer resin and catalyst research, which are our main research fields, we bring about advanced technologies on various new and advanced materials with high functionality, monomer research and future megatrends research.

Developing High Value-Added Product Portfolio

Within the polymer business, which is one of Lotte Chemical's key business fields, we pursue overseas exports based on our proprietary source technologies that include catalysts and processes. Furthermore, we expect to contribute to boosting profitability by continuously supplying products that meet customer needs in the future. Moreover, we are expanding the engineering plastics business to the portfolio of high value-added products by continuously applying our proprietary technologies to this field.

In the monomer business, Lotte Chemical is enhancing its cost competitiveness through energy efficiency, which results from improving the existing processes and catalysts, and through developing high value chemicals such as raw materials for high-rise concrete compounds.

Commercializing Environmentally-friendly Technologies

Lotte Chemical strives to expand its environmental and energy businesses by commercializing water treatment membranes and related products. For the water treatment membrane in particular, we confirmed our operations at the Daegu Water Industry Cluster, and the plant is being constructed for commercial production, which is expected to begin from the first half of 2018.

In the ESS business, the company developed a chemical flow battery with no risks of explosion and easy-to-enable mass storage, and is conducting proof tests in industrial facilities and wind power plants in Korea and abroad.

2017 R&D Performance Portfolio

Lotte Chemical has been recognized for excellence in the global market with our advanced technologies and quality, and, in this spirit, we will continue to explore new growth businesses. We succeeded in developing high value-added products and lightweight products for automobiles, and have seen tangible achievements such as certification and awards from external organizations through the development of eco-friendly products of new and advanced materials.

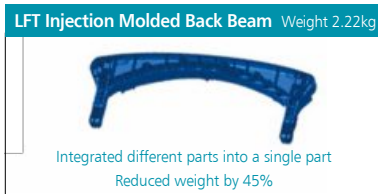


TIPP (Transparent Impact-resistance PP)

TIPP (Transparent Impact-resistance PP)

Polypropylene (PP, Polypropylene) is a universal material widely used in everyday life. As the leading PP producing company in Korea, Lotte Chemical is manufacturing customized products by developing various new technologies.

PP is a product highly favored as a material for food storage containers. Its requirements include high strength to keep the product from breaking even when dropped and transparency to make it easy to check the contents inside, but impact resistance and transparency tend to be inversely proportional to each other. Lotte Chemical successfully overcame these limitations and successfully developed TIPP that improves from existing products both strength and transparency simultaneously. TIPP is in mass-production for various uses such as detergent containers, transparent sheets, and medical equipment befitting its characteristics, and we plan to continue expanding its production as a main high value-added PP product.



LFT (Long Fiber Thermoplastic) Injection Molded Back-Beams for Automobiles

Demand for lightweight materials is on the constant rise as government regulations for automobile fuel economy around the world increasingly toughens while the call for quality improvement increases. As the leader in the automotive lightweight technology, Lotte Chemical continues to create a raft of lightweight components for automobiles. For example, LFT (Long Fiber Thermoplastic), a product developed by Lotte Chemical's proprietary eco-friendly technology, is 20 to 30% lighter in weight than metal, thereby reducing costs by 20%. It is becoming increasingly popular as a reinforced plastic material to effectively substitute for metals. Drawing upon the production technology that we have with LFT, we also succeeded in developing a back beam that can be manufactured through injection molding. The LFT injection-molded back beam is 45% lighter in weight compared to the conventional back beam, and this achievement then enabled us to drastically improve productivity by integrating the parts. In this regard, Lotte Chemical continues to develop eco-friendly lightweight materials through LTP, EPP (Expanded Polypropylene), TPO (Thermoplastic Polyolefin) and other lightweight technologies.



PLA, a 3D Printer Filament Material for high-speed printer

Polylactic Acid, a 3D Printer Filament Material for High-speed Printer

PLA, a polymer material derived from biomass, is widely regarded as an eco-friendly material to replace polymeric materials produced from petroleum. Lotte Chemical succeeded in developing a 3D filament material that can be printed at high speed using PLA material. This overcomes the disadvantages of slow 3D printing technology by printing up to 5 times faster than materials with the existing FDM (fused deposition modeling) method. Based on this achievement, Lotte Chemical currently develops various 3D printing materials, which is highlighted as one of the critical needs in the era of the 4th Industrial Revolution.

Development of Environmentally-friendly Cutting Edge Technology

Lotte Chemical develops environmentally-friendly technologies to minimize the environmental impact of our products across all stages of use, from production to disposal and recycling. Notably, we are fully committed to developing and improving the technologies and processes that can maximize energy efficiency in the production stage while minimizing CO₂ emissions.

Development of Weight Reducing Materials

Lotte Chemical contributes to reducing the weight of automobiles and aircraft by developing various weight diminishing materials. The company has lowered the weight of preexisting parts using various foam technologies such as EPP and foam injection molding, and substitutes for metal parts using reinforced plastic technologies such as LFT (Long Fiber Reinforced Thermoplastic) and CFRP (Carbon Fiber Reinforced Plastic). Lotte Chemical has created substituted with plastic materials for the metal materials in automobile fuel tanks, door modules, and bumper back beams. And in 2016, the company succeeded in developing CFRP automobile hoods using HP-RTM (High Pressure Resin Transfer Molding) which allows mass production.

Development of Membrane Technology for Water Treatment

Water Treatment Membrane is a technology that filters out pollutants to supply high-quality water. It is an eco-friendly technology that can contribute to solving possible future water shortages by strengthening water quality standards. In 2011, Lotte Chemical selected this technology as one of the next-generation growth engines and has been making investments constantly in R&D activities. On this note, Lotte Chemical manufactures high-strength-high-permeability hollow fiber membranes with our proprietary technology, which expands our market share centering on wastewater facilities in and outside of Korea. Furthermore, we successfully developed a compact cassette that can be installed at small as well as large water treatment facilities, elevating the utilization value across industries. In particular, our membrane has high strength and strong water resistance yet is very light in weight, making it highly efficient in operation. We have also accomplished effective energy savings by minimizing the use of air energy to remove accumulated pollutants. This is expected to enable Lotte Chemical to expand our business scope and make another leap forward as a next-generation new growth engine business once our production plant is completed in the national water industry cluster in Daegu by the first half of 2018.

Developing Advanced Medical Materials

The medical industry, one of Lotte Group’s future growth engines, is expected to grow further in the future as more attention increasingly centers on quality of life, health, and aging. On this note, Lotte Chemical aims to provide customers with safe and healthy lives by developing products based on various polymer materials coupled with new and advanced technologies in line with future market trends in the medical and healthcare fields.



Membrane Technology Module for Water Treatment

HOW TO DO GLOBAL BUSINESS



Lotte Chemical is expanding production facilities including large-scale joint ventures. We are also working on finding new growth engines for the future by constructing a water treatment membrane plant. We actively undertake new businesses not only in Korea but also in other parts of the world to secure competitive raw materials and produce high value-added products while establishing a bridgehead to venture into new markets. As the leading global chemical company from Korea, Lotte Chemical remains committed to actively engaging in new businesses to enhance our competitiveness and achieve sustainable growth.

Domestic

Building an Additional Ethylene Plant in Yeosu to Become Global Top 7 Chemical Company

Lotte Chemical is expanding plants to annually produce 200 thousand tons of ethylene by 2018. Following its establishment in 1990, the Yeosu ethylene plant made its first expansion in 2000 and its second in 2012. Once the third expansion is complete, the plant will have increased its initial production capacity by 350%.

Slated for completion by the end of 2018, the expansion project is expected to increase Lotte Chemical's annual ethylene production capacity to 2.3 million tons, including that of the Daesan Plant. When combined with the capacity of the ethylene plant in Uzbekistan, which was completed in May 2016, the Lotte Chemical Titan Plant in Malaysia, with its expanded capacity realized at the end of 2017, and the ethane cracker plant in the USA, which is scheduled to be completed during the second half of 2018, we expect to boast a total production capacity of 4.5 million tons of ethylene. This will make us the No. 1 ethylene producer in Korea and the 7th largest producer of ethylene in the world.

In addition, we expect to secure cost competitiveness by diversifying raw materials, by using C3LPG (Propane) instead of the traditional raw material of petrochemistry, naphtha along with ethane produced from natural gas of Uzbekistan, and shale gas of the USA. This and Lotte Chemical's production plants in Korea, the Middle East, Southeast Asia, and the USA will strengthen the company's global competitiveness.

Expansion of Yeosu Polycarbonate (PC) Plant to Secure the World's Third Largest PC Production Capacity

Following Lotte Chemical's decision to add a 100,000 ton polycarbonate (PC) production line to the Yeosu Plant, construction has begun with the goal of completion in the second half of 2019. PC, a high value-added product with strong heat-resistance and impact-resistance, is a representative engineering plastic widely used as a core material for lightweight automotive parts and durable daily necessities. This investment in our facility will garner us an annual production capacity of 210,000 tons of PC products. Combined with the PC production volume of LOTTE Advanced Materials (240,000 tons yearly), our annual production capacity is expected to total 450,000 tons altogether. Therefore, Lotte Chemical expects to become the world's third-largest PC maker by 2020.

Completion of Special Synthetic Rubber Plant

Lotte Chemical established the joint venture 'Lotte Versalis Elastomers Co., Ltd.' in October 2013 in cooperation with Versalis, Italy's state-run oil company, well known for its leading synthetic rubber technology. Versalis is completely owned by the state-run chemical company Eni of Italy, which operates olefin and synthetic plants in Italy and across Europe. It is also recognized as a comprehensive petrochemical company with the world's top technology in the field of synthetic rubber. Lotte Versalis Elastomers completed production facilities of SSBR (a high value-added synthetic rubber) and EPDM (ethylene propylene rubber) in Yeosu with a capacity of 200,000 tons, and will start full-scale commercial production from the first half of 2018. We expect this to boost sales by about 400 billion KRW and directly create approximately 150 jobs.





Expansion of Meta-Xylene in Ulsan Plant

Expansion of Ulsan Meta-Xylene Plant (annual capacity of 200,000 tons)

Lotte Chemical is expanding its Metaxylene (MeX) production line at the Ulsan Plant to 200,000 tons in order to stabilize the supply of raw materials to enhance the competitiveness of PIA (Purified Isophthalic Acid). The expansion is slated to be completed by the second half of 2019. MeX is a raw material for PIA, a high-margin product. Lotte Chemical is the world's largest PIA producer, but maintains an operation rate of about 70% due to a shortage of raw materials. Therefore, we decided to expand the facility to ensure a stable supply of raw materials and strengthen our competitiveness in the PIA market. We expect this facility investment to increase our PIA production volume by more than 30%, further bolstering our position as the world's No. 1 PIA supplier. In the second half of 2019, when this expansion project is completed, Lotte Chemical expects to see MeX production volume to rise to 360,000 tons a year, further strengthening our competitiveness as the world's No. 1 manufacturer.



Construction of Daegu Water Treatment Membrane Plant



Construction of Daegu Water Treatment Membrane Plant

The water industry is increasingly moving into the spotlight due to severe water shortages and water pollution caused by population growth, urbanization, variability of precipitation, and climate change. As the water industry emerges as the 'Blue Gold' industry of the 21st century (a term used to liken water to oil, as oil was previously called 'black gold'), Lotte Chemical entered into an investment agreement with Daegu Metropolitan City in December 2015 to undertake the membrane project at the Water Industry Cluster and begin construction in the Daegu National Industrial Complex. In accordance with this agreement, the water treatment membrane plant is currently under construction inside the Daegu National Industrial Complex, with the target of kick-starting commercial production beginning in the second half of 2018. This new investment is expected to enable us to produce membranes, modules, and cassettes, which are the key materials of the membrane filtration process. We plan to perform process design, installation, and pilot operation based on the products manufactured here.

Global

Ethane Cracker and Ethylene Glycol Joint Venture in the State of Louisiana, USA

In February 2014, Lotte Chemical concluded a master agreement on a joint venture for ethane cracker with USA-based Axiall Corporation, confirmed the terms of establishing the joint venture, including the share ratio and details of the ethylene business, in June 2015, and finalized the business investment in December 2015. The key of this project is to decompose refined ethane from shale gas to produce ethylene, the basic raw material for petrochemicals. We plan to produce 1 million tons of ethylene per year and supply them to Lotte Chemical and Axiall. With the secured amount of ethylene, we plan to simultaneously produce ethylene glycol (EG) with an annual capacity of 700,000 tons at the same site. Through the groundbreaking ceremony of the ethane cracker and ethylene glycol plant in June 2016, Lotte Chemical officially proclaimed its status as the first petrochemical company in Korea to venture into the shale gas ethane cracker business in North America. By achieving more than 60% of the process rate by December 2017, construction is smoothly progressing according to schedule, with the goal of commercial production from the first half of 2019.



Groundbreaking ceremony of ethane cracker joint venture in the State of Louisiana, USA

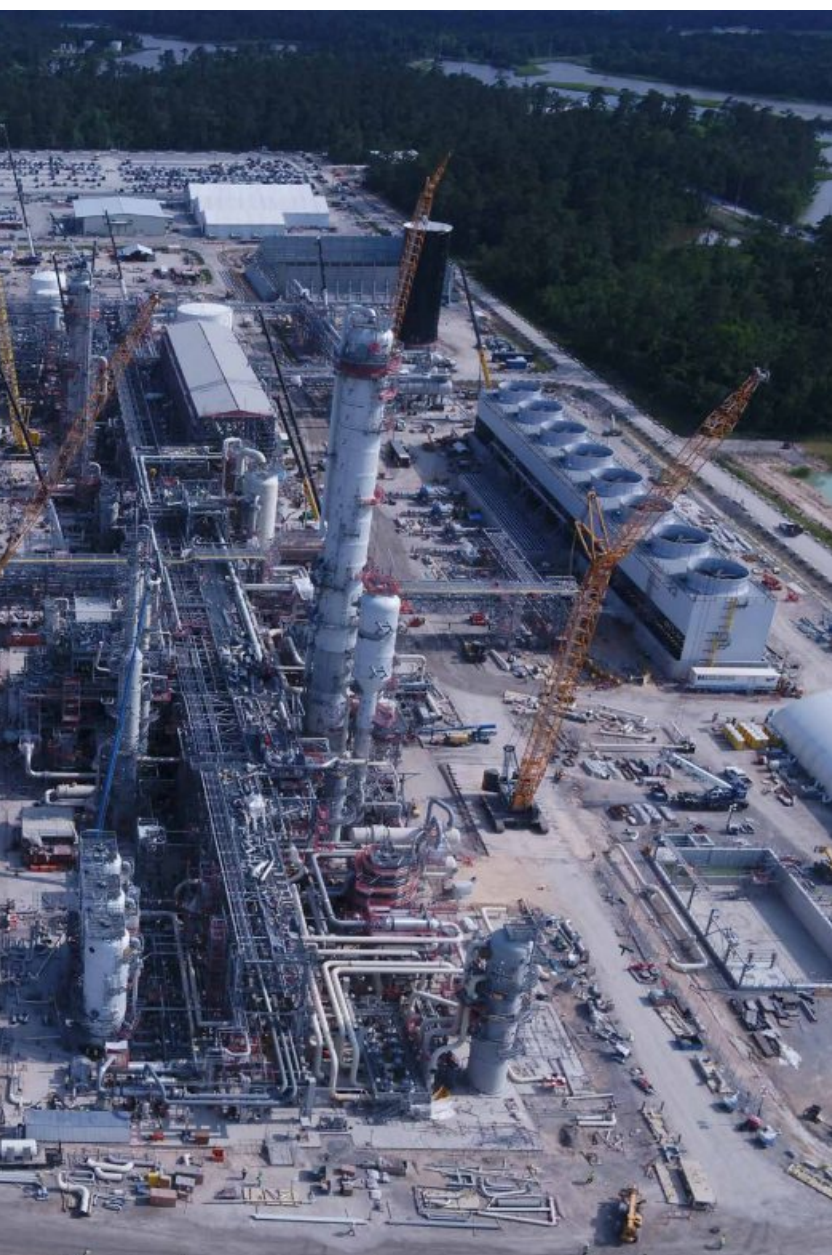


Along with the Uzbekistan Surgil Project, this project will enable us to increase our use of low-cost gas material and reduce dependence on naphtha, while securing a large-scale production base in the USA, further strengthening our global competitiveness through diversification of raw materials, production bases, and sales areas.





Expansion of LC TITAN NC Plant in Malaysia



Built ethane cracker and ethylene glycol plants in the state of Louisiana, USA

Malaysia Titan NC Expansion Project

The TE-3 project, drawn from the TITAN Ethylene 3rd Project, will expand the ethylene plant in Titan, Malaysia. Following the acquisition in 2010, the expansion was completed at the end of July 2017 in partnership with KBR Inc. beginning in August 2014. This project is designed to perform Naphtha Cracking through the Fluidized Catalytic Cracking Converter (FCC Converter), which is called the K-COT (KBR Catalytic Olefins Technology) Converter, in place of a furnace (stream cracker), which is used to decompose naphtha, a raw material used at the existing ethylene plant. As a result, Lotte Chemical is expected to remain as the first-ever commercial petrochemical company in the world to apply an FCC Converter to naphtha crackers.

Moreover, the K-COT converter technology is expected to convert a wide range of feeds, from C4 to C10, to olefin at higher rates. Compared with the conventional converting method by furnace, we realized an increase from 10% to 25%. This project will smooth olefin supply for Titan not just in Malaysia alone, but also in Indonesia. Moreover, the project is expected to contribute to facilitating undertaking of new businesses for future ethylene plant expansion projects in and outside of Korea as best practice for accurate economics and feasibility analysis.



Expansion of LC TITAN PP Plant in Malaysia

Malaysia TITAN PP Expansion Project

As the 3rd polypropylene (PP) plant expansion project in Titan, Malaysia, we are on schedule for completion in the first half of 2018 (Acquired in 2010). This project is meaningful to Lotte Chemical because its progress utilizes the company's proprietary technology. By the NC expansion of Titan, the propylene produced here will be used as raw material. This will strengthen our PP business competitiveness in the Southeast Asian market, which is the net import area of PP products, and will contribute to boosting LC TITAN's sales and profits.

STRATEGY & GOVERNANCE

- 30 Sustainability Management Initiatives
- 32 Governance
- 34 Compliance
- 36 Ethical Management
- 38 Risk Management
- 40 Activating Stakeholders' Engagement
- 44 SDGs COMPASS
- 46 Materiality Test

Lotte Chemical pursues systematic sustainability management based on five core values: Customer-orientation, Creativity, Passion, Cooperation, Performance



SUSTAINABILITY MANAGEMENT INITIATIVE

Lotte Chemical fulfills its economic, social and environmental responsibilities based on systematic sustainability management strategies and vision. We pursue long-term and sustainable growth and development, thus realizing a future society of prosperity for humanity.

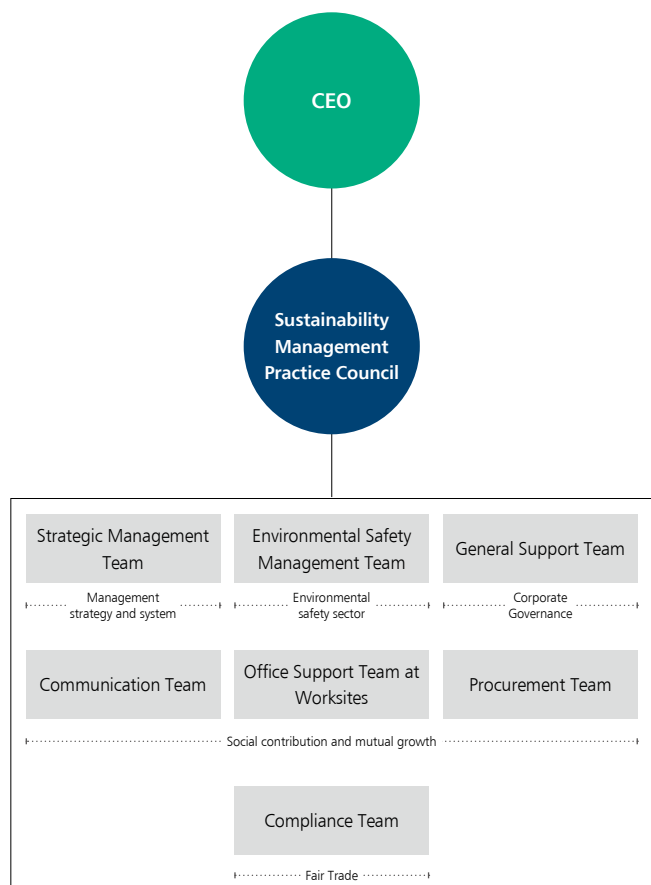
Sustainability Management System

In order to achieve our vision of becoming one of the “Global Top 10 Chemical Company”, Lotte Chemical establishes key implementation tasks and detailed strategies every year based on our sustainability management system. We make continuous efforts to achieve our goals through specific implementation strategies for sustainability management.



Sustainability Management Implementation Organization

Lotte Chemical operates a Sustainability Management Working Group under the management and supervision of the CEO to promote company-wide sustainability management. The Sustainability Management Practice Council selects supervising organizations for the respective fields of environmental safety, governance, social contribution, and others, and establishes the implementation tasks by field to achieve systematic sustainability management.



Achievements of Sustainability Management

Lotte Chemical was able to achieve positive outcomes both internally and externally in 2017 through the systematic implementation of sustainability management strategies. These accomplishments stem directly from the diligence and dedication invested by each and every employee at Lotte Chemical, as we strive to achieve financial growth, take corporate social responsibility into account, and stick to transparent management. Lotte Chemical will continue to innovate and strive for sustainability management strategies to lay the cornerstone for becoming a global chemical company.

Included in the DJSI (Dow Jones Sustainability Index) Asia-Pacific Sector for Seven Consecutive Years

For the seventh consecutive year, Lotte Chemical was included in the Dow Jones Sustainability Indices (DJSI) Asia-Pacific sector, as selected by S&P Dow Jones Indices and RobecoSAM, a Switzerland-based international investment company focused exclusively on Sustainability Investing. DJSI is used as a global standard for SRI (Socially Responsible Investment) as a sustainability evaluation index that comprehensively assesses environmental and social values as well as the economic performance of companies. The DJSI Asia-Pacific Index is given only to companies with the top 20% of sustainability indicators among the top 600 companies in the Asia-Pacific region. In 2017, there were a total of 39 companies from Korea on the list. Lotte Chemical is proud to say that this is a result of our continued efforts to establish concrete sustainability management strategies.

Grand Prize in Green Management Category of GSMA (Global Standard Management Awards)

Lotte Chemical was awarded the Grand Prize in the Green Management category of the Global Standard Management Awards (GSMA) hosted by the KMR and sponsored by the Ministry of Trade, Industry and Energy and the Small and Medium Business Administration. The Green Management Award is based on a rigorous review processes and is a performance indicator awarded to companies that have demonstrated excellent government regulation responses and achieved superior results in environmental pollution reduction through the establishment and execution of mid- and long-term green management strategies.

Lotte Chemical has continued its unremitting efforts to reduce energy consumption at worksites, lessen greenhouse gas emissions, and adopt thorough management of environmentally volatile organic compounds. Going forward, we will continue to grow into an eco-friendly global chemical company that regards improving the value of life and harmonizing with the environment as top priorities through systematic operation and management awareness at a global level.

Selected as Best Public Corporation in 2017

Lotte Chemical was selected as the Best Public Corporation in the 2017 disclosure valuation conducted by the Korea Exchange. In 2017, 756 companies listed on the securities market were included in the valuation and eight companies including Lotte Chemical were named the Best Public Corporations. This valuation is implemented to enhance the transparency of corporate governance and to promote good faith disclosures. Best Public Corporations are selected on the basis of indicators such as fair disclosure practices and establishment of disclosure infrastructure. In our case, we scored high marks in our superior disclosure performance, internal disclosure support system, and consistent training programs. From now on, Lotte Chemical will continue to remain fully dedicated to protecting investors' right to know and maintaining active communication with our stakeholders through the transparent disclosure of management information.

Charlotte Volunteer Group of Yeosu Plant Awarded Appreciation Plaque and Commendation Award as an Excellent Company for Social Contribution Projects in 2017

The Lotte Chemical Yeosu Plant Volunteer Group was selected as an Excellent Company for Social Contribution Projects by Yeosu Metropolitan City and the Jeonnam East Branch of Patriots and Veterans Affairs in 2017. Lotte Chemical implements its CSR activities on a regular basis through the voluntary participation of our employees in social contribution programs. Notably, the Charlotte Volunteer Group of the Yeosu Plant carried out voluntary activities such as regular environmental protection events and support for the underprivileged. And in January 2017, Lotte Chemical donated 200 million KRW to the Yeosu Fisheries Market in the wake of a large fire that destroyed the market, in order to support the community merchants and help restore the market back to normal. As a result of continuing our efforts to contribute to society, we are recognized as the best practice for companies that cooperate with the local community.

Platinum (Grand Prize) Winner in the Annual Report Category of LACP Spotlight Awards for Four Consecutive Years

Lotte Chemical's 2016 sustainability management report was awarded the Grand Prize in the Annual Report category of the Spotlight Awards Global Communications Competition, an international corporate public relations and report data evaluation event held by the League of American Communications Professionals LLC (LACP) for the fourth consecutive year. Even better, we were named the 'No. 2' company in the Top 100 category, which ranks all the participating companies' publicity materials, including corporate reports and publications. The 'Spotlight Awards' is an international public relations contest that evaluates the accuracy of information, transparency of management, and creativity in the publicity materials of companies all around the world. This feat results from Lotte Chemical's commitment to faithfully reflecting the interests of our stakeholders and transparent disclosure of our management information. We will continue to publish quality sustainable management reports that will facilitate communication between Lotte Chemical and stakeholders while disseminating our efforts for sustainability management.

GOVERNANCE

The formation and operation of sound and transparent corporate governance is one of the essential requirements for creating a solid company. Lotte Chemical aims to make decisions that take various stakeholders' interests into account through its advanced management system of the Board of Directors.

Organization of the Board of Directors(BoD)

The Board of Directors of Lotte Chemical consists of three internal directors and four external directors, and consists of seven directors with expertise in each field, contributing to balanced management decision-making. The Chairman of the Board of Directors is also the Chairman and Representative director.

As of Dec. 31, 2017

| Name (Expertise) | Gender | Duty | Initial appointment date | Recent appointment date | Position and Carrier |
|---------------------------|--------|---|--------------------------|-------------------------|---|
| Shin, Dong-bin | Male | Chairman and Representative Director | 1993.03.12 | 2017.03.24 | Current) Chairman of Lotte Group |
| Huh, Soo-young | Male | CEO & Representative Director | 2008.03.21 | 2017.03.24 | Former) CEO of KP Chemical |
| Kim Gyo-hyun | Male | CEO & Representative Director | 2017.03.24 | 2017.03.24 | Former) CEO of LC Titan |
| Park, Kyung-hee (Finance) | Female | External Director, Audit Committee Member | 2015.03.20 | 2017.03.24 | Current) Professor of Business Administration, Ewha Women's University |
| Kim, Chul-soo (Tariff) | Male | External Director, Audit Committee Member | 2016.03.18 | 2016.03.18 | Former) Senior Manager, Korea Customs Service |
| Kim, Yoon-ha (Finance) | Male | External Director, Audit Committee Member | 2016.03.18 | 2016.03.18 | Former) Director of General Bank Inspection Bureau, Financial Supervisory Service |
| Park, Yong-seok (Legal) | Male | External Director | 2016.03.18 | 2016.03.18 | Current) Chief Attorney, Lee & Ko Legal Firm |

Securing Diversity & Independence of the BoD

The appointment of board members complies with objective and fair standards. Board members are selected by internal rules prepared by applying relevant laws and ordinances such as the Commercial Act. Although in-house members are appointed at the general shareholders' meeting on the recommendation of the Board of Directors, outside directors are selected by the External Director Candidate Recommendation Committee through careful review of the candidates' expertise. In particular, Lotte Chemical strives to align with the original meaning of the external directors' policy by appointing directors who are not influenced by majority shareholders, so as to prevent the authority of company from being concentrated and abused. The External Director Candidate Recommendation Committee selects as candidates for outside directors legal and management specialists with respected reputations and expertise.

The candidates' competencies and qualifications, which are required to perform the activities of the Board of Directors, as well as their status as stakeholders of the company are reviewed through a rigorous examination process. The most optimal candidates who have independence from the Board of Directors and boast of expertise in their fields are selected through this process to be recommended at the general shareholders' meeting.

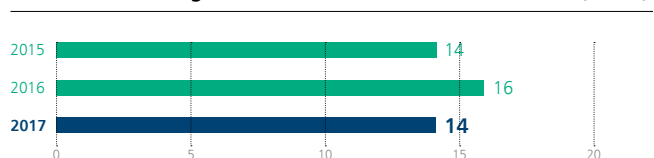
The elected Board of Directors plays a role in representing the interests of various stakeholders in the final decision-making process of the company, thus contributing to the qualitative growth of Lotte Chemical as we faithfully fulfill our social responsibilities.

Operation of the BoD

In 2017, board meetings were held 14 times. The board members go over various agenda items and issues related to sustainability management, including important business issues such as global business forays and investment decisions grounded on rational and professional processes. The Board operates three subcommittees, including the Audit Committee, to carefully review current issues in detail.

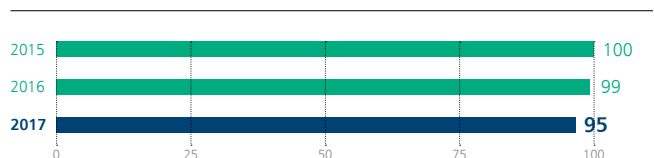
No. of BoD Meetings Held

Unit: Times



Attendance Rate of External Directors

Unit: %



Strengthening Professionalism of the BoD

In order to improve the professionalism of the directors, Lotte Chemical provides materials on the agenda before the Board of Directors and the committee meetings, and holds a briefing session if necessary. In addition, we regularly visit our business sites at domestic and overseas sites to share our company's management status through internal education. Also, we will report on major issues that may affect our sustainability in terms of economy, society, and environment. The BoD operates three subcommittees – External Director Candidate Recommendation Committee, Internal Transaction Committee, and Audit Committee – to strengthen the BoD's expertise in making decisions and to support efficient operations.

| Subcommittee | Member | Name | Purpose and Authorities |
|--|-------------------|-----------------|--|
| External Director Candidate Recommendation Committee | Internal Director | Huh, Soo-young | Recommendation of external director candidates |
| | External Director | Kim, Chul-soo | |
| | External Director | Park, Yong-seok | |
| Internal Transaction Committee | External Director | Park, Kyung-hee | Deliberation and request for correction of internal transaction and private contracts over a certain scale |
| | External Director | Kim, Chul-soo | |
| | External Director | Kim, Yoon-ha | |
| Audit Committee | External Director | Park, Kyung-hee | Audit of accounting and works |
| | External Director | Kim, Chul-soo | |
| | External Director | Kim, Yoon-ha | |

Audit Committee

All members of the Audit Committee consist of external directors elected at shareholders' meetings. The tenure of the members of the Audit Committee is designated according to the Articles of Incorporation and guarantees independence, and holds at least once every three months. The committee contributes to establishing sound corporate governance by focusing on preventive and preemptive audits from the decision-making stage to post-audit strategic execution in order to fundamentally avert conflicts of interest.

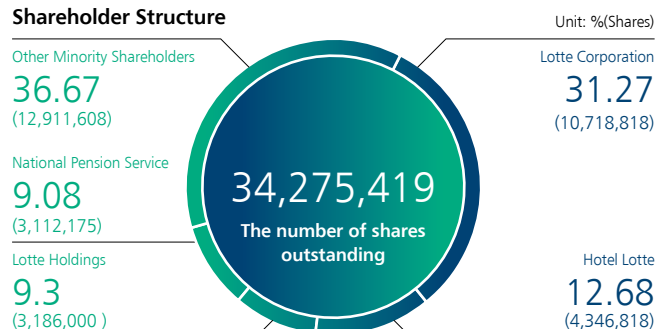
Performance Evaluation and Compensation

Evaluation and compensation for directors are conducted in accordance with fair and transparent rules and procedures. We comprehensively evaluate their overall business performance across the company as well as their individual activities. Also, we are reviewing them in advance to ensure reasonable compensation within the remuneration limit of the directors. The remuneration limit is fully reviewed and confirmed at the shareholders' meeting. Details are disclosed on the business report each year.

Shareholder Composition

Lotte Chemical strives to maximize shareholder value by listening to the opinions of major shareholders and other minority shareholders. All shareholders exercise various rights in accordance with the scope of the laws and regulations. The major shareholders are Lotte Corporation and Hotel Lotte.

Shareholder Structure



Providing Transparent Business Information

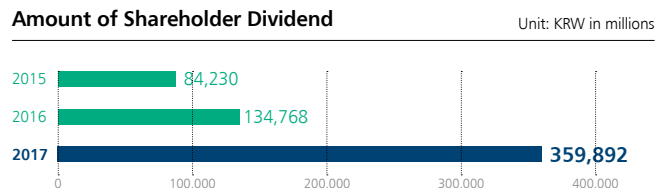
Lotte Chemical recognizes the importance of active and transparent communication with investors and markets, and provides accurate and sufficient information about our future economic value of companies. As a result, we share information with investors through activities such as briefings and conferences, as well as activities related to corporate disclosure.

For 2017, a total of 65 disclosures were submitted to effectively communicate with investors and stakeholders. In addition, we constantly monitor laws and regulations for their establishment/amendments in order to comply with disclosure regulations, and continue to disclose information effectively through continuous training on disclosure rules. Based on these efforts, Lotte Chemical was selected as the Best Public Corporation in 2017 by the Korea Exchange.

Credit Ratings and Date of Final Rating

| | | | |
|--|-------------------------|--|------------|
| | A corporate bill | Korea Investors Service (KIS) 2017.06.28 | A1 |
| | | National Information & Credit Evaluation Inc. (NICE) 2017.06.30 | A1 |
| | Corporate bonds | Korea Investors Service (KIS) 2017.07.11 | AA+ |
| | | National Information & Credit Evaluation Inc. (NICE) 2017.07.13 | AA+ |

Amount of Shareholder Dividend



COMPLIANCE

Today, companies face a strong social demand for social contribution through coexistence and transparent moral management, not to mention legal compliance including fair trade and anti-corruption. In this spirit, Lotte Chemical devotes efforts to establish a fair and transparent trading relationship through the establishment of a compliance system.

Compliance System

In response to social demands, Lotte Chemical established a compliance management infrastructure that meets global standards in order to execute the expansion of a culture of compliance management in accordance with the group’s reinforced policy for compliance management. We have also established a Compliance Team, dedicated to enterprise legal management, and completed formation of a compliance system. Lotte Chemical aims to manage overall compliance risks, protect the core values of the group and the company, specify the need for compliance and ethical management to members through the establishment of a compliance system that meets global standards, and ensure its effective operation, firmly establishing it as corporate culture.

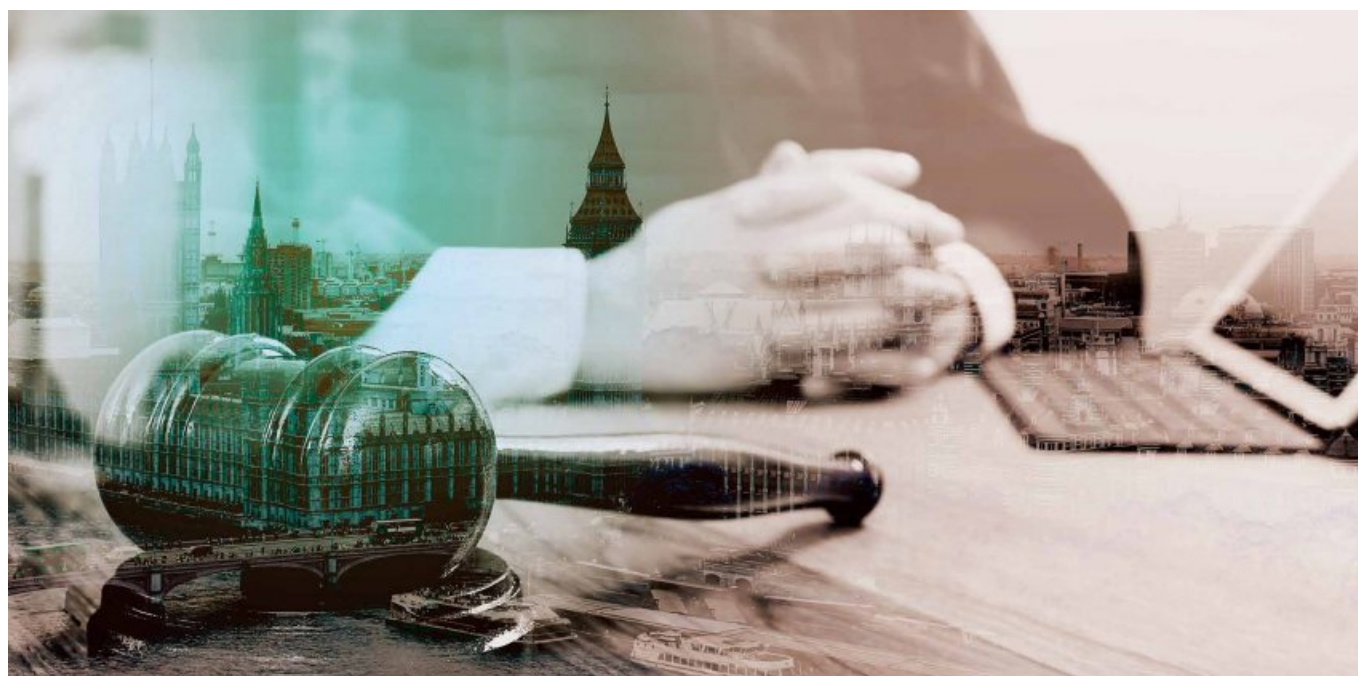
Establishing Compliance System

The compliance system established by Lotte Chemical in 2017 includes guidelines in the manual to prevent various legal risks, a checklist-handbook, strengthened internal compliance regulations and approval procedures, a preliminary monitoring system, and a self-check system. The newly established Compliance Team serves to assist the Fair Trade Self-Compliance Manager appointed pursuant to fair trade self-compliance. The Compliance Officer appointed pursuant to the Compliance Control Standard performs company-wide compliance training on a regular basis, examines the compliance status, and reports these result to the Board of Directors.

Grounded on these efforts, we comply with the laws and regulations, operate our company to meet legal and social requirements, create a corporate culture rooted on doing what is right for the company at all times, and make sure our corporate culture remains so.

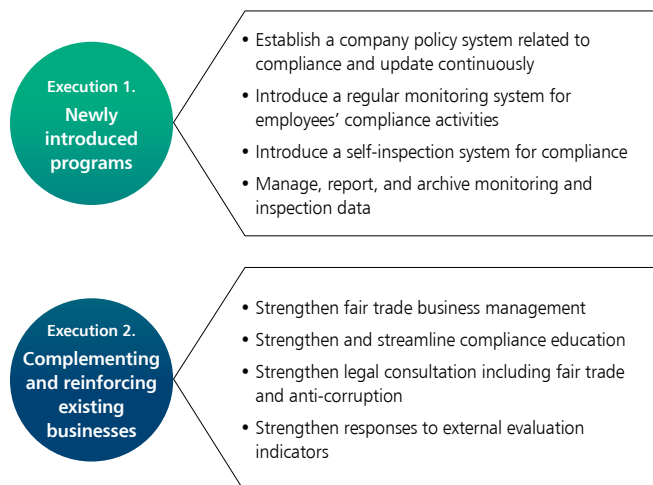
Compliance System Building History

| Classification | Content | Implementation Details |
|----------------|---|--|
| Step 1 | Planning for the entire schedule | <ul style="list-style-type: none"> Set six areas required for risk management : Fair trade, Anti-corruption, Trade secrets, EHS, HR, Accounting |
| Step 2 | Risk assessment | <ul style="list-style-type: none"> Review decision-making structures, company policies, and business processes Analyze and evaluate the status of risk through surveys, manager interviews, and field surveys |
| Step 3 | Establishing a compliance system Compliance tool | <ul style="list-style-type: none"> Establish a complementary device by risk area based on results of analysis - Company policy systems such as code of conduct by field, etc. - Working-level checklists, compliance guidebook, etc. |
| Step 4 | Establishing a monitoring system | <ul style="list-style-type: none"> Create a monitoring scenario by management area Connect to our internal system and modify/complement the details |
| Step 5 | Organizing/ executing organization, setting mid- to long-term plans | <ul style="list-style-type: none"> Commence operation of compliance system : Adopt the related regulatory system as company policy, provide training, perform monitoring Complement a system-operating system and launch mid- to long-term plans |



Strengthening Compliance-related Programs

After carefully comparing and reviewing the requirements demanded by domestic and overseas compliance standards, Lotte Chemical introduced new compliance activities, successfully securing system integrity. In addition, we enhanced the efficiency by integrating, complementing, and strengthening existing compliance-related duties which were carried out sporadically. We also introduced an IT system for efficient compliance monitoring and operation. Moreover, we established a system of compliance-related laws and regulations, continuously updated the system, and introduced a monitoring system for employee compliance activities, a self-inspection system for working-level departments, and the management, reporting, and storage of monitoring and inspection data. In addition, we execute a wide range of activities such as strengthening fair trade business management and compliance education, expanding compliance advisories such as fair trade and anti-bribery, and reinforcing external evaluation indicators.



Mid- to Long-term Reinforcement Plans for Compliance

Lotte Chemical is establishing and undertaking a mid- to long-term master plan aimed at achieving sustainable growth and global compliance management to become a leading company. Notably, we plan to implement the international certification of anti-bribery management systems (ISO 37001) next year by dutifully undertaking the relevant programs through the newly established Compliance System.

Compliance System



Strengthen Compliance with Subsidiaries and Overseas Subsidiaries

Lotte Chemical conducts compliance training for managers at subsidiaries and overseas corporations. In the future, we plan to use our compliance system as a standard model to disseminate compliance systems to subsidiaries and spread a culture of compliance management. Based on the domestic model, a compliance system model produced in the respective local languages will be established in accordance with the laws and regulations of major countries such as the USA, China, EU and other international standards so that it can be applied further to operations overseas.

Strengthening Supply Chain Compliance

Lotte Chemical established a Code of Conduct for the Integrity of Suppliers in 2015 and has been undertaking it ever since. We continuously reinforce our supply chain compliance by requiring use of standard contracts and expanding the ECS (Electronic Chart Systems) for transparent and fair transactions with our partners. In 2017, in particular, we completed the anti-corruption management system to comply with anti-graft laws including the Anti-Corruption and Bribery Prohibition Act both at home and abroad, with a plan to acquire the relevant international certificate. Next year, we will further strengthen our supply chain compliance by adding reciprocal obligations to comply with anti-bribery and other relevant laws and regulations in the contracts, while expanding compliance training to create a transparent and fair trading culture for our suppliers' employees.

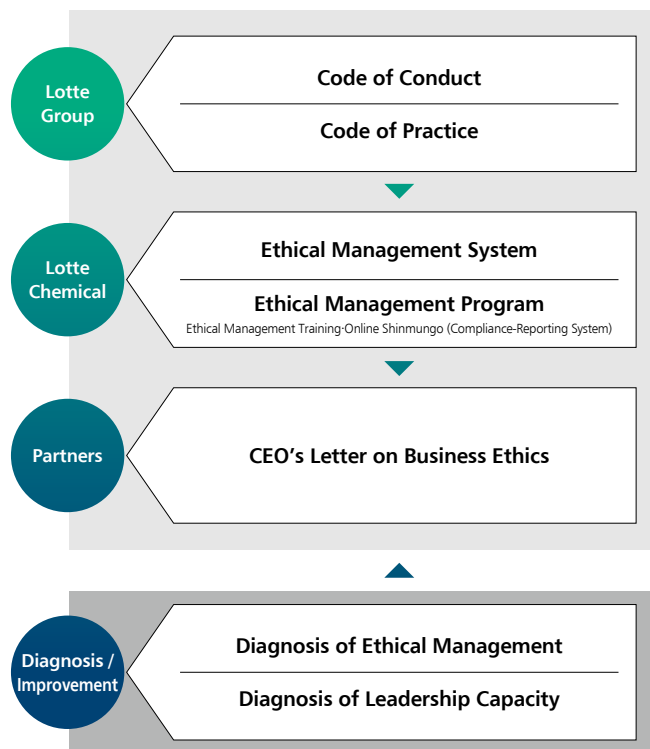
ETHICAL MANAGEMENT

Lotte Chemical is building a transparent and clean corporate culture. Based on the ethical management system, including the Ethics Committee and the Ethics Office, we implement various ethical management activities to ensure that all employees understand their work ethics and conduct their work fairly and rationally. Based on our faith and trust, we will fulfill our corporate social responsibility and contribute to social and economic development and the wellbeing of humanity.

Ethical Management System

Lotte Chemical operates the Ethics Management Team under the direct management of the CEO. Through ethical management practice guidelines, we declared our ethical management intent internally and externally, while providing support for the overall operation of ethical management and the execution of detailed ethical management activities that include the establishment and operation of ethical regulations and the ethical management system. In addition, we established a company-wide ethical management culture through education and campaigns for employees.

Ethical Management System



Ethical Management

Lotte Group has established the Code of Conduct in order to clarify the direction of ethical management. In 2016, the Code of Practice has provided a clear guide to ethical issues. In addition, through 'Ethical Management Diagnosis' and 'Leader Capability Diagnosis', we are able to measure the level of ethical management and support accurate status monitoring. Based on the measured ethical management level, we revised the Code of Conduct and continue to reflect this in our education.

Code of Conduct

| Theme | 20 Practices |
|----------------------|---|
| Trust from Employees | <ul style="list-style-type: none"> · Fair Corporate Culture · Respect for Others · Safe Working Environment · Transparent Financial Statements · Asset Protection and Prevention of Abuse · Protection of Intellectual Rights · Compliance with Information Protection Regulations · Forbiddance of Bribery · Forbiddance of Internal Trade · Forbiddance of Unfair Political Affairs |
| Trust from Customers | <ul style="list-style-type: none"> · Top-notch Products & Services · Honest Marketing · Protection of Customer Information |
| Trust from Partners | <ul style="list-style-type: none"> · Fair Trade · Respect for Partnership · Fair Competition · Legitimate Collection of Information of Competitors |
| Trust from Society | <ul style="list-style-type: none"> · Protection of the Environment · Social Contribution · Respect for Local Culture/ Compliance of Local Laws & Regulations |

Ethical Management System

We established an organized ethical management system to enable all employees to share and monitor for an ethical management culture. We operate the ethics management website (<http://ethics.lottechem.com>) to share our ethics code internally and externally for all employees to observe the ethics pledge as well as engage in ethics management training and activities. In the meantime, we are establishing a reporting system for internal and external stakeholders to report unethical activities.

Ethical Management Achievements in 2017



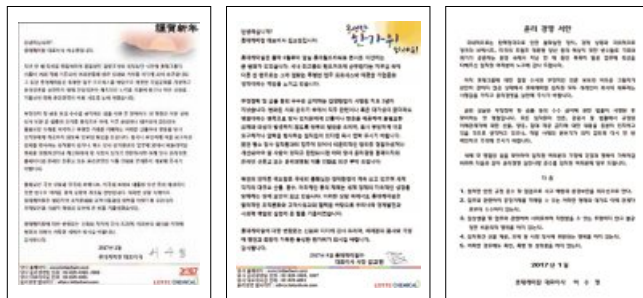
- Sending the CEO's letter on business ethics to stakeholders and business partners on Lunar New Year's Day
- Ethical Management Diagnosis for employees
- Offline ethical management training for employees
- Sending the CEO's letter on business ethics to stakeholders and business partners on Korean Thanksgiving Day

Ethical Management Program

Lotte Chemical implements a variety of ethical management programs including ethics management letters, ethical management education, campaigns, and quizzes. Grounded in these efforts, we internalize ethical management across the company and bolster our ethical management system.

CEO's Letter on Business Ethics

In order to express our strong commitment to ethical management, Lotte Chemical has disseminated the CEO's Letter of Ethics to employees and partner firms ever since the launch of the of the "Do Not Give nor Receive Holiday Gift" campaign in 2012. We are constantly striving to ensure that a fair and transparent trading culture is established through our members' will to conform to an ethical mindset extends to external stakeholders as well.



CEO's Letter of Ethics for Holidays

Ethical Management Education

Lotte Chemicals is committed to active ethical management that goes beyond the level of passive ethical management to prevent unethical and corruption, and to the ethical relationship that strives for long-term cooperation and respect among employees. We have repeatedly conducted ethical management education through various methods such as online and collective education to internalize the ethical minds of our employees in business ethics.

Ethical Management Training Status

| Classification | Unit | 2015 | 2016 | 2017 |
|---|--------|------|------|------|
| Number of training courses | unit | 8 | 6 | 6 |
| Duration | hour | 11 | 6 | 8 |
| Number of trainees who completed training | person | 405 | 89 | 805 |

1) Excluding online training

Implementation of Education on Ethical Management in 2017

| Classification | Course | Target | Contents |
|---------------------------|---|---|--|
| Collective Education | Entry-level education for new recruits | New recruits in the second half of 2016 | Introduction of ethical management and role as a new employee |
| | | New recruits in the first half of 2017 | |
| | Offline education at domestic worksites | Employees at Yeosu Plant | Strengthen ethical awareness, prevent recurrence through audit cases |
| | | Employees at Ulsan Plant | |
| Employees at Daesan Plant | | | |
| Online Education | E-learning for Lotte Chemical's business ethics | All employees | Video training for building organizational culture of ethical management |

1) 6 collective and 1 online education

Online Shinmungo (Compliance-reporting System)

Lotte Chemical accepts reports of violations committed by internal-external stakeholders through the "Online Shinmungo" on our Ethical Management website. The identity of an informant will be kept strictly confidential to prevent any possible disadvantages and unfair treatment for reporting. The feedback and handling process for the violation report is disclosed to the informant through a wired method and e-mail. Additionally, we provide various on-line and off-line reporting channels such as postal mail, wired line, and e-mail, so that feedback and improvement suggestions for ethical management can be submitted anytime and anywhere.

Online Shinmungo Reports

Unit: Cases

| Classification | 2015 | 2016 | 2017 |
|--|------|------|------|
| Bidding and contract | 1 | 3 | 1 |
| Sales and receivables | 2 | 1 | - |
| Grievances of business partners | 7 | 8 | 1 |
| Complaints on work process | 3 | 3 | 4 |
| Total | 13 | 15 | 6 |
| Follow-up and prevention of recurrence | 13 | 15 | 6 |

RISK MANAGEMENT

Lotte Chemical manages various risk factors that can occur in a rapidly changing global business environment, accordingly and on a proactive basis. We intend to respond effectively to the risks surrounding the company and create a stable and smooth management environment.

Operating an Integrated Risk Management System

Lotte Chemical defines the economic, social, and environmental risks that exist within and outside the company, and establishes a systematic integrated risk management system accordingly to respond and manage the entire company. Through this, we have been able to prevent risks from occurring in advance. Moreover, in the event of a risk, there is an established management process for all members to undertake the most efficient and prompt response actions.

Risk Management System

When the company is exposed to crisis situations, it supports systematic crisis management communication both inside and outside the company. The Risk Management Team (RMT), which consists of experts from each team, including CEO, planning, legal affairs, general support, production, and external experts, is operating.

Internal Control System

Lotte Chemical operates an internal control system for risk management. The supervising organization executes a thorough analysis of the business processes related to risk, such as regulatory and legal issues that may have a significant impact on our business operations, and reports the result to the Audit Committee and the Board of Directors. We further have the results reviewed and certified by external auditors and the Audit Committee.

Arrangement of a Risk Portfolio

We established a risk portfolio in the four areas of operations, finance, compliance, and strategy, to evaluate newly identified risk factors on a company-wide basis. Crisis factors are selected and under continuous management based on the evaluation results.

Operational Risk

Safety and Environmental Risks> Safety and environmental risks at production sites are proportional to the expansion of business sites and facilities secured pursuant to the growth of the company, and thus require intensive management. On this note, we have built a safety and environmental inspection system at all times. Also, we established a safety and environmental inspection system to be implemented under all circumstances, and, from 2017 in particular, provided consultations for the establishment of a new safety culture as led by our commitment to internalizing an awareness of safety and environmental management among our members. Moreover, we work on building the systems and structures that fulfill international standards as a global company.

Financial Risk

Tax Risk Management> As a faithful taxpayer and investor, Lotte Chemical dutifully abides by all relevant laws, principles, and regulations of all countries in which we operate our business. We faithfully perform our obligations to pay taxes, comply with all tax return and payment deadlines, and disclose related matters in an audit report and electronic disclosure system in a transparent manner.

Compliance Risk

Compliance Risk Management> We implement a compliance management system to respond effectively to compliance risks resulting from the strengthening of global compliance regulations and the growth of the company. We ensure preliminary management through manuals and monitoring by identifying the specific risk areas. Furthermore, we established a compliance management system at the end of 2016 to systematically support the overall areas of anti-corruption, antitrust, fair trade, environmental safety and health, human resources, tax accounting, and trade secret protection.

Strategy Risk

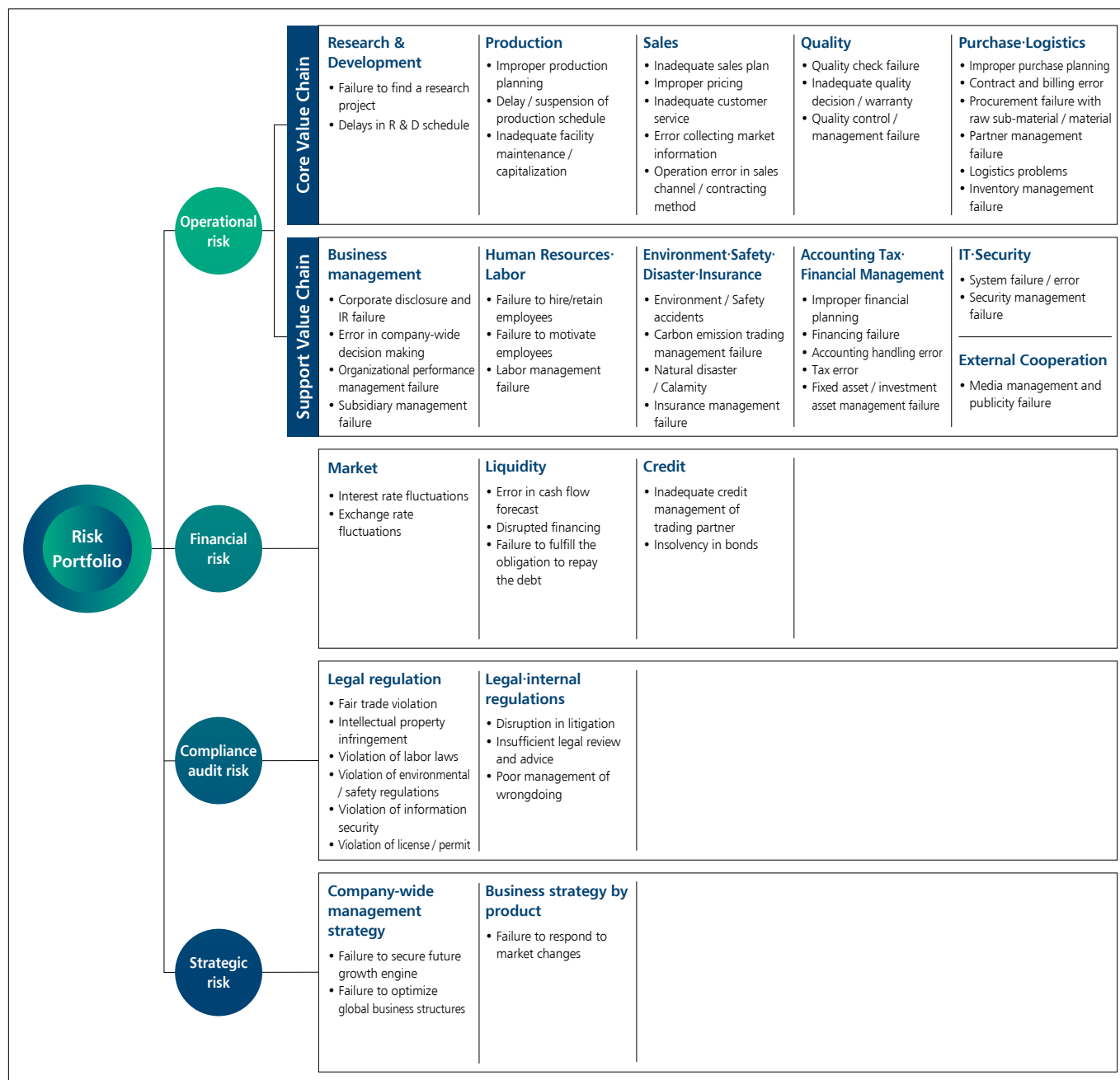
Industry Growth Risk> As oil prices plummeted in the second half of 2014, traditional petrochemical companies based on NCC were able to secure stable flows of profitability due to boosted price competitiveness stemming from low-priced raw materials. Since then, however, oil prices have gradually risen and global competition is intensifying in line with large-scale expansion plans in the global arena. In order to minimize the risk caused by the growth of the entire petrochemical industry, we diversify our feedstock, develop specialty products, and venture into new businesses.

Competition Risk> As competition in the global market becomes fiercer, it is increasingly necessary to respond to production technology and quality control through the establishment of a high value-added product portfolio, as well as securing profits through stable sales in general-purpose products. In this regard, Lotte Chemical will keep up with market changes swiftly by continuously developing 'end-users' and understanding customer needs and will make a devoted efforts in R&D activities and production optimization.

Economic Fluctuation Risk> Recently, the international trade environment is changing in a complex way. As major advanced economies increasingly strengthen protectionism, the need for diversification in sales markets and prompt market response strategy is becoming more evident. We are thus building a swift response system to address the changes in the international market by monitoring the global market more thoroughly. Furthermore, we continue to expand our diverse and stable sales channels as a global company to minimize volatility of earnings caused by business fluctuations.

Resource Procurement Risk> Lotte Chemical strengthens the monitoring of the market environment to forecast the pricing direction of raw materials and products, striving to secure profitability by establishing strategies accordingly. In this regard, we undertook the Uzbek gas field project and the shale gas business in the state of Louisiana in the USA to diversify the supply and demand of raw materials, thereby eliminating procurement risks. Moreover, we also established a proactive response system for changes in the market environment through organic cooperation among departments in production, research, and sales.

Risk Portfolio



ACTIVATING STAKEHOLDERS' ENGAGEMENT

Lotte Chemical understands the importance of open communication with stakeholders when doing business and proactively exchanges information through diverse channels. The opinions we receive from our stakeholders, which include the government, employees, business partners, shareholders and investors, local communities, and customers, reflect and resonate as areas of improvement, such that the economic value generated from our business activities is shared with our stakeholders.

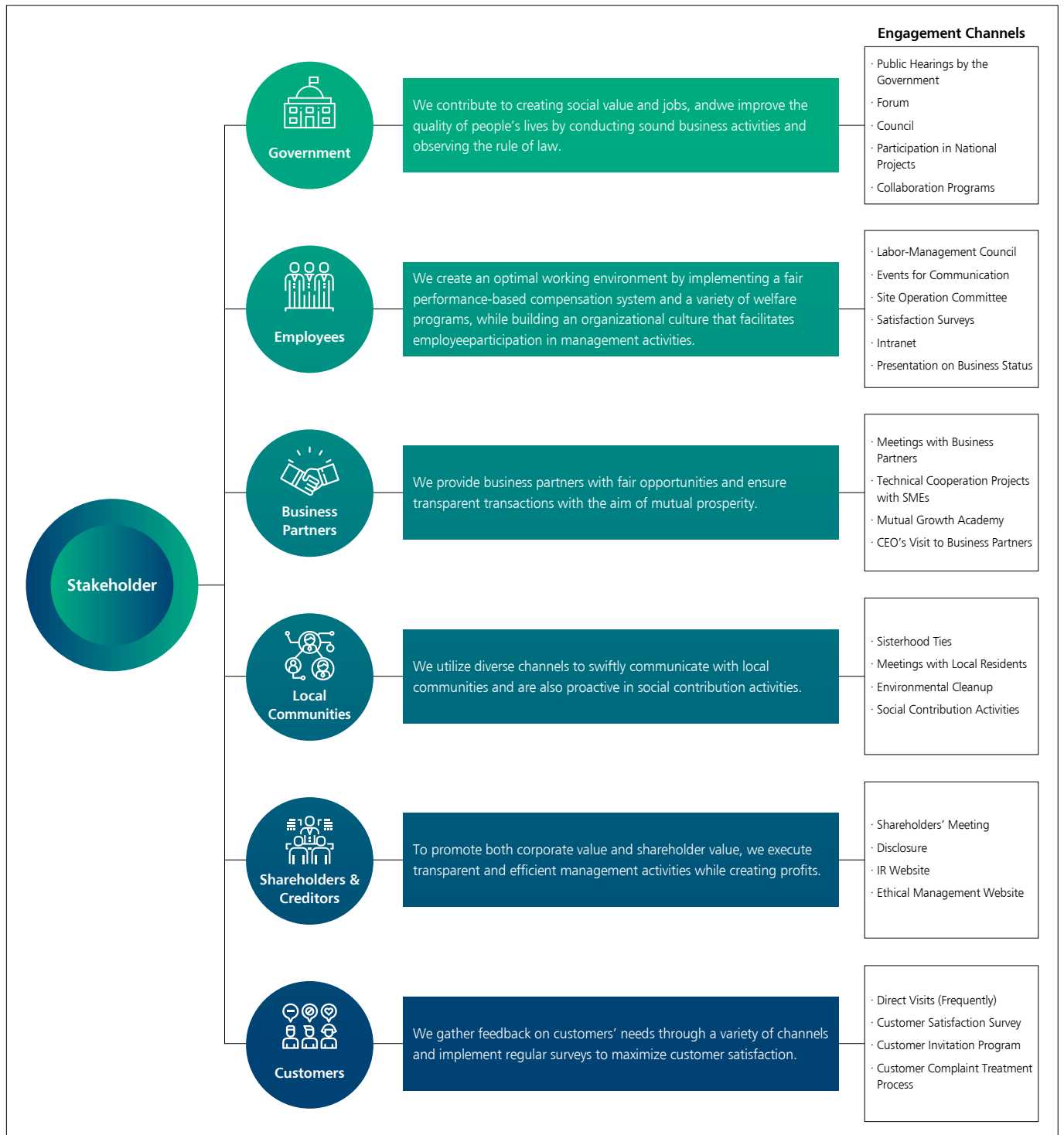
Economic Value Allocation for Stakeholders

As of year end 2017, unit: 100 million KRW



Activating Stakeholders' Engagement

Lotte Chemical maintains various communication channels creating win-win cooperation with stakeholders and welcomes stakeholder opinions on sustainability management and management in general. From mid- to long-term perspectives, we establish business directives and management policies that take stakeholders into account and actively seek to communicate with our stakeholders.



Interview with Stakeholders



Female Employee

Lotte Chemical has fully implemented a maternity protection policy for female employees, and the utilization rate of the program is very high. I happen to be one of the beneficiaries; I was given two years of maternity leave, which is longer than other companies, and the flexible working system allows me to spend time with my child. After I returned to work, the company provided me with plenty of support through a variety of offline internal training programs. Moreover, the company was gracious to let me return to the team that I was on before my leave so it was much easier for me to adapt to my return. I hope this system will continue in the future. In addition, I would like the currently operative 'leave work on time' campaign to further expand so that our employees can maintain a good work-life balance and strengthen their sense of pride for Lotte Chemical.

Jeong Hwa-yeon Senior Manager of PE Overseas Sales Team

Business Partner

PolyChem Korea, a manufacturer and distributor of plastic additives, has been supplying scratch improvement agents to Lotte Chemical from early 2017. Admittedly, as a small and midsize enterprise, we faced many difficulties in the initial technology development phase. This is where we gained support from Lotte Chemical through its partner support activities, in the form of test equipment and technical consultations. This support greatly contributed to the development of our products. SMEs tend to find themselves lagging behind changes in industrial trends, resulting in difficulties in business operations. I therefore hope that Lotte Chemical will hold many seminars on related industries in the future. In addition, it would be great if we SMEs are given more opportunities to cooperate with Lotte Chemical to develop products so that we can continue this collaborative relationship.



Kim Chang-yeon CEO of PolyChem Korea

Local Community

Thanks to the sponsorship from Lotte Chemical beginning in 2009, we provide regular monthly support for 50 children, for their education, living, housing, and heating expenses, to ensure their healthy growth and development. I am always thankful for the active social contribution made by Lotte Chemical. I felt their sincerity in contributing to society through how they target their mindset to supporting children's wellness and growth. I look forward to your continued interest in supporting children, the force of our future. I would like Lotte Chemical to build a society where children are able to protect their own rights and open up the future with enthusiasm.



Han Mi-ra Manager, ChildFund Korea

Shareholder & Investor

With the current soaring demand in China, as well as regular maintenance costs for regional facilities and forecasts of insufficient supply, it is positive that Lotte Chemical established itself and expanded overseas subsidiaries and joint-venture operations. We believe this will eventually create a continuous investment effect. Currently, Lotte Chemical's joint ventures are off to a good start with strengthened global competitiveness. However, it is also necessary to properly manage financial risks, such as hedging exchange rate risk related to uncertainties lingering in the global economy. As a global company loved and trusted by its clients, I have the hope that Lotte Chemical will stand tall as a top-tier company that draws upon broad understanding to communicate with stakeholders, actualizes the value of sharing, and grow together with the local community.

Yun Tae-jun RM Senior Manager, KEB Hana Bank



Relevant Institution

The Korea Business Council for Sustainable Development (KBCSD), together with our member, Lotte Chemical, is engaged in expanding sustainable management in the domestic industries, advocating for industries, and engaging in policy improvement activities. Because the petrochemical industry keenly follows the environmental regulations of major recipient countries and industrial competitors, it is necessary to thoroughly prepare for these situations. As environmental regulations are expected to become more stringent in the future, Lotte Chemical is advised to make preparations in concert with KBCSD according to global regulatory trends. It is important to strictly observe internal standards that are stricter than legal standards and to communicate transparently with stakeholders including local residents about company status.

Chung Koo-seon Head of Policy Planning Team, KBCSD



Customer

HUVIS, a textile company that operates production plants in Jeonju, Ulsan, and China, as well as an R&D center in Daejeon, currently purchases raw materials such as MEG, PP, and IPA from Lotte Chemical's Daesan and Yeosu Plants. Lotte Chemical is a provider of high-quality products and quality services to our company and enhances HUVIS' product competitiveness. This is why I believe Lotte Chemical is more than a mere supplier, but a strategic partner to HUVIS. Lotte Chemical is a company that places importance on communicating with customers and puts itself in our shoes. Therefore, I hope they will stand tall among eco-friendly petrochemical companies by proactively responding to not only customer communications but also to increasingly important environmental issues.

Song Ji-hyeon Associate Manager, HUVIS



SDGs COMPASS

Sustainable Development Goals

The United Nations established Sustainable Development Goals (SDGs), the largest common objective for the international community to achieve together for sustainable development across all countries in the world, from 2016 to 2030. The SDGs define 17 goals and 169 targets that include no poverty and climate action to alleviate inequalities and achieve economic growth. Based on the spirit of 'More than Chemistry,' Lotte Chemical seeks to find new growth engines by discovering and achieving the goals of SDGs that are in line with our management strategies and to address social issues jointly as a corporate citizen.

UN SDGs 17 Goals



- Goal 1 No poverty
- Goal 2 Zero hunger
- Goal 3 Good health and well-being
- Goal 4 Quality education
- Goal 5 Gender equality
- Goal 6 Clean water and sanitation
- Goal 7 Affordable and clean energy
- Goal 8 Decent work and economic growth
- Goal 9 Industry, innovation and infrastructure
- Goal 10 Reduced inequalities
- Goal 11 Sustainable cities and communities
- Goal 12 Responsible consumption and production
- Goal 13 Climate action
- Goal 14 Life below water
- Goal 15 Life on land
- Goal 16 Peace, justice and strong institutions
- Goal 17 Partnerships for the goals



Goal 1. Equal Educational Opportunities

LC Titan contributes to providing equal educational opportunities to high school and college students from the low-income families near our business sites in Malaysia and Indonesia. We provide scholarships in conjunction with local schools to students who achieve great academic performances despite difficult circumstances at home, alongside other programs including factory tours, technical training programs, etc.

In addition, LC Pakistan signed a memorandum of understanding with a university in the region to grant scholarships to superior students and, among them, students who graduate with excellent academic records are hired at our local worksite.



Goal 4. Education Support Project

The 'Hope Sharing Scholarship' is Lotte Chemical's scholarship project. It supports a foundation of independence for students so they can study hard without losing hope even in difficult environments. Lotte Chemical executed a business alliance agreement with the Community Chest of Korea (Daejeon Branch) on a sharing campaign by office workers, so that every employee of Lotte Chemical R&D Center donates a certain portion of their salary every month to contribute to a 'Happiness Sharing Fund.' We distribute 'Hope Sharing Scholarships' twice a year to cultivate talented students in the local community. In addition, we provide support through science books for schools in the Yuseong area, striving to cultivate future science talent for the global arena.



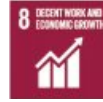
Goal 6.
Residential Environment Improvement Program for Poor Neighborhoods

Lotte Chemical conducts a residential environment improvement program for disadvantaged neighborhoods, the elderly living alone, and marginalized brackets in the Yeosu, Daesan, and Ulsan areas where Lotte Chemical’s production plants are located. In addition to replacing exterior wall paintings, wallpaper, and floor coverings, our employees contribute their expertise to provide repair and maintenance services for electric facilities and kitchen plumbing facilities, in order to improve the quality of life of residents while eliminating safety risks.



Goal 7.
Power Recycling and Greenhouse Gas Reduction

Lotte Chemical’s DMC plant in Yeosu saved 1.1 tons of steam per hour by installing a generator that produces steam from the waste heat of hot oil. As a result, we will achieve annual cost savings of about 3.1 billion KRW, and greenhouse gas emissions will be reduced by more than 2,000 tons annually. The Daesan plant reduced LS by decreasing the stripping steam of D-NC and PW-Stripper (103-E) through a new installation of NC to EG1 supply line. We also lessened the amount of steam used in the prefraction process by changing the D-BTX and BT-Mixture lineup, as well as in the 504-C MS through the temperature increase operation of the D-EG1 and 302-E (Reabsorber) BTM, resulting in energy savings of 146TJ. Moreover, the Ulsan plant newly established three anaerobic digestion tanks in stages (one unit) while maintaining the rest (two units). As a result, waste disposal costs have been reduced. Specifically, we achieve annual savings of approximately 4.2 billion KRW and reduction of greenhouse gas emissions of more than 4,000 tons, by cutting down on fuel costs through the use of bio gas and power costs of blowers.



Goal 8.
Support for Overseas Expansion of Partner Companies

Lotte Chemical actively provides support for partner companies with superior competence for them to venture into overseas markets. We provide technical opportunities of interest at our overseas business sites to ensure their product competitiveness, while allowing them to tap into our network to foray into new overseas markets. Moreover, we provide overseas bidding opportunities and ensure long-term transactions to excellent partners, helping our partners grow their self-sufficiency and settle stably in their local market. In 2017, we witnessed 61 domestic partners realize nearly 23 billion KRW in overseas exports based on our support. We also assisted three partners in attending Chinaplas, Asia’s largest petrochemical and rubber exhibition held in China so they could perform field research and market exploration.



Goal 13.
GEMS (Greenhouse Gas & Energy Management System)

In 2010, for the first in the petrochemical industry, Lotte Chemical established GEMS, a SAP-based business administration management program to analyze the risks associated with climate change and to establish response strategies. GEMS enables real-time monitoring of current status and issues related to GHG through an online system. Moreover, GEMS serves as an advanced operating system that enables integrated management of GHG reduction targets, implementation results, and integration of energy inventory data.



MATERIALITY TEST

Lotte Chemical conducted a materiality test that reflects GRI's report decision process in order to identify key topics in our sustainability management plan. Our goals, achievements, and future plans of each key topic are highlighted in the report.

Materiality Test Process

STEP 1

Creating an Issue Pool of Sustainability Management

International Standard analysis

Analysis of global sustainability management initiatives that include GRI Standards, DJSI, ISO 26000, and, SDGs, etc.

Media Research and Benchmarking

From January 1, 2017 to January 18, 2018, Lotte Chemical reviewed 1,389 articles related to our sustainability management and benchmarked the sustainability reports of leading competitors in the global arena.

A total of 66 issue pools were derived from nine areas including the economy, environment, labor, and fair operating practices

STEP 2

Carrying Out the Materiality Test

Social interest

Conduct on-line surveys and written interviews with internal and external stakeholders to identify their interest in each topic.

Impact on Business

Analyze results of industry benchmarking and media research and identify the short-, mid- and long-term impact that each topic has on companies.

A total of 38 main issues were evaluated, and 13 key topics were derived

STEP 3

Configuring Materiality Issues

Establish six core aspects of the reports in conjunction with 13 key topics derived from the materiality test, create a detailed table of contents, and organize content accordingly.

Survey of Internal and External Stakeholders

Lotte Chemical gathered the opinions of internal stakeholders (executives and employees) and external stakeholders (customers, partners, local communities, investors, governments, related organizations, etc.) that influence our business and identified high-level topics on which we should particularly focus.

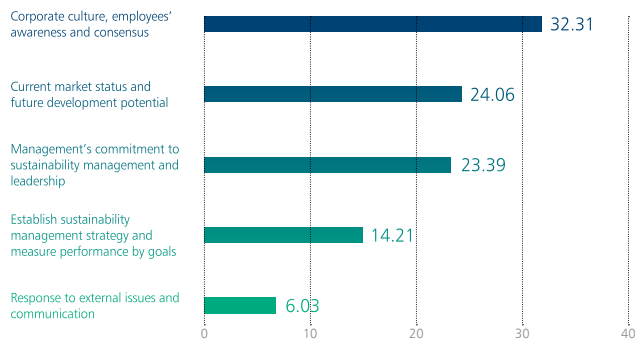
Survey Process



Items Affecting Sustainability Management

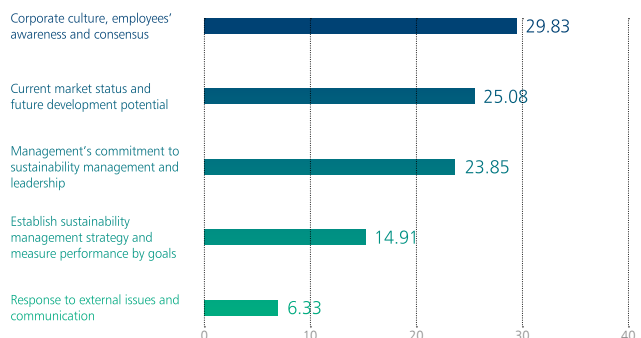
Internal Stakeholders

Unit: %

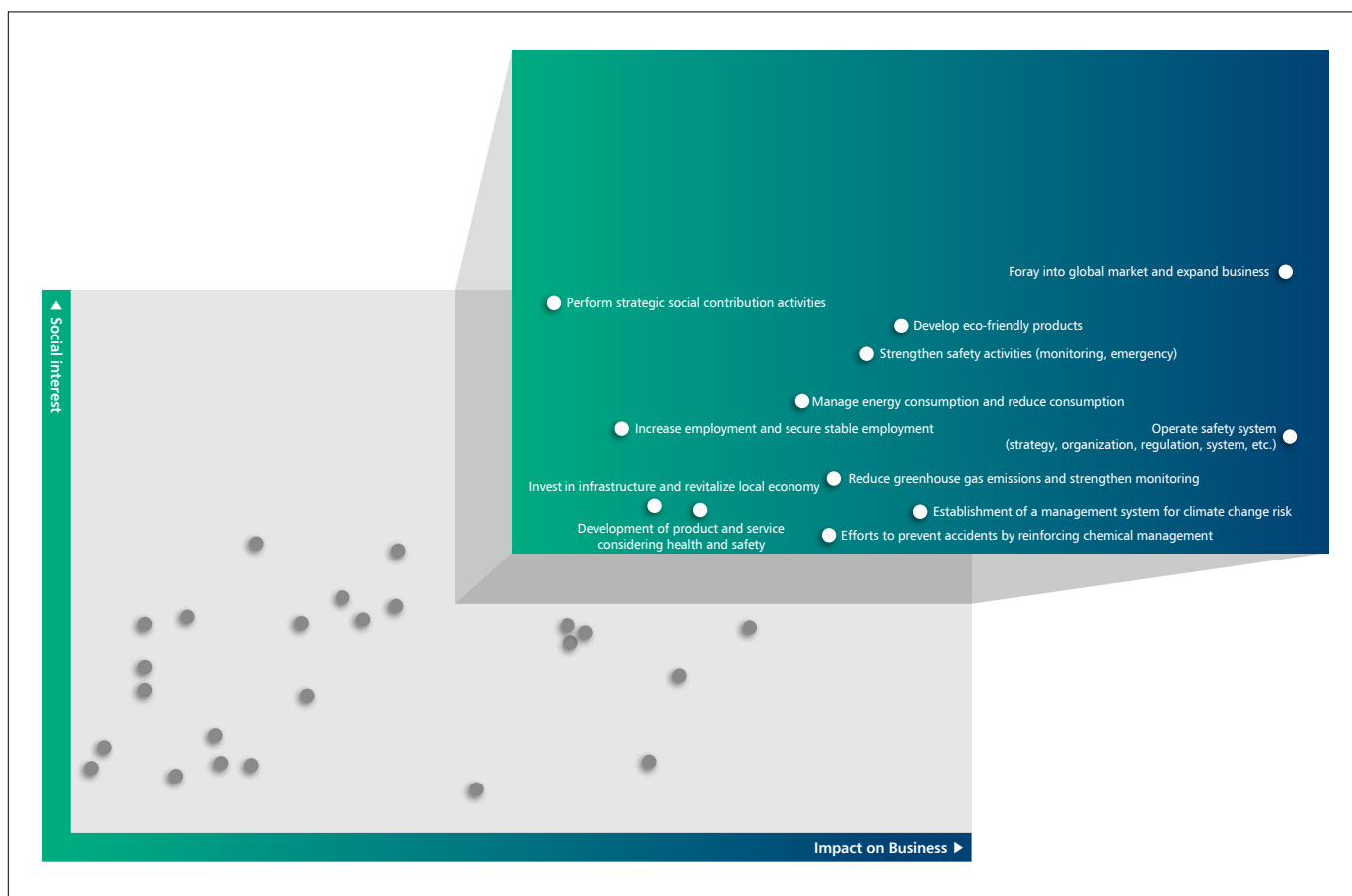


External Stakeholders

Unit: %



Results of Materiality Test



| Key Topics | Reporting Specifications | | | | | Page |
|--|--------------------------|-----------|-------------------|-------------------|--------------------------|--------|
| | Employees | Customers | Business Partners | Local Communities | Shareholders & Investors | |
| 01. Entry into the global market and expansion of worksites | ● | | | | ● | 23~27p |
| 02. Develop eco-friendly products and services | | ● | | ● | ● | 50~57p |
| 03. Manage energy consumption and reduce consumption | | | | ● | | 50~57p |
| 04. Reduce greenhouse gas emissions and strengthen monitoring | | | | ● | | 50~57p |
| 05. Operate safety systems (strategic, organizational, regulatory, systematic, etc.) | ● | | ● | ● | | 58~62p |
| 06. Strengthen safety activities (monitoring, emergency response training, etc.) | ● | | ● | ● | ● | 58~62p |
| 07. Efforts to prevent accidents by strengthening chemical management | ● | | | ● | | 58~62p |
| 08. Increase employment and secure stable employment | ● | | | ● | | 63~75p |
| 09. Provide training to strengthen employee capacity | ● | | | | | 63~75p |
| 10. Monitor partners' sustainability risks | | | ● | | | 76~80p |
| 11. Provide customers with the correct information about products and services | | ● | | | | 81~86p |
| 12. Invest in social welfare facilities and co-prosperity with local communities | | | | ● | | 87~95p |
| 13. Pursue strategic social responsibility activities | | | | ● | | 87~95p |

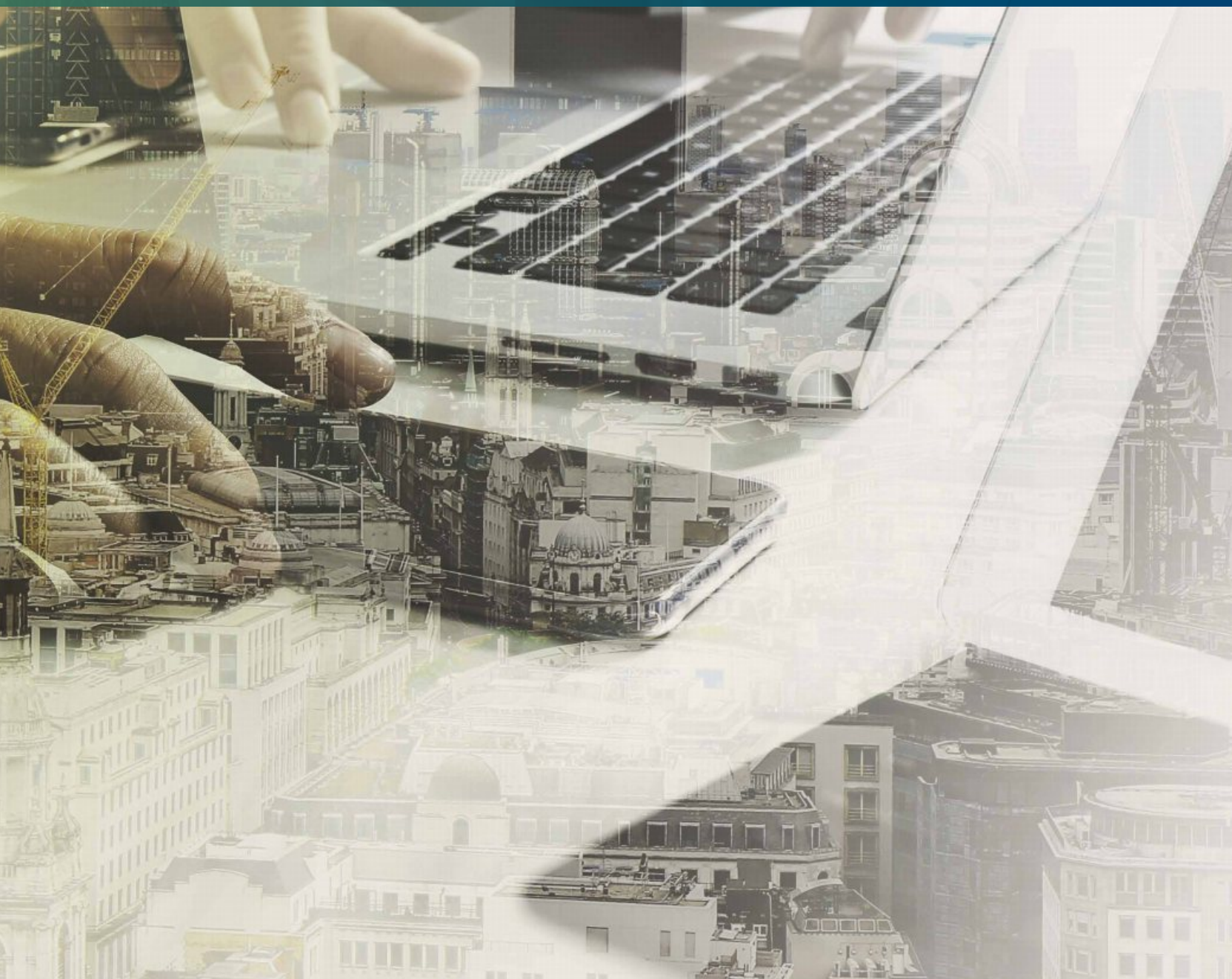
MATERIAL ISSUES

- 50 Issues 01. Environment
- 58 Issues 02. Safety & Health
- 63 Issues 03. Employee
- 76 Issues 04. Mutual Growth
- 81 Issues 05. Customer Value
- 87 Issues 06. Social Contribution





Lotte Chemical values the opinions of all stakeholders as part of our corporate management. We will pursue sustainable growth together with our stakeholders



ISSUES 01. ENVIRONMENT



Why reporting topics are important

Stakeholders are becoming increasingly more interested in strengthened global environmental regulations and boosting information sharing through various online media channels. As a result, global heavyweight companies actively promote eco-friendly products and increase their investment in environmentally friendly facilities and processes. Moreover, they disclose their environmental performance transparently, both inside and outside the company, as they are committed to making public their interest in and efforts to protect the environment. In response to these societal demands, Lotte Chemical disseminates our eco-friendly management philosophy through communication channels with various stakeholders. We also emphasize our role as a corporate citizen to communicate with stakeholders by investing in eco-friendly facilities, and by actively utilizing and promoting them.

Scope of influence of reporting subject

The demand for environmental preservation has increasingly become stronger from stakeholders in recent years. When a company fails to comply with such demands, often it faces penalization and has its image seriously undermined in media reports. On this note, companies must actively resolve this trend by minimizing their environmental impact and engage in eco-friendly activities throughout the process, from research and development to purchase of raw materials, production, and disposal. If the government imposes high-level regulatory requirements, it should be addressed through the collective response of the industry.

Future direction on the subject of report

As an eco-friendly chemical company, Lotte Chemical continues to renew itself through proactive environmental management strategies and implementation tasks. At the same time, we plan to comply with our environmental compliance obligations such as the Act on the Integrated Control of Environmental Pollution-generating Facilities (Integrated Act) and the Act on the Registration and Evaluation, etc. of Chemical Substances (Chemical Evaluation Act).

Our Response

Performance in 2017

| Classification | Key Issue | 2017 Goal | Achievement Index | Deadline | Performance | Achievement |
|----------------------------|---|--|---|----------|--|-------------|
| Response to Climate Change | Setup and implementation of strategies to purchase emissions trading | Implementation of the 2nd stage of emissions trading roadmap | 1. Securing emission rights 2. Results of secondary planning period allocation | 2018 | 1. Secure and manage emission rights 2. The government's assignment of the Second Plan period is underway | ● |
| | Analysis of emissions trading trends and reporting | Top 10% in the evaluation of corporate governance, risks and opportunities, and strategies with respect to CDP | Maintain and improve the Evaluation level | 2018 | 1. CDP rating: A- (Leadership) → B (Management) | ● |
| Compliance Management | Implement compliance management in the environment, safety and health category | Identify and improve upon risks regarding violation of laws and regulations | Establish a compliance management system in the environment, safety and health category | 2018 | Establish a compliance management system in the environment, safety and health category | ● |
| Environment Management | Establish a cooperative system between the head office and worksites to response to regulations | Compare operations of environmental facilities and equipment of each worksite and introduce best practices | Organize quarterly meetings and conduct environment evaluations | 2018 | Organize quarterly meetings and conduct environment evaluations | ● |

Plans for 2018

| Classification | Key Issue | 2018 Goal | Achievement Index | Deadline |
|----------------------------|--|---|--|----------|
| Response to Climate Change | Enactment of the second-term emission trading system (2018-2020) | Maximize government allocation and reduce voluntary emissions by our worksites to secure more emission rights | Set voluntary GHG emission reduction target | 2018 |
| Environment Management | Enactment of the Act on Integrated Control of Environmental Pollution-generating Facilities (Integrated Act) | Establish integrated licensing for Yeosu Plant 2 and roadmap for establishing integrated license system | 1. Prepare an integrated environmental plan for Yeosu Plant 2 2. Establish follow-up management system for integrated environmental management | 2018 |
| | Strengthening of the Act on the Registration and Evaluation, etc. of Chemical Substances (Chemical Evaluation Act) | Reduce risks with implementation of compliance | 1. Complete registration for existing chemical substance subject to registration 2. Prepare advance notice for materials for the secondary registration as per the Chemical Evaluation Act (over 1,000 tons of production a year) | 2019 |
| Sustainable Management | Advancement of Environment, Quality and Safety (EQS) management system | Establish management system and internalize implementation system in accordance with international standards | 1. Revise ISO management system 2. EQS standard, global standardization | 2018 |

Environmental Strategy

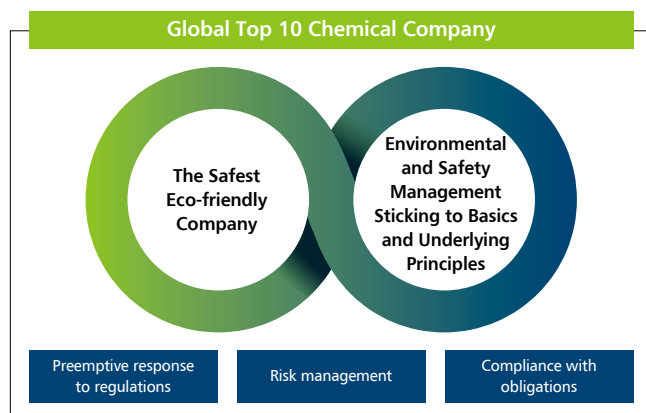
Lotte Chemical preserves the global environment and protecting its customers' health and lives through strategic environmental management. The company continuously practices activities to reduce energy usage and invests in emission reduction facilities for greenhouse gas throughout the company. Furthermore, Lotte Chemical is enhancing the eco-friendliness of its products and services through innovation in R&D.



- Preemptive response/Implementation of new environmental regulations
- Expanded application of chemical management system
- Reinforcement of environmental prevention activities
- Improvement of environmental monitoring system

Fostering Asia's Best Eco-friendly Chemical Company

Lotte Chemical 'establishes a global mid- to long-term vision in pursuit of harmony between nature and humanity', while achieving environmental goals and strengthening PR activities to instill our employees with a sense of pride in working for this environmentally friendly company. We are gradually increasing expenditure in green environment expenses and disclosing the results thereof.



Exclusive Organization for Environment & Safety Management

In order to oversee the safety and environmental effects to our employees and customers, we maintain business channels by operating the Environmental Safety Management Team and Safety Culture TFT under the direct management of the Head Office.

The team develops and promotes green management by analyzing business implementation periods and impact, following review of eco-friendly trends and laws and regulations and determination of how to apply such analysis throughout the entire company.

Response of Environmental Management Standard

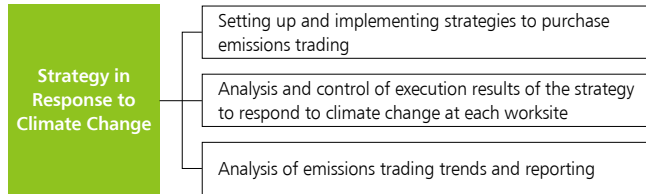
Lotte Chemical actively participates in various external certification and review processes related to environmental impact, thus securing objective bases for promoting global eco-friendly management.

Voluntary Green Purchasing> Voluntary Green Purchasing is a representative body for the promotion of production, distribution, and consumption of green products. Lotte Chemical actively engages in these activities by establishing a green growth base through voluntary green management rejuvenation and complying with agreements based on the need for green procurement planning and implementation management.

Participation in CDP Climate Change> The Carbon Disclosure Project (CDP) is what facilitates us to minimize management risk resulting from climate change. Together with major global chemical companies, we respond to climate change issues in the industry, as well as review the financial impact associated with carbon emissions to share relevant information with each other.

Strategic Implementation of Response to Climate Change

In line with the international community’s efforts to respond to climate change, Lotte Chemical considers the climate change response to be of major importance in our management activities to implement related strategies. In addition, we strive to raise company-wide understanding by providing training to our employees including awareness-raising activities and action plans.



Establishment of Low-Carbon Green Management> Through the operation of low-carbon green management, we prevent the environmental impact of greenhouse gas emissions and reduce risk to the management environment caused by climate change. This is how we seek efficiency in resource utilization and energy management.

GHG Emission Management> The national emissions trading scheme started in 2015 and Lotte is implementing various activities to minimize trading shortages. In 2016, which kicked off the second stage of the roadmap for emissions trading, the main task was to secure emission rights and seek network-based computerized management of the emission quantity. From 2017 onward, we stepped up our efforts to secure additional emission rights based on the introduction of technologies to improve productivity and low-carbon processes, and participated in domestic and overseas emissions trading, thereby contributing to enhancing management efficiency. In 2018, the period for the second emission plan, we will focus on maximizing the allocation amount.

Greenhouse Gas (GHG) Emissions

Unit: tCO₂e

| Classification | 2015 | 2016 | 2017 | |
|--|---------------------------------|-----------|-----------|------------------|
| Direct emissions | Yeosu Plant | 1,959,363 | 1,853,137 | 1,971,013 |
| | Daesan Plant | 1,673,856 | 1,742,081 | 1,712,506 |
| | Ulsan Plant | 565,993 | 611,069 | 743,470 |
| | Head office and other worksites | 1,311 | 1,407 | 1,220 |
| Indirect emissions | Yeosu Plant | 474,786 | 510,123 | 531,583 |
| | Daesan Plant | 642,546 | 646,846 | 662,931 |
| | Ulsan Plant | 310,630 | 319,826 | 351,371 |
| | Head office and other worksites | 4,497 | 4,745 | 4,967 |
| Total emissions | Yeosu Plant | 2,434,149 | 2,363,260 | 2,502,596 |
| | Daesan Plant | 2,316,402 | 2,388,927 | 2,375,438 |
| | Ulsan Plant | 876,623 | 930,895 | 1,094,841 |
| | Head office and other worksites | 5,807 | 6,152 | 6,187 |
| Greenhouse gas (GHG) emissions intensity (tCO ₂ e/MT) | Yeosu Plant | 0.572 | 0.586 | 0.554 |
| | Daesan Plant | 0.549 | 0.526 | 0.528 |
| | Ulsan Plant | 0.495 | 0.494 | 0.453 |
| | Basic unit for all plants | 0.544 | 0.538 | 0.523 |

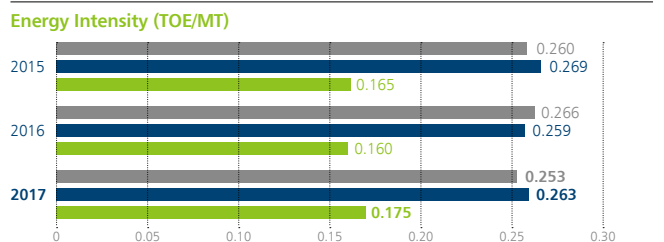
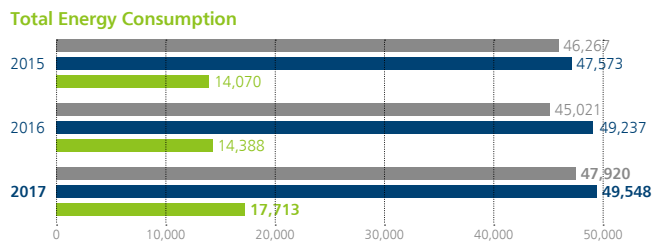
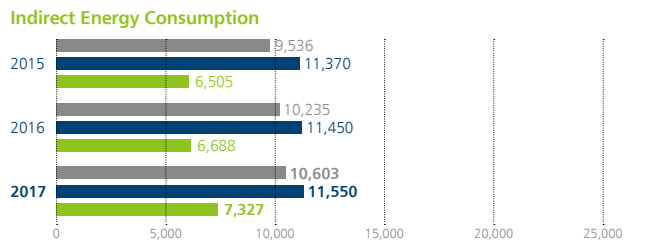
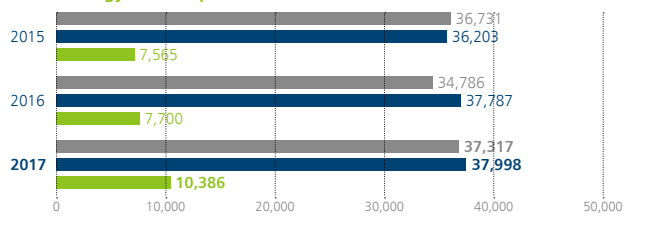
1) In the case of Greenhouse gas (GHG) emission, the timing of government reporting has changed, and some changes have been made accordingly.
 2) The basic unit for all plants is the total of Yeosu, Daesan and Ulsan plant, and is based on NGMS specification production.

Expanding Energy Reduction Campaign by Worksite> We manage energy status by worksite under the supervision of the Safety, environment & technology Division. We set annual energy-saving targets for each worksite, and we establish and execute countermeasures to cope with issues. By doing so, we ensure that the respective worksites take initiatives in saving energy. In addition, we hosted the ‘Energy Greenhouse Gas Workshop’ to improve energy reduction efficiency through voices in the field, while raising employees’ awareness of energy savings. Based on this company-wide dedication to spread an energy reduction culture, we succeeded in reducing carbon emissions by 36,778tCO₂e and saving energy by 649TJ energy in 2017.

Company-wide Efforts to Save Energy> In order to reduce unnecessary energy consumption at the Head Office and other worksites, we are replacing old office equipment with new eco-friendly office equipment. In addition to minimizing standby power by replacing old lamps with new power-saving lamps and making the switches detachable, we give awards to energy-saving households of employees in company housing as part of our policy to habitualize an energy saving policy.

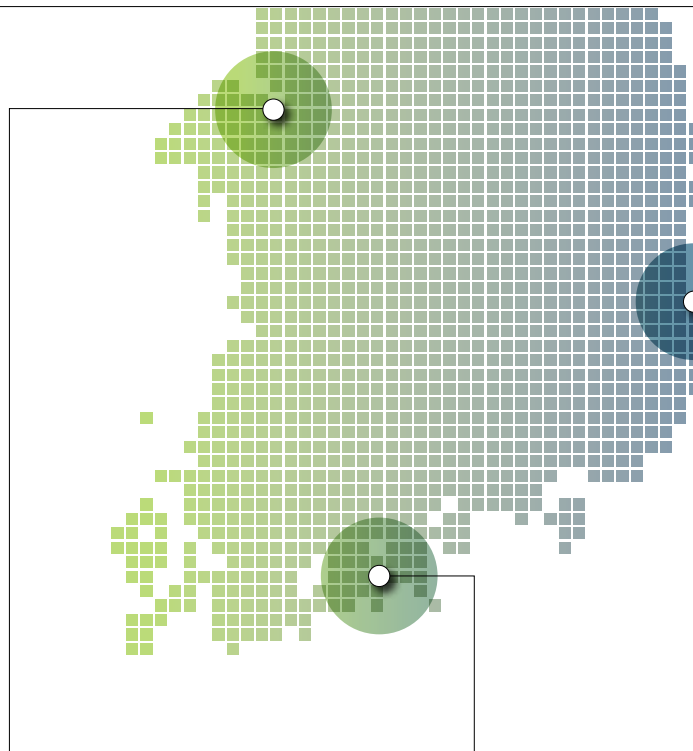
Energy Consumption

Unit: TJ



1) Energy intensity is deducted from production outputs.
 2) In the case of energy use, the timing of government reporting has changed, and some changes have been made accordingly.

Reduction of GHG Emissions and Energy Use by Each Plant



Reduction in GHG emissions

36,778^{tCO₂e}

Reduction in energy consumption amount

649^{TJ}

Yeosu Plant

Number of Reduction Activities

31^{cases}

CO₂ Reduction

22,281^{tCO₂e}

Energy Saving

424^{TJ}

| Classification | Unit | 2015 | 2016 |
|--------------------------------|--------------------|--------|--------|
| Number of reduction activities | cases | 29 | 27 |
| CO ₂ reduction | tCO ₂ e | 28,636 | 17,170 |
| Energy saving | TJ | 499 | 312 |

Daesan Plant

Number of Reduction Activities

26^{cases}

CO₂ Reduction

10,543^{tCO₂e}

Energy Saving

146^{TJ}

| Classification | Unit | 2015 | 2016 |
|--------------------------------|--------------------|--------|--------|
| Number of reduction activities | cases | 21 | 28 |
| CO ₂ reduction | tCO ₂ e | 14,848 | 69,070 |
| Energy saving | TJ | 265 | 1,054 |

Ulsan Plant

Number of Reduction Activities

3^{cases}

CO₂ Reduction

3,954^{tCO₂e}

Energy Saving

79^{TJ}

| Classification | Unit | 2015 | 2016 |
|--------------------------------|--------------------|--------|-------|
| Number of reduction activities | cases | 6 | 7 |
| CO ₂ reduction | tCO ₂ e | 11,579 | 5,801 |
| Energy saving | TJ | 219 | 53 |

Best Practices

Yeosu Plant

- Reduction of decoking system (HS) and fuel (MN) through replacement of the internal coil of the H-NC, decomposition furnace (BA-111) (476ton / 9TJ)
- H-UC, low-pressure wastewater Pre-treatment facility installation steam (HS) and electricity saving (4,251tons / 43TJ)
- Reduction of steam (LS) through H-BTX, hexane process optimization operation (1,521ton / 29TJ)
- Reduction of steam (LS) and electricity through installation of H-EG1, low-temperature absorption refrigerator (R-501) for recovering waste heat (2,344ton / 45TJ)

Daesan Plant

- Reduction of LS by decreasing stripping steam of D-NC, PW Stripper (769ton / 10TJ)
- D-BTX and BT-Mixture Feed Point streamline steam usage (1,315tons / 17TJ)
- D-EG1, 302-E (Reabsorber) Reduction of steam (MS) by changing operating conditions (983tons / 13TJ)
- D-SM, Benzene Column Reboiler waste heat recovery (590ton / 8TJ)

Ulsan Plant

- Reduction of fuel consumption (2,706tCO₂) by reducing the operating pressure of K-PX Deheptanizer (2,706ton / 54TJ)
- Reduction of electricity through optimized operation of CW pump for K-PTA process (693ton / 14TJ)
- Reduction of electricity through the integrated operation of K-PTA heat transfer oil circulation pump (G-3101) (555ton / 11TJ)

Environmental Impact Assessment for All Processes

Lotte Chemical has established an automatic environmental impact monitoring system to audit the environmental impact that occurs during the product manufacturing and making processes. Environmental impact data monitored through this system is analyzed and reviewed in real time for management.

Environmental Investment Expenses

Unit: KRW in 100 Millions

| Classification | | 2015 | 2016 | 2017 |
|-----------------------------------|--------------|-------|-------|-------|
| Environmental Management Expenses | Yeosu Plant | 170.2 | 194 | 216.7 |
| | Daesan Plant | 168.1 | 158.7 | 209.2 |
| | Ulsan Plant | 266.5 | 304.2 | 340.2 |
| Environmental Investments | Yeosu Plant | 149.2 | 124.1 | 161 |
| | Daesan Plant | 234.2 | 127.1 | 433.5 |
| | Ulsan Plant | 46.6 | 11.6 | 26.5 |
| Total | Yeosu Plant | 319.4 | 318.1 | 377.7 |
| | Daesan Plant | 402.5 | 285.8 | 642.7 |
| | Ulsan Plant | 313.1 | 315.7 | 366.7 |

Nurturing Environmental Professionals

Lotte Chemical is continuously cultivating environmental experts. In addition to attending legal environmental training sessions, we provide support to our employees every year so that they can become environmental experts themselves to take initiatives in observing regulations and in preventing environmental pollution.

No. of Employees who Completed Environmental Training

Unit: Persons

| Classification | Yeosu | Daesan | Ulsan |
|----------------|-----------|-----------|------------|
| 2015 | 58 | 48 | 183 |
| 2016 | 30 | 32 | 152 |
| 2017 | 41 | 34 | 321 |

Efficient Resource Management

Lotte Chemical procures naphtha and mixed xylene, which are used as raw materials for major production items, through domestic refineries as well as foreign companies. Additionally, we are working to optimize the use of energy in the logistics process by reviewing the optimal transportation process during the procurement process.

Use of Raw Materials

Unit: tons

| Classification | Yeosu | Daesan | Ulsan |
|----------------|------------------|------------------|------------------|
| 2015 | 3,138,235 | 3,074,429 | 708,482 |
| 2016 | 2,804,013 | 3,279,027 | 725,204 |
| 2017 | 2,950,232 | 3,313,481 | 1,190,286 |

Managing Water and Waste Water> Each plant is provided with water by reviewing water inlet routes from nearby sources of water supply in real time for stable supply of the water necessary for production. The Yeosu Plant secures water from Juam Dam, while the Daesan Plant procures water from Daehoji Lake and Daesan Industrial Water Center (K-WATER), and the source of water for the Ulsan Plant comes from Daeam Dam and the Nakdong River.

Water Use

Unit: 1,000 tons

| Classification | Yeosu | Daesan | Ulsan |
|----------------|---------------|---------------|---------------|
| 2015 | 16,563 | 12,952 | 9,873 |
| 2016 | 16,621 | 13,534 | 10,516 |
| 2017 | 17,931 | 13,416 | 11,434 |

Water Recycling

Unit: %

| Classification | Yeosu | Daesan | Ulsan |
|----------------|-------------|-------------|-------------|
| 2015 | 81.3 | 84.2 | 42.2 |
| 2016 | 80.8 | 83.0 | 41.1 |
| 2017 | 80.7 | 82.4 | 37.7 |

Wastewater Discharge

Unit: 1,000 tons

| Classification | Yeosu | Daesan | Ulsan |
|----------------|--------------|--------------|--------------|
| 2015 | 3,093 | 2,040 | 5,703 |
| 2016 | 3,208 | 2,307 | 6,204 |
| 2017 | 3,461 | 2,367 | 7,122 |

Managing Air Pollutants> We established the Telemetry Monitoring System (TMS) for permanent surveillance of the atmospheric environment. In addition, we installed and operate a regenerative incinerator (RTO) to minimize the generation of pollutants and odors. Regular self-measurements are conducted to prevent possible contaminant spills. Furthermore, we introduced a closed system to recover and incinerate the volatile organic compounds (VOCs) generated in storage tanks, wastewater treatment plants, and sampling devices.

Air Pollutant Emissions

Unit: tons

| Classification | | 2015 | 2016 | 2017 |
|----------------|--------------|------|------|------------|
| Dust | Yeosu Plant | 39 | 30 | 32 |
| | Daesan Plant | 5 | 3 | 4 |
| | Ulsan Plant | 23 | 19 | 22 |
| SOx | Yeosu Plant | 36 | 15 | 21 |
| | Daesan Plant | 2 | 1 | 1 |
| | Ulsan Plant | 40 | 46 | 48 |
| NOx | Yeosu Plant | 350 | 360 | 425 |
| | Daesan Plant | 7 | 4 | 5 |
| | Ulsan Plant | 462 | 392 | 633 |
| CO | Yeosu Plant | 29 | 43 | 59 |
| | Daesan Plant | 5 | 7 | 4 |
| | Ulsan Plant | - | - | - |

- 1) There can be a difference in the total amount due to round-off.
- 2) Differences in figures of each plant result from the existence of their own boilers.
- 3) The method of estimating emission of air pollutants at the Yeosu and Ulsan plant has differed (reflecting measured values), resulting in a difference in figures from previous reports.
- 4) No internal boiler system at the Daesan Plant (low emission of pollutants)

Water Pollutant> Lotte Chemical operates in-house wastewater treatment plants at worksites in order to manage water pollutants. Wastewater is disposed through its own wastewater treatment facility and the integrated wastewater treatment facilities at the industrial complex. Constant monitoring for wastewater through TMS minimizes the environmental impact of wastewater.

Water Quality

Unit: ppm

| Classification | | 2015 | 2016 | 2017 |
|----------------|--------------|------|------|------|
| BOD | Yeosu Plant | 27 | 19 | 15 |
| | Daesan Plant | 2 | 3 | 3 |
| | Ulsan Plant | 8 | 2.3 | 1.2 |
| COD | Yeosu Plant | 37 | 37 | 38 |
| | Daesan Plant | 22 | 17 | 20 |
| | Ulsan Plant | 10 | 10.8 | 7.9 |
| SS | Yeosu Plant | 37 | 33 | 41 |
| | Daesan Plant | 3 | 3 | 3 |
| | Ulsan Plant | 9.1 | 9.9 | 8.3 |

1) Differences in wastewater density are attributable to treatment methods such as the integrated wastewater treatment facilities at the industrial complex (Yeosu Plant and Ulsan Plant) and the independent wastewater treatment facilities at each site (Daesan Plant, Ulsan Plant 2). Wastewater density at each plant is below legal standards.

Chemical Substance Spill Prevention> To prevent the possibility of leakage, a leak detector and shutdown equipment are installed for all emission sources of environmentally volatile organic compounds. In addition, we systematically organized the LDAR (Leak Detection and Repair) system to execute regular safety diagnoses and to thoroughly implement training management for managers.

Emissions of Chemical Substance

Unit: tons

| Classification | | 2015 | 2016 | 2017 |
|----------------|--------------|------|------|------|
| Ethylene | Yeosu Plant | 11 | 12 | 12 |
| | Daesan Plant | 13 | 13 | 12 |
| | Ulsan Plant | - | - | - |
| Propylene | Yeosu Plant | 8 | 8 | 10 |
| | Daesan Plant | 16 | 17 | 16 |
| | Ulsan Plant | - | - | - |
| Xylene | Yeosu Plant | - | - | - |
| | Daesan Plant | - | - | - |
| | Ulsan Plant | 4 | 6 | 7 |
| Acetic acid | Yeosu Plant | - | - | - |
| | Daesan Plant | - | - | - |
| | Ulsan Plant | 3 | 9 | 10 |
| Others | Yeosu Plant | 77 | 72 | 70 |
| | Daesan Plant | 61 | 54 | 57 |
| | Ulsan Plant | 20 | 23 | 19 |

Soil Pollution> Steam produced in the NC factory is used for its own use and exported to other factory, recompressed low pressure surplus steam from the EG plant, and used in other factories so that there is no wasted steam. We prepared guidelines for preventing soil contamination from chemical substances generated in the production processes and transportation. The company paved floors of administered facilities with impervious concrete, so that pollutants do not permeate into the soil. Some areas of the plants need additional rounds of review for thorough preventive measures.

To that end, the company additionally provides environmental work permission before and after work. In addition, soil pollution inspection is carried out periodically to identify and manage the effects on the soil near worksites.

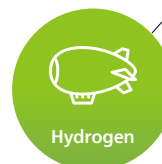
Expansion of Recycled Byproducts> Among the byproducts generated after the production of steam, hydrogen, gas, and other products, we collect the resources that can be recycled and sell them to outside companies or reuse them as raw materials and fuel energy sources in the process.

Management of Byproducts Generated

Unit: tons

| Classification | | 2015 | 2016 | 2017 |
|---------------------------------|--------------|-----------|-----------|-----------|
| Byproducts Generated | Yeosu Plant | 3,485,344 | 2,950,579 | 2,785,820 |
| | Daesan Plant | 3,058,939 | 3,103,951 | 2,971,388 |
| | Ulsan Plant | 38,990 | 44,882 | 56,196 |
| Byproducts Recycled | Yeosu Plant | 3,485,344 | 2,950,579 | 2,785,820 |
| | Daesan Plant | 3,058,939 | 3,103,951 | 2,971,388 |
| | Ulsan Plant | 38,990 | 44,882 | 56,196 |
| Rate of Byproducts Recycled (%) | Yeosu Plant | 100 | 100 | 100 |
| | Daesan Plant | 100 | 100 | 100 |
| | Ulsan Plant | 100 | 100 | 100 |

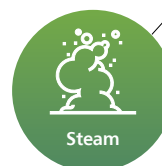
Cases of Byproduct Recycling



Source
At production of ethylene at NC, At production of product at SM

Yeosu Plant
Use as feedstock at BTX and PE/PP plants and as fuel in other sites

Daesan Plant
Utilize as fuel at BTX and polymer plants and the remaining amount is sold to nearby businesses



Source
At PC MVR, EO Reactor and NC Heater

Yeosu Plant
Consume all byproducts after recycling within the plant

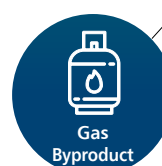
Daesan Plant
Use within itself or move to other plant. EG plant uses it, after recompressing lowpressure leftover steam



Source
At production of ethylene at NC

Yeosu Plant
Methane is also consumed internally as raw material or fuel, and some is sold to nearby companies.

Daesan Plant
Use for its own use and exported to other plants(steam produces in the NC), use recompressed low pressure surplus steam from the EG in other plants so that there is no wasted steam



Source
Off-Gas from PX production
Bio-gas from wastewater treatment

Ulsan Plant
Send off-gas to heater and fuel gas surge drum for it to be used as fuel, move bio-gas to heater for supplementary fuel

Minimizing Waste Generation> Lotte Chemical focuses on waste generation sources by minimizing the amount of waste generated and pursues green management activities by thoroughly separating generated waste and maximizing recycling. The waste real-name system is introduced to raise employee awareness of responsibility for waste discharge and separate collection. The waste is monitored by tracking the amount of waste generated by discharge source for any abnormalities and this is applied to the analysis of collected data to reduce the amount of waste and to establish improvement plans. In the future, we will make efforts to minimize the amount of waste generated through additional process improvement activities, investment in eco-friendly facilities, and increase in the rate of resource recycling.

Impact Assessment of Waste> Periodic waste analysis is conducted on the effects to the surrounding environment of the waste generated during production processes. We also comprehensively supervise the waste storage area to prevent environmental impact from waste.

Management of General Waste

Unit: tons

| Classification | | 2015 | 2016 | 2017 |
|----------------|--------------|--------|--------|---------------|
| Incineration | Yeosu Plant | 2,638 | 3,850 | 3,220 |
| | Daesan Plant | 535 | 485 | 310 |
| | Ulsan Plant | 359 | 308 | 235 |
| Landfill | Yeosu Plant | 2,519 | 3,002 | 2,995 |
| | Daesan Plant | 1,461 | 399 | 902 |
| | Ulsan Plant | 6,369 | 17,668 | 19,633 |
| Sea dumping | Yeosu Plant | - | - | - |
| | Daesan Plant | - | - | - |
| | Ulsan Plant | - | - | - |
| Recycling | Yeosu Plant | 5,795 | 6,781 | 6,104 |
| | Daesan Plant | 5,162 | 3,757 | 4,390 |
| | Ulsan Plant | 19,534 | 8,889 | 9,184 |
| Total | Yeosu Plant | 10,952 | 13,632 | 12,319 |
| | Daesan Plant | 7,157 | 4,640 | 5,602 |
| | Ulsan Plant | 26,262 | 26,865 | 29,052 |

Management of Designated Waste

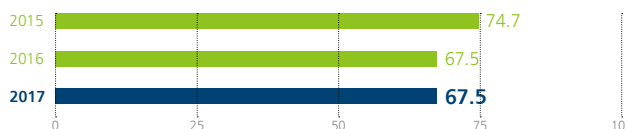
Unit: tons

| Classification | | 2015 | 2016 | 2017 |
|----------------|--------------|--------|--------|---------------|
| Incineration | Yeosu Plant | 1,211 | 1,544 | 1,338 |
| | Daesan Plant | 336 | 144 | 207 |
| | Ulsan Plant | 105 | 49 | 29 |
| Landfill | Yeosu Plant | 9 | 41 | 8 |
| | Daesan Plant | - | - | - |
| | Ulsan Plant | 7 | 9 | 11 |
| Sea dumping | Yeosu Plant | - | - | - |
| | Daesan Plant | - | - | - |
| | Ulsan Plant | - | - | - |
| Recycling | Yeosu Plant | 13,050 | 10,766 | 9,617 |
| | Daesan Plant | 20,027 | 18,128 | 10,082 |
| | Ulsan Plant | 176 | 280 | 348 |
| Total | Yeosu Plant | 14,270 | 12,351 | 10,964 |
| | Daesan Plant | 20,363 | 18,272 | 10,289 |
| | Ulsan Plant | 288 | 338 | 387 |

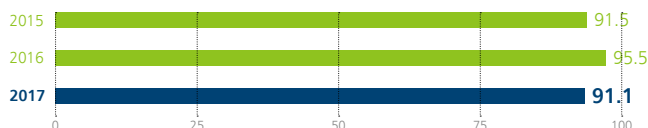
Integrated Recycling Rate of General and Designated Waste

Unit: %

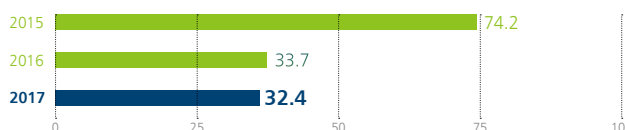
Yeosu Plant



Daesan Plant



Ulsan Plant



1) There can be differences the in total amount due to round-off.



Eco-friendly Products & Expansion of Investment on Technology

Lotte Chemical is continuously expanding investments in eco-friendly products and technologies. Through these efforts, we succeeded in developing and commercializing bio PET, thermoplastic elastomers, PLA, and eco-friendly resins, etc., to raise environmental value.

Eco-Friendly Products

Thermoplastic Elastomer: LOTTMER® > Thermoplastic elastomer, an olefinic thermoplastic crosslinked elastomer, is an eco-friendly material that can be recycled. It has superior mechanical properties, durability, and moldability to be used in various fields such as automobile, electric and electronic, industrial, and household products.



PLA Compound > The PLA compound, which Lotte Chemical succeeded in mass-producing, is a raw material based on plant resources (corn, sugarcane, etc.). It is an eco-friendly material with biodegradability and low carbon for superior heat resistance and processability. Recognized for its environment-friendly characteristics, we obtained a restriction of use of certain hazardous substances (RoHS) certification and are currently undertaking an initiative to obtain certification of an environmental mark. It is now on sale as a material for 3D printer filaments and baby tableware. For 3D printer filaments, our products are supplied to Canon Korea's 3D printers as genuine premium filaments with high speed output capability. In the meantime, we are preparing to venture into overseas markets in accordance with the global trend increasingly favoring eco-friendly materials.



Bio PET > Lotte Chemical succeeded in producing bio PET with bio-ethylene glycol extracted from plant resources (biomass) as raw material for the first time in Korea. Bio PET is used in various products in accordance with the recent global trend favoring eco-friendly materials and containers. Praised for its excellent transparency and moldability as well as 20% reduction of CO₂ emissions in the production process compared to existing PET materials, bio PET is particularly increasingly used in the automobile and textile industries. During 2017, Lotte Chemical's biopharmaceutical PET production and sales reached about 10,200 tons with sales of 12.3 billion KRW, an increase of 11% over the previous year.



Bio PET use case

ISSUES 02. SAFETY & HEALTH



Why reporting topics are important

In the chemical industry, first and foremost is the need to garner the trust of stakeholders through thorough and safe workplace management and health activities. This is because fires, explosions, and leakages, etc. can lead to serious safety accidents, which can pose a great danger to local communities. Therefore, prevention and inspection activities based on a high level of awareness of safety and health concerns are critical. In this spirit, Lotte Chemical is establishing a global safety and health system at its Head Office and all domestic and overseas worksites. We are fully committed to preventing volatile organic compounds spills and safety accidents, such as fires and explosions, and to continuously strengthening our prompt response system to such accidents. We also implement various programs for the health management of workers.

Scope of influence of reporting subject

Various stakeholders, such as the government and local communities, demand the comprehensive prevention of safety and health accidents and the minimization of damage in the case of accident. Particularly for the chemical industry, the occurrence of safety accidents has a direct impact on many people; thus more proactive and preliminary safety and health management efforts are required.

Future direction on the subject of report

As domestic and international standards and regulations are strengthened, we intend to proactively respond by strengthening our advanced safety and health management system. Based on our safety and health strategy and implementation plan, we will derive protocols to be implemented and address issues accordingly. Furthermore, based on these efforts, we will establish a voluntary culture of safety and health at domestic and overseas worksites.

Our Response

Performance in 2017

| Classification | Key Issue | 2017 Goal | Achievement Index | Deadline | Performance | Achievement |
|-------------------|---|--|--|----------|--|-------------|
| Safety and health | Prevention of accidents and support for business partners | Ensure safety management of worksites and subsidiaries through preemptive measures | 1. Identify potential risks at worksites (twice every year) 2. Increase support for subsidiaries and business partners (twice every year) | 2017 | 1. Identify potential risks at worksites and conduct concentrated inspection (twice every year) 2. Increase support for subsidiaries and business partners (twice every year) | ● |
| | Improvement of safety culture level and integration of standard | Integrate a company-wide advanced standard for safety and health management | 1. Review the level of safety and health management at each worksite and integrate relevant standards | 2019 | 1. Review the level of safety and health management at each worksite and integrate relevant standards | ● |

Plans for 2018

| Classification | Key Issue | 2018 Goal | Achievement Index | Deadline |
|-------------------|--|--|--|----------|
| Safety culture | Improve safety culture level | Improve safety awareness, system and behavior level | Level of safety awareness, safety behavior | 2019 |
| Safety and health | Integrated standardization of company-wide safety and health standards | Completion of a standard system conforming to global standards | Complete of integration system | 2018 |

Safety & Health System

Based on the safety and health system, we established a safety and health culture at a global level that encompasses all supply chains, including domestic and overseas business sites, subsidiaries, partner companies, and outside shipping companies. To prevent the occurrence of safety accidents and to respond promptly to accidents, we continue to observe safety obligations and undertake safety culture campaigns.

Safety, Environment and Technology Division

Lotte Chemical operates an independent safety and environmental management organization. The Head Office operates the safety environment technology unit under the direct management of the CEO, to oversee safety environment management at all business sites and subsidiaries, while the Safety Environment Team is responsible for managing and supervising working-level safety environment duties by worksite and provides relevant training and diagnosis. Meanwhile, we provide safety diagnosis and safety environment experts to our partner firms to disseminate a safety culture in the supply chain.

Safety & Health Strategy

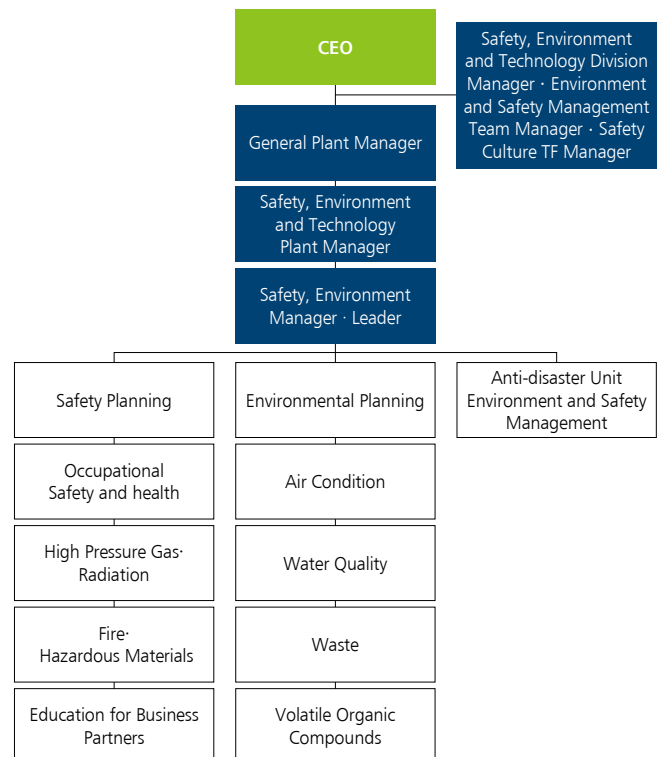


- Strengthen safety check by worksite
- Education and training on safety and health
- Preemptive response in safety regulation
- Reporting/alerting in the case of emergency

Safety Management Implementation Scheme



Organizations for Safety and Health



Industry Safety and Health Committee

The Industrial Safety and Health Committee, which is composed of an equal number of labor union members and company representatives, holds regular meetings every quarter and transparently discloses the derived agenda to its members. Items requiring improvement are reflected in our management activities and regular feedback is provided on the results.

Reporting System in Safety and Environment Emergencies

Lotte Chemical specifies four types of emergency situations to establish a quick situation notification and reporting system: damage to human health and/or life, environmental pollution, fire-explosion, and natural disaster. In addition, we regularly train all our employees to prevent secondary accidents by promptly and accurately taking action in emergency situations.

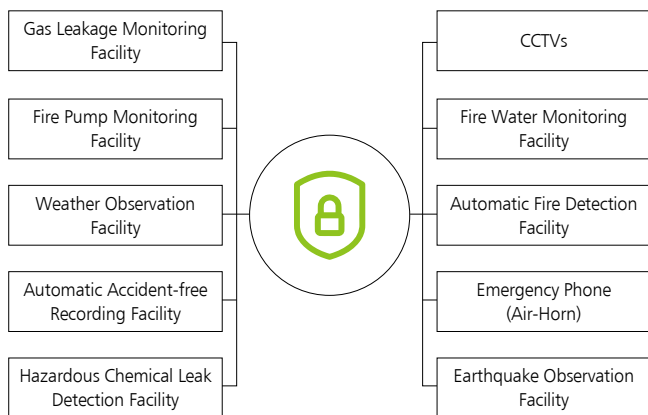
RC (Responsible Care) Management

Lotte Chemical has established an RC operation system that integrates all processes by worksite, such as process safety, safety and health, pollution prevention, community awareness improvement, emergency response, and distribution, and holds regular workshops for successful resolution. Through this, we check and evaluate the level of execution of our business sites and share quality information across the company.

Self-evaluation of RC (6 points as full mark)

| Classification | Yeosu Plant | Daesan Plant | Ulsan Plant |
|---|-------------|--------------|-------------|
| Safety in process | 5.7 | 5.7 | 5.2 |
| Employee safety and health | 5.6 | 5.2 | 5.1 |
| Pollution prevention and environmental protection | 5.5 | 5.3 | 5.0 |
| Awareness of local communities and emergency response | 5.5 | 5.5 | 5.0 |
| Safety in distribution and transportation | 5.0 | 5.2 | 5.0 |
| Product responsibility | 5.0 | 5.2 | 4.9 |

RC Operation System



Undertake Safety Culture

Establish Advanced Safety Culture

In order to improve safety culture on a global level, we are systematically renovating and improving safety awareness, safety systems, and safety behavior throughout the entire company. From September, 2017, we conducted a diagnosis of safety consciousness, safety behaviors, and safety systems for all employees and conducted gap analysis with global companies. Through this, we are preparing for full-scale implementation by identifying mid- to long-term strategies and core improvement tasks. Lotte Chemical plans to establish a 3-year execution plan and to continue to improve and maintain Lotte Chemical's advanced safety culture throughout the company.



Yeosu plant accident-free campaign

Employee Safety Activities

We conduct regular emergency response training, such as internal emergency response training once or twice a month and private joint training once a year. We establish emergency scenarios to better cope with emergencies, setting up a swift and accurate reporting/broadcasting system while holding environmental safety workshops to discuss how to respond to safety accidents at worksites, displaying our commitment to improve the company-wide level of safety culture. In addition, we promote the exchange of safety personnel between worksites more than twice a year to share and disseminate the best practices of safety culture to prevent potential risks in advance.



Worksite Special Safety Training by CEO

Emergency response training at worksites

Yeosu Plant: Safety Inspection Day Demonstration Event

The Yeosu Plant held a demonstration ceremony on Safety Inspection Day in cooperation with Yeosu City Hall, Korea Gas Safety Corporation, Yeosu Fire Station, and seven other related organizations, to raise employee safety awareness and to establish a safety culture.

Safety Inspection Day applies to companies that excel in safety management. At this ceremony, chiefs of the relevant agencies jointly reviewed actual safety management situations management by directly visiting worksites. It represented an exceptional opportunity to establish consensus on the importance of safety.

Daesan Plant: Process Safety Culture (PSM)

The Daesan Plant established an annual plan for the establishment of a process safety culture to operate the PSM TFT. The PSM manual was created to train all employees, and updated safety manuals were posted to lay the foundation for improving a process safety culture. Furthermore, all standards were re-established and the management system was restructured for PSM systemization. In addition, the PSM inspection unit is in operation to perform onsite safety inspections and to maintain PSM documents. Through continuous PSM activities, we will continue to make a process safety culture a common part of life.

Ulsan Plant: Fire prevention campaign

At the Ulsan Plant, a fire prevention campaign was held, and the activities were carried out to prevent accidents by checking vulnerable areas in the plant for fire prevention awareness month. The Ulsan Plant regularly conducts campaigns for the establishment of a safe culture, and training for employees to take prompt action in response to emergencies.

Stricter Chemical Substance Control

Since the enactment of the Act on the Registration and Evaluation, etc. of Chemical Substances ("Chemical Evaluation Act") and the Toxic Chemicals Control Act ("Chemicals Control Act") in 2015, we strive to strengthen chemical substance management and to prevent chemical accidents. To respond to the Chemical Evaluation Act, we established a consortium with leading companies in the petrochemical industry to promote joint registration, while establishing and operating a chemical substance management system to strictly prevent accidents and illegal acts involving chemical substances from taking place.

Establishing a Chemical Substances Management System at a Global Level

As global chemical substance control laws become more stringent, Lotte Chemical has established and operates a chemical substance management system on a global level. Input-output flow and usage of about 24,000 chemical substances related to production is managed in real-time and relevant information is reported to the government while strictly managing purchase and sales channels of harmful chemical substances to prevent regulatory risks. We also created the MSDS (Material Safety Data Sheets) in multiple languages to distribute to employees and customers overseas, providing detailed information on hazardous materials, first-aid measures and handling methods.

Strengthened Protection Facilities for Chemical Substances

Lotte Chemical strives to strengthen protection facilities to prevent leakage of chemical substances within worksites. Protective walls are set up around chemical substance storage areas and the floor is comprised of impermeable material.

In the event of leakage of hazardous chemicals, the entire amount can be transferred to a wastewater treatment plant for disposal. We ensure that fire extinguishers, gas masks, protective gloves, protective clothing, protective boots, and security shielding are always in place to prevent accidents and to respond promptly to emergencies.

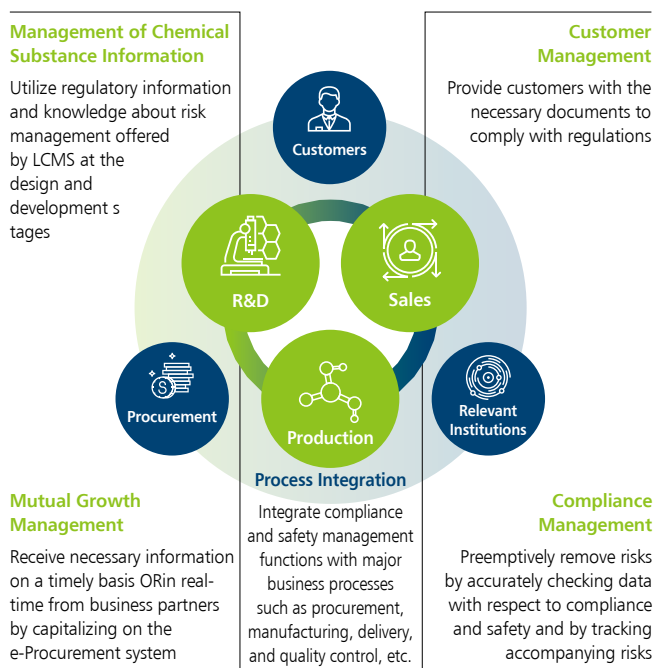


Installation of sulfuric acid leak detector at Daesan Plant tanks



Flow prevention bump for tank lorry

Chemical Substance Management System



Safety and Health Management for Subsidiaries and Overseas Corporations

Lotte Chemical strives to establish an advanced safety management environment in its subsidiaries. We share the latest information on safety management so that we can help safety management of subsidiaries. We carry out on-the-spot inspections on a regular basis and exchange opinions on improvements. For the Daesan plant, we support Benchmarking of safety and health management for Sambark LFT Co., Ltd., a subsidiary of Lotte Chemical.



On-site inspection of safety management by subsidiary

Safety and Health Management for Partners

Safety and health training is conducted before work starts to remind workers of safety awareness. We share information on our individual work schedules and safety protocols through a council of partner firms, and we train in strategies to cope with emergency situations as part of our consistent safety management of partners. We constantly practice safety management. The Yeosu Plant operates a safety patrol squad to identify and correct improper matters at the worksite, thereby providing workers with a safer working environment. When workers neglect safety matters, they are temporarily removed from their duties and required to take remedial action.

A joint safety inspection with partners is executed every two months. For this inspection, the Production Headquarters Chief, the general safety officer of the Yeosu Plant, and the president of each partner company perform check-ups together and report on any difficulties facing partner companies to the Production Headquarters Chief. This program serves as a window of communication to ensure swift correction as necessary. Moreover, the Daesan Plant is making every effort to attend to the health of workers through special health check-ups for all employees at the site while inspecting worksites daily to prevent safety accidents and providing training on disaster prevention technology.

Worker Wellness Promotion Activity

The Daesan Plant operates a fitness center in company housing to help workers keep in shape after work. The company also provides general health checkups to workers every six months; comprehensive health examinations every two years to workers aged 35 and older as well as to their spouses; and comprehensive health examinations every year to workers aged 40 and older as well as to their spouses. In addition, we implement an employee health promotion program twice a year and motivate workers to quit smoking and/or lose weight by presenting gift vouchers to those who succeed in their efforts. Furthermore, the Yeosu Plant received applications for a period of seven months from employees aiming to quit smoking, in order to reduce the smoking rate at the plant. On this note, the plant fully supports and encourages applicants in success through smoking cessation training and counseling by tobacco cessation counselors, measurements of CO in the body, nicotine dependence tests, and support in smoking cessation products. As a result, approximately 15% of the applicants successfully quit smoking in 2017. We also implemented an annual challenge program based on five health checklists for those suffering from metabolic syndromes to fully participate in health care activities to prevent cardiovascular diseases. This program, which has now been available for two years, lasts 6 months for those diagnosed with metabolic syndrome. The relevant checklist includes five health indicators of waist line, blood pressure, fasting blood sugar, triglyceride, and high density fat. Moreover, counseling on exercise-diet-lifestyle management is provided and the participants who achieve a normal level of health indicators are awarded. Clearly, we strive to build a healthy work environment.



Health checkup for employees

ISSUES 03. EMPLOYEE



Why reporting topics are important

Passion and creative talent are the driving force of corporate growth and development. In particular, as the global market's growth rate continues to slow, it is becoming most important to acquire and nurture superior human talent to achieve our corporate vision and secure differentiated competitiveness. In this spirit, Lotte Chemical is spearheading a sustainable future with our employees, based on our recognition that our employees are the mainstay of growth and development. In order to fulfill our corporate social responsibility to create jobs, we regularly hire exceptional people who align with our management philosophy and vision and nurture them as global core talent. We are increasingly recognized as a leading company in work-life balance through our advanced family-friendly system and welfare system improvements. Furthermore, we adopt various policies and systems to create a good workplace for women.

Scope of influence of reporting subject

The national demand for job creation and competency-based recruitment is on the rise. As is interest in work-life balance among our employees. By establishing related systems, we expect to contribute to our continuous growth by responding to social needs as an industry-leading company and boosting our employees' motivation.

Future direction on the subject of report

Lotte Chemical is leading a sustainable future with our employees based on the awareness that they are the mainstay of growth and development. We plan to secure the continuity and diversity of related programs by accelerating the existing programs while and continuing to operate the corporate culture TFT until 2019. We will lead the industry's organizational culture through the continuous expansion of the welfare system.

Our Response

Performance in 2017

| Classification | Key Issue | 2017 Goal | Achievement Index | Deadline | Performance | Achievement |
|--------------------------|--|--|--|----------|---|-------------|
| Development of Talent | Strengthen development of global talent | 1. Strengthen language skills of all employees 2. Upgrade to 2 nd term of the 'Regional Expert Program' 3. Upgrade the capabilities of expatriates | 1. Successfully maintain the previous year's proportion of workers who possess working-level language proficiency to work abroad (around 80%) 2. Finish appropriate courses and engage in knowledge sharing activities 3. Improve the curriculum before and after dispatch and create new programs | 2018 | 1. Achieved a proportion of 87% of employees capable of working abroad (highest in the industry) 2. Successful completed the second term (Vietnam, India, Myanmar, and Hungary), publication of output, and in-house dissemination *Enhancement of the third term (Nigeria, Turkey, and Indonesia) 3. Systematized the training process before and after dispatch, established an internal training program, published and distributed output | ● |
| | Establish a line-up for grade education | 1. Provide senior managers with leadership enhancement programs 2. Strengthen the abilities of and enhance leadership of onsite professionals | Implement education programs | 2017 | 1. Leadership diagnoses and feedback to high-level employees, leadership training programs customization 2. Training programs for those receiving promotions to build their sense of loyalty as professionals | ● |
| | Launched a synergy creating program for the petrochemical industry in accordance with the founding of Lotte Group's chemical business unit (BU) | Review of programs to develop core talent in accordance to the founding of BU, Run general on-the-job BU training, Integrate education systems and policies of BU | Established a plan to operate general BU education and training | 2017 | Integrated TF operation of emulsification HR | ● |
| System Improvement | 1. Elaborate grade programs and evaluation systems 2. Realize CSR by increasing direct employment 3. Continue to enhance and strengthen corporate culture | 1. Advance improvement of systems 2. Realize direct employment of deployed employees and subcontractors 3. Diversify programs to enhance and strengthen corporate culture and implement programs that strengthen self-respect | Implement institutional improvement Operation of corporate culture improvement program | 2017 | 1. Accelerated institutional improvement: Completed improvement of HR evaluation system (systemized evaluation feedback, etc.) 2. Actualized direct hiring of outsourced/subcontracted employees: Changed the status of 35 outsourced employees and 68 subcontracted workers into full-time employees 3. Organized and operated TFT to improve corporate culture 4. Implemented family-friendly programs (children/parents invitational events, etc.) | ● |
| Respect for Human Rights | 1. Disseminate an innovative labor management relationship 2. Ensure family-friendly management and actualize social responsibility 3. Expand communication channels amongst employees | 1. Disseminate an innovative labor-management relationship and co-existence of work and family 2. Re-acquire certification as a family-friendly company and establish various family-friendly policies 3. Activate small group communication and spread a common message | Improve systems / Re-acquire family-friendly company certificate Improve index on organization effectiveness | 2017 | 1. Received the Corporate Value Creation Award for innovative labor-management culture 2. Extended the validity period of being a family-friendly company (2 years), Received the Minister's Award of Gender Equality and Family as an exemplary company in work-life balance 3. Convened special monthly lectures (healing program for employees, business manners, marital communication, and parenting topics) and disseminated 'communication messages' | ● |

Plans for 2018

| Classification | Key Issue | 2018 Goal | Achievement Index | Deadline |
|--|--|---|--|----------|
| HR | Workforce management and operations | Secure and retain excellent talent | 1. Recruit : Diversification of recruitment channels and public relations activities 2. Secure: Boost motivation by improving HR systems and support | 2018 |
| Development of Talent | Advancement in cultivating global talent | 1. Continuously promote and obtain competence in language skills for all employees 2. Implement third term of regional experts program 3. Advance the competency of expatriates | 1. Maintained the previous year's proportion of workers capable of working abroad (around 80%) 2. Finish appropriate courses and engage in knowledge sharing activities 3. Improve the curriculum before and after dispatch and seek continuous management | 2018 |
| | Strengthening the training system by grade / job group | 1. Establish a training system for upgrading and fostering by grade / job group and create a cultivation program 2. Expand learning opportunities to all job groups through a credit system 3. Expand the period and offer the opportunity for overseas visits to new hires, in order to develop their vocational capabilities and a global mindset | Implement education | 2018 |
| | Establish an employee-friendly organizational culture and activate communication | 1. Activate special monthly lectures (reflecting needs in employee surveys) 2. Implement customized organizational activation programs for each group 3. Reorganize the communication message program | Implement education and programs | 2018 |
| Respect for Human Rights | Disseminate an innovative labor-management culture | Proclaim the 3 rd anniversary of an innovative labor-management culture | Implement various labor-management cooperation programs | 2018 |
| Employee-friendly organizational culture | Build a culture of work-life balance | Improve work culture and work productivity | Introduce a work innovation system and establish various systems | 2018 |
| | Advance employee communication | Activate sub-level communication programs and spread common messages | Improve organizational effectiveness indicators | 2018 |
| | Continue to improve corporate culture | Continuously operate corporate culture TFT and diversify programs | Improve organizational effectiveness indicators | 2019 |

Recruitment of talents

In 2013, Lotte Group declared the 'Diversity Charter' for the first time among all enterprises in Korea, in order to respect the diversity of our employees and eliminate discrimination. Based on the catchphrase for hiring "fairness (pronounced as Jeongjeongdangdang in Korean)", we recognize diversity based on individual differences such as gender, academic background, disability status, and hometown. Through fair and transparent procedures, we hire excellent talent with passion and competence.

Securing Female Talent

Lotte Chemical continues to focus on hiring and retaining female workers. We endeavor to allocate a select group of recruiting staff exclusively to hiring female employees. In addition to our existing system supporting female employees, we newly adopted a program for female employees to take leave for subfertility treatments and cover the relevant expenses, in order to implement a policy to help them reconcile work and family life while pursuing career management.

Desired Qualities of Employees

Those who Do Not Fear Failure

- Talents who have the spirit to take risks and never give in to failure
- Those who find new hope in failure, rather than those who give up on challenges out of fear of failure

Those who make endless efforts for self-development

- Young talents who do not nurture false hope without effort, and those who develop their own knowledge and capabilities, to achieve successes out of their true strengths
- Younger employees who know the value of patience and hard work and who are able to supplement their fundamental competencies to advance forward

Those who know-how to cooperate and Coexist

- Talents who know how to cooperate with colleagues, seniors and juniors
- Those who can appreciate people and society

Securing Global Talent

Lotte Chemical strives to secure excellent talent both at home and abroad. In order to hire qualified research personnel, a division dedicated to HR management was established within the R&D Center in 2015. In addition, we are focusing on hiring talented individuals specializing in our R&D needs and in strengthening the pool of researchers through employment with industry-academia affiliations and the hire of industry-academia scholarship recipients as well as doctorate degree holders from overseas. At the same time, we seek superior global talent both at domestically and internationally by holding an open competition to attract global talent, recruiting foreign students, and recruiting global talent.



R&D Center Recruitment Outreach (Korea University on left, recruitment consultation booth of the Polymer Society of Korea on right)

Expanding Capability-Centered Talent Recruitment

Lotte Chemical respects the diversity of individuals and operates various recruitment channels to select talent based on their competencies. In addition to recruitment through open competition, we hire talent by through a large-scale audition event to identify those with vocational competencies, to recruit people with disabilities as part of our policy to fulfill social responsibilities and consider the socially marginalized, and to hire female military officers, individuals who have made national contributions, and idea competition winners.

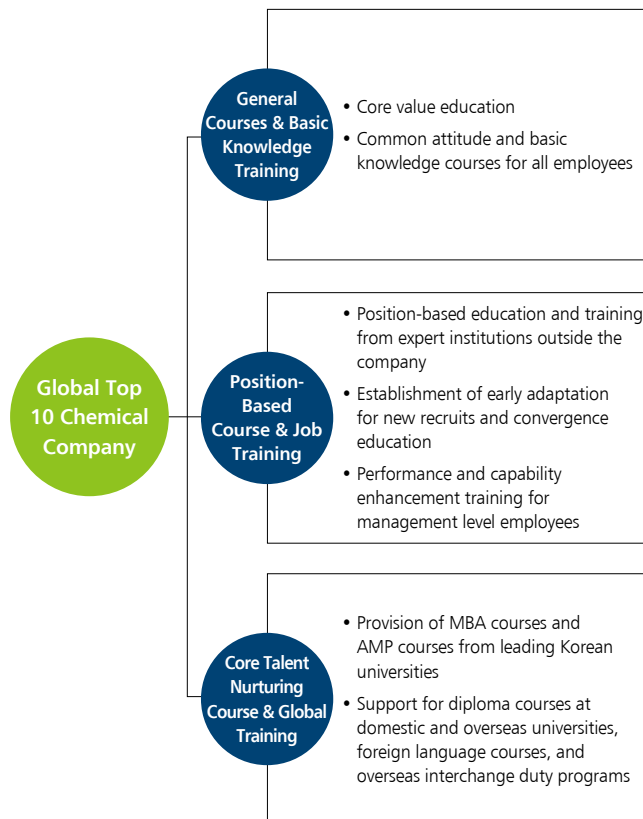
High-Quality Job Creation

Lotte Chemical decided to hire all contract-based workers sent to the company as of January 1, 2017. The decision was made as part of the innovation effort driven by Lotte Group beginning in October 2016. With this decision, a total of 10,000 non-regular workers of Lotte Group will become permanent workers for the upcoming three years and their job quality is expected to increase. In the past, contract-based workers at Lotte Chemical were subject to internal evaluation at the end of their two-year contract period and only certain selected workers were hired directly by Lotte Chemical. As of January 1, 2017, however, we have eliminated the contract-based worker program and directly hired 35 workers at headquarters, research center, and plants in Yeosu, Daesan, and Ulsan. The change is one of our efforts to provide workers with decent jobs by eliminating uncertainty, providing corresponding pay, and boosting workplace welfare.

Global HRD

Lotte Chemical is committed to cultivating talented people to advance as a 'Global Top 10 Chemical Company.' Moving forward, we will continue to pursue systematic and strategic employee training programs to maintain competitive human resources.

Roadmap for Talent Development

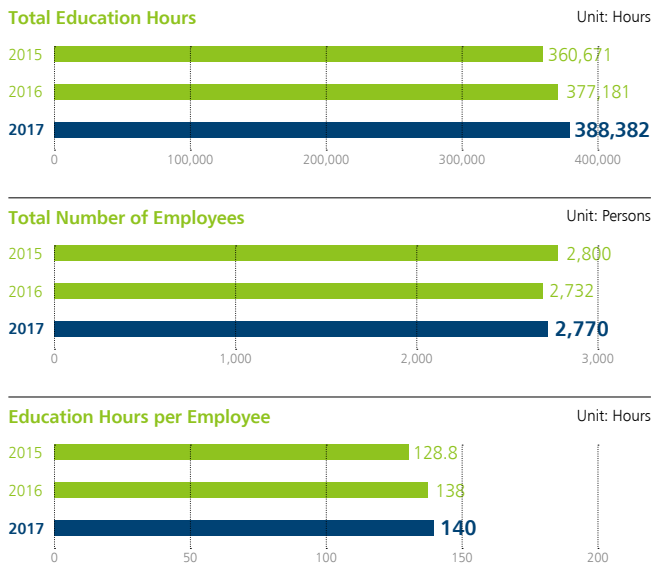


| Classification | Staff / Assistant Manager | Manager | Senior Manager | Executives |
|---|--|-----------------------------|----------------------------|----------------------------|
| General · Basic Quality Education | Core Value Education · New Vision Education · Safety Education · Information Security Training · Monthly Special Lectures · Employee Communication Program · Language Training · Sexual Harassment Prevention Education · Compliance Training | | | |
| Level · Job Ability Education | Petrochemical Academy, Accounting Academy | | | |
| | Process Training · Sales Representative Training · Chemical Engineering / PM / Safety Training | | | |
| | Job Capability Certification System | Essential Training by Grade | | |
| | Job Expert Course | | Team Manager Qualification | Executive Promotion Course |
| Cultivate Core Human Resources · Global Education | External top executive officer courses · EMBA courses · Graduate School of Business · External Graduate School of Business course · External doctorate degree course · Graduate School of civil engineering/media PR · Overseas work exchange program P/G · Regional expert · Global School | | | |

Employee Training Program

We conduct systematic training programs tailored to each individual’s position and competencies. In addition, we continuously reinforce our employees’ global capabilities by furthering language skill education across the company and by executing a second term of regional expert courses (local training programs). Moreover, we provide special lectures and serial publications each month to enable employees to communicate with each other in order to create a positive work environment.

Employee Education Status



Job Training Academy for Chemical Production, Sales and Accounting>

We provide job-based training opportunities to employees so they can improve their capabilities and productivity. In the chemical engineering sector, we help employees better understand chemical products and the production process from a business perspective. In the sales sector, we refine sales strategy for each employee and the entire organization. For all new hires, we provide an accounting course and require them to acquire a certified public accountant license so that they can develop a business-focused mindset.



Chemical Academy

Support for Degrees, Diplomas and Certificates> Lotte Chemical encourages employees to earn job certificates that are related to their mission, based on the concept that higher competitiveness in members leads to growth of the organization. We support those who apply for master craftsman practical processes, offered in connection with Korea Polytechnics, with tuition and textbook expenses as well as other financial support, such as application fees and reward bonuses when they receive admission letters from colleges. We also provide tuition to researchers who are in doctoral and post-doctoral courses in order to cultivate core research staff.

Activating Early Capacity Building Program for New Entrants>

We introduced a training program for new hires to systemize the foundational management structure so they can learn common job skills in a short period of time and smoothly adapt to new environments. We expanded the training sessions of new employees hired through open competition. We modified domestic training programs into common on-the-job training programs centered on field comprehension to further develop their ability to adapt in the field. In addition, the overseas training program was newly added to enhance employees’ understanding of overseas subsidiaries and new businesses and to cultivate a global mindset. In addition to new employee training, we have operated a vocational training academy since 2012 to strengthen the early capabilities of professional and experienced employees. We extended the on-the-job training period and organized the training curriculum so that individual job competencies can be maximized and therefore put into business immediately.



Nurturing Global Talent



Meeting of Regional Experts Research Results Sharing



Publication of Case Studies of Overseas Expatriates



Local Recruitment Training

Local Expert Fostering Program

In order to nurture global core talent with local adaptability and insight into future business areas, we implement regional expert training programs based on our ‘Glocalization’ strategy. In order to anticipate knowledge of future business opportunities, we dispatch key global talent to strategic regions, such as Vietnam, India, Peru, Hungary, and Myanmar. These employees developed language and culture acquisition within each country, analyzed the local business environment, industry, and economy, and shared the results with all employees. Through these talent cultivation programs, we foster human resources to lead the foray into future businesses based on a sense of globalism, and we design human and material networks for advancement into new businesses.

Expatriate Cultivation Program

As the proportion of our overseas business expands exponentially, the need to train overseas expatriates rises on a daily basis as well. In this regard, Lotte Chemical established a pool of personnel as reserve expatriates to nurture them in the mid- to long-term. Prior to working overseas, we provide them with intensive language courses, local settlement manuals and related books, and safety training to aid in a smooth local adaptation and to build a global mindset. Moreover, we execute management competency enhancement training and local leadership training programs to foster global leadership. After the expatriates return home, we carefully guide them through a domestic adaptation program so they can recognize organizational changes and learn accordingly. Similarly, we maintain a positive cycles of knowledge sharing by producing materials that reflect the expatriates’ know-how from overseas work experience and adaptation to the region and distribute them to expatriate candidates.

Language Learning Support

We provide individual and group foreign language courses, including English, Chinese, and Japanese, to nurture global talent at five worksites. We compensate language test expenses and tuition when our employees take language tests and attend classes outside the company or take online courses. We also run diverse incentive programs, such as tuition reimbursement for those who earned modest test scores and extra pay or bonuses for those who earned excellent scores. Through this variety of learning support systems, we boast the highest level of language skill in the industry. We also built a new learning system to learn 12 strategic languages for overseas business strategy, including English, Chinese, and Japanese.

Local Employee Training at Overseas Subsidiaries

At our subsidiaries and branch offices around the globe, our expatriates and local employees work together. Lotte Chemical established a training system for local employees, thereby spearheading our global business to implement various training and programs. We disseminate our core values to all employees at overseas subsidiaries to promote a sense of loyalty and belonging. We also conduct leadership diagnoses and leadership training every year to train local managers to lead the organization. In addition to group recruitment and refresher training, new employees are required to participate in OJT training. Local workforces with excellent performance are given the opportunity to participate in various group and local training in Korea. In addition, we select trainees for each training field each year to provide excellent local manager training, Seoul National University MBA course, Head Office / plant internship, and HR forum. Moreover, we are promoting our core values and codes of conduct for all employees of overseas subsidiaries to enhance their loyalty and sense of belonging.

Fair Evaluation and Compensation

Lotte Chemical is continuously enhancing the integrity of its performance management system. Through the fair and transparent evaluation of competencies and accurate feedback, employees are given the opportunity to motivate themselves to develop their own skills. We provide support so that they can autonomously plan their development and take action.

Performance Evaluation Process

Lotte Chemical conducts regular performance evaluations once a year for all employees. The performance system is composed of MBO (Management By Objectives) and individual appraisal. The evaluation is based on their individual performance and work experience pursuant to their annual goals. We strive to provide fair rewards in terms of wage increases, promotions, and prizes. In addition, bonuses are given to individuals and teams with excellent performance by line of business, effectively motivating them even further for performance improvement.

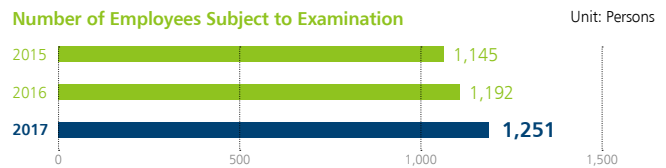
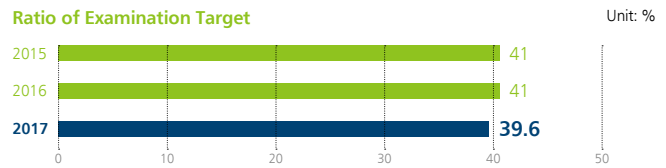
Evaluation Framework



Performance Evaluation Feedback Process

Feedback in evaluations is essential not only for the sake of evaluation, but also for enhancing acceptance of the results and consequences and deepening communication between the evaluator and the evaluatee. In our company, after the personnel evaluation result is confirmed, the Department Chief delivers an evaluation sheet containing the result and overall comments for the year to team members in person and provides face-to-face feedback. In this way, Lotte Chemical works to nurture talented people so they can maximize on their strengths and identify complementary areas for improvements, so they can contribute to organizational performance.

Employees Subject to Periodical Performance Evaluation and Career Development Review



Protection of Employee Rights

Lotte Chemical respects diversity in terms of gender, culture, body, generation, and more in accordance with "Lotte Group's Diversity Charter" enacted in 2013. Discriminatory treatment stemming from individual differences such as gender, religion, age, disability, and educational background, etc. is strictly prohibited; and sexual harassment prevention education and other human rights education are conducted in order to prevent inappropriate human rights violations, such as sexual harassment, violence and assault.

Child labor and forced labor are strictly prohibited in all worksites. On this note, we conduct due diligence to investigate the status of each worksite each year. As a result, not a single case of child labor or forced labor was reported in 2017.

Participants in Education on Human Rights

| Classification | | Unit | 2015 | 2016 | 2017 |
|---------------------------------|-----------------------------|---------|-------|-------|-------|
| Prevention of sexual harassment | No. of educational sessions | Times | 10 | 10 | 10 |
| | No. of employees targeted | Persons | 2,800 | 2,732 | 2,994 |
| | No. of employees completed | Persons | 2,800 | 2,732 | 2,994 |
| Other programs ¹⁾ | No. of educational sessions | Times | 5 | 5 | 5 |
| | No. of employees targeted | Persons | 165 | 184 | 190 |
| | No. of employees completed | Persons | 147 | 182 | 190 |

1) Other programs: Grade sessions that demonstrate respect for diversity and the Wow Forum hosted to protect the rights of female employees

Retirement Support Program

Lotte Chemical operates a retirement pension plan to help employees to secure stable a source of income after retirement. We offer related educational programs to employees once a year, introduce the operation of retirement pension plans, and provide job training and retirement process information from recruitment to retirement.

Building a Culture of Work & Life Balance

Lotte Chemical constantly strives to create a corporate culture of work and life balance in line with changes in the times where this issue has increasingly entered into the spotlight. Based on our basic belief that employees and their families should grow and be happy for our company to grow, the CEO continuously sends out letters, indicating his strong commitment to family-friendly management. In this spirit, we operate the industry-leading employee welfare system in an effort to encourage their business involvement and efficiency. We will continue to make such efforts to focus on creating an advanced working environment as a global company.

Balance Between Work and Family

In 2016, the Ministry of Employment and Labor concluded the “10 Oaths of Practice for Work Innovation” and broadly proclaimed the intention to foster work-life balance. We strive to improve the human rights and work productivity of our employees by building an environment in which work and family can coexist, such as cutting down on unnecessary overtime and refraining from contact about business matters after work.

Family Love Day> We observe a Family Love Day twice a week in order to reduce unnecessary extra work and maintain a culture of leaving the office on time. We actively encourage employees to participate through various internal channels in order to build a family-friendly corporate culture and firmly establish a system of honor. In the future, we plan to improve our employees’ awareness through workplace culture improvement campaigns and to build various relevant systems. Grounded in these efforts, we will continue to focus on elevating employee satisfaction levels and ensure progress and growth of the company.

Casual Day at Head Office> To enhance the creativity and work efficiency of our employees, every Friday is designated as Casual Day at the Head Office. We encourage all employees to participate in Casual Day by overcoming prejudices about the petrochemical industry, which is perceived as conservative and rigid, respecting individual personalities, and creating a horizontal work atmosphere to create a more pleasant work environment.

Refresh Holiday Benefits> Lotte Chemical established the Refresh Holiday Benefits system that supports vacation expenses for employees who take an annual leave for more than five days to improve work productivity through work-life balance. We actively encourage the use of this system to increase work productivity and improve work-life balance by effectively managing employee fatigue and stress.



PR Activity by Employees for Casual Day & Refresh Holiday Benefits

Support for Balance Between Work and Family



Mandatory Paternity Leave for Men

We are a petrochemical company in which men still account for the majority. In this reality, we made it mandatory for male employees to take paternity leave in 2017. We also guarantee 100% of monthly pay for the first month of their leave to relieve any possible economic burden. More than 60% of our male employees who welcomed the birth of a child in 2017 took parental leave, indicating that we lead the industry in providing family-friendly management.



Two-Year Maternity Leave for Women

We extended the maternity leave period to two years to help female employees maintain their career without needing to due to for childcare responsibilities.



New Leave for School Kids

The childcare leave system is newly available for employees who have a preschooler at home, in order to ensure quality childcare at times when parental help is most needed.

Family Invitational Programs> Lotte Chemical conducted a variety of family participation programs as part of its family-friendly management. Based on our own organizational culture centered on company housing, we rolled out diverse kinds of family-friendly management, such as Lotte Family Day where the employees' children visit and tour the company, employee meeting party programs, cultural lectures for spouses, vacation experience activities for the children's vacation season, and hobby classes.



FAMILY DAY, an Invitational Event for Employees' Children at Head Office

Awarded the Minister's Award of Gender Equality and Family

Since 2016, Lotte Chemical has been continuously consulting on our company's various systems and organizational culture in concert with the Work-Family Compatibility Center of the Seoul Metropolitan Government. Recognized for our achievements in corporate culture improvement and our operation of various systems, we were awarded the Minister's Award of Gender Equality and Family in 2017 as we were named one of the best companies in work-family balance.



2017 Family-friendly Certification Presentation Ceremony and Excellent Company for Work-life Balance Award Ceremony

CASE

Lotte Family Unity Event

'The 2nd Lotte Family Unity Contest' was hosted in November 2017 at Gocheok Sky Dome in Seoul. This event was held to strengthen communication among the subsidiaries and to build a healthy and vibrant workplace culture. Nearly 8,000 people, including executives and employees and their families from major subsidiaries, attended and enjoyed various programs, such as a baseball tournament, a giveaway prize contest, and a large-scale concert. Employees and their families raised their sense of pride as members of Lotte Group through their participation and quality time in diverse programs.



Lotte Family Unity Event

More Diversified Welfare Benefits

Lotte Chemical has introduced various welfare benefits to handle grievances and relieve the stress of employees.

More Diversified Welfare with Emotional GWP

With emotional GWP, Lotte Chemical is committed to providing more diversified welfare benefits to employees. For employees or family members admitted to the hospital, we send fruit baskets for best wishes. We provide welcome boxes for newly hires moving into the dormitory. We support employees whose children sit for the college entrance exam. We offer gifts in family month, striving to help employees maintain working morale during the hot summer.

Daycare Center by Worksite

As part of our effort to balance work and family obligations, we operate daycare centers at each worksite, including Yeosu, Daesan, and R&D Center, to lessen the burden of childcare on our employees. We provide top-notch facilities and administrators to increase the satisfaction of our employees, while ensuring that their children are cared for in a safe environment.



Daejeon R&D Center Daycare Center



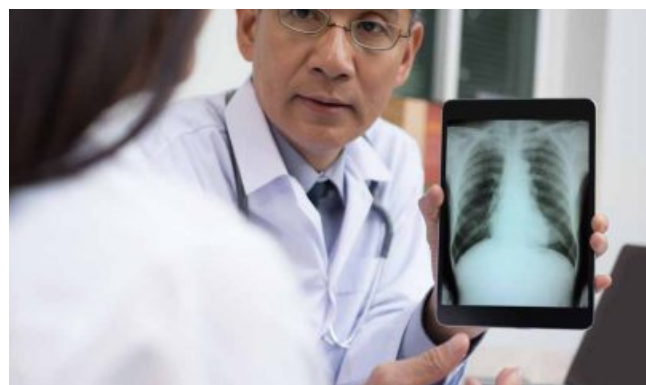
Yeosu Plant Daycare Center

Flexible Working System

In 2016, we introduced a flexible working system that allows employees to select their working hours in accordance with their lifestyle. As a result, employees can choose commute times every month according to their needs and job characteristics. This established an environment of self-development, childcare, and health care to align with their work. In particular, members of departments that mainly engage in overseas business are now able to work more efficiently by selecting work hours adjusted to the time difference.

Health Management Program

We present regular, special, and external general medical check-ups on a periodic basis to manage employee health. In addition, we extended the scope of support for our employees beyond spouse and children, and broadened the availability of regular health check-ups to even their parents. This expansion was received quite positively. In addition, we continuously implement company-wide smoking cessation activities by introducing a smoking area licensing system across all business sites.



Lotte Chemical Moves Head Office

Lotte Chemical concluded 20 years of operations in Dongjak-gu and relocated its Head Office to Lotte World Tower in Jamsil in July 2017. Starting from our beginnings in Lotte Tower in Boramae-ro, Dongjak-gu in August 1996, we have achieved remarkable progress and transformed into a major chemical company under the wings of Lotte Group. Our residence in Lotte World Tower, a representative landmark of Korea, signifies our status as the subsidiary of Lotte Group, while representing our plan to strengthen our position as a global chemical company through continuous increases in competitiveness and employee welfare improvements. Notably, Lotte World Tower, equipped with the finest office facilities in Korea, indeed maximized the productivity and satisfaction level of our employees. We will continue creating a proactive and horizontal organizational culture with smart office systems and a sophisticated office environments.



Smart Office View



Lounge View



Focus Room



Visitor Center



Introduction of Smart Office System

Employees of Lotte Chemical Head Office can take any desk they desire to work. With the smart office system, an employee simply connects their laptop to a desk to log in to the Internet or make a phone call. In addition, a more flexible and open work environment has been created by eliminating partitions between walls and desks and by eliminating distinctions in work station of team managers from those of team members. Furthermore, a Focus Room is available, as one room for one person, for when employees require intensive immersion and need to work in a private space. Through the smart office system, Lotte Chemical raises the creativity of our employees, promotes communication, and builds a horizontal organizational culture.

Pleasant Work Environment through Lounge

We established a lounge on each floor at the Head Office to provide a space for active collaboration. The lounges offer a congenial space decorated with live trees so employees can freely discuss their work or take a break as they desire, successfully forming a creative collaborative environment while significantly boosting the level of employee satisfaction.

Visitor Center

We created a Visitor Center, an exhibition space for customers and visitors to Lotte Chemical. Lotte Chemical products and touchscreen displays introducing daily necessities based on our products are on full display, to deliver knowledge on petrochemical products and offer the opportunity to review our product lineup and production output altogether. Moreover, an exhibition space introduces the company's history, development process, and global network of domestic and overseas business sites. Through these activities, we both inform visitors that our petrochemical products are found in their daily lives and effectively promote Lotte Chemical's strong position and status as a global chemical company.

Collaborative Labor-Management Relations

Lotte Chemical is building a beneficial organizational culture through collaborative labor-management relations. We promote our employees' sense of belonging and value through smooth communication with each other, and wereinforce creative management and mutual trust.

Charter of Labor and Management

- 1. Respect for Management and Labor Rights to Realize Affinity Between Management and Co-Prosperty
- 2. Problem Solving through Communication
- 3. Awareness of Growth Targets for Sustainable Management
- 4. Realization of the Value of Innovative Labor-Management Culture

Open Communication with Labor Union

We have labor-management councils and on-site steering committees for smooth communication and cooperation between labor and management. Similarly, we establish regular communication through various channels such as a communication center, labor-management workshops, and on-site meetings. Important business changes are discussed with the union in advance to increase understanding by sharing major agenda items. In July 2017, we held a social action agreement ceremony with the Eastern Branch of the Ministry of Employment and Labor to proclaim our social responsibility to lead in an innovative corporate culture based on mutual trust and cooperation, while preventing abuse of non-regular workers and creating jobs.



Lotte Chemical's Social Action Agreement Ceremony

Grievance Handling Program

Lotte Chemical maintains a variety of grievance handling programs to identify complaints of employees and workplace issues regarding respect for human rights, anti-corruption, prohibition of discrimination, and improvement of work. We facilitate prompt resolution by communicating with the department chief and holding meetings by division. In the event that a grievance is difficult to resolve promptly, the labor-management council supports the resolution of grievances.

Individual Nurturing Consultation System

We have designed and operated a career development system to help employees to capitalize on their strengths and capabilities when planning their career path. Each team member can apply for an interview on a case-by-case basis, ranging from mid- to long-term career development to personal complaints. The personal career plan discussed in the interview with the department chief will be shared with the HR Development Team and other labor managers. Furthermore, the results of the interviews are used as a basis for establishing employee training and departmental reorganization plans, as well as for resolving issues that arise in the course of career development.

Nurturing Female Talent

Led by Lotte Group’s underlying management philosophy of “discovering and nurturing female talent”, we are recruiting more women than before and eliminating any previous inconveniences in their daily career lives. For example, we shortened the working hours of pregnant employees and designated a parking lot solely for use by pregnant women.

We also operate shower booths and dayrooms for women. We release guidebooks for female talent, hold meetings, and operate a grievance handling program for more open communication with them.



Maternity protection room

Active Communication and Cooperation

We look forward to developing a flexible corporate culture by revitalizing communication between management and labor, as well as among employees. With the spread of such an open culture, employees will be able to solve problems more creatively and work more proactively. Various programs put communication channels for organizations in place.

Listening to the Voices of Employees Regularly> We conduct surveys on a regular basis to gather information on employees’ needs for training and opinions on improvements in organizational culture. Furthermore, we continue to listen to the voices of internal members by sharing survey results with our employees and applying them to actual training programs.

Distribute Messages of Communication> We regularly distribute ‘communication messages’ to all employees to remind them of basic business etiquette and manners so they may bridge the gap between fellow employees’ behavior and communication styles and to enhance the level of mutual understanding and empathy.



Messages of Communication

Special Monthly Lectures> We invite famous lecturers in fields that our employees are interested in as special monthly lectures on different topics. Topics include generational sympathy, marital communication, children’s education, rediscovery of happiness and stress management, and business manners. After the lecture, we distribute the related books or columns created by and instructors. In recent years, we have also created a briefing section to present in-house issues before the start of the lecture, which is also used as a place to share the management status and vision.

In-house Mentoring System> The in-house mentoring system is required for new hires, experienced employees, and female executives, creating an environment that fosters smooth adaptation in the workplace. Mentors are selected based on their duties, positions, and terms of services, to provide mentoring for three to six months through one-on-one matching with mentees. They share work-related advice and self-development expertise, and may also enjoy hobbies together to strengthen the network among members and help them quickly adapt to the organization.

CASE

Hobbies of Mentor & Mentee

Lotte Chemical’s mentoring is an educational program to help newcomers and experienced employees adapt to the company and activate a corporate network. This program operates as an autonomous training program in which mentors and mentees set common goals for activities, outside the company-led training system, to engage in diverse activities each month. The quality of their activities is well-formed as the mentor-mentee pair discuss and decide together upon novel activity items. Participants develop a sense of unity and friendship with each other and enhance their organizational adaptability in the process of experiencing a variety of cultural projects, such as foodie tours, sports activities, performances, flower arrangement, and overseas tours.



Mentoring cultural experience activity

Company Magazine | Doran Doran> As part of our effort to motivate participation, enjoyment, and communication among members, “Doran Doran”, an internal electronic newsletter, is published on a bi-monthly basis. Executive interviews, daily diaries from employees, foodie tours, and other content led by employees and executives are covered in the webzine, contributing to activating internal communication.



Photo of ‘Doran Doran’ Magazine

Club Activities and Cultural Life> We participate in group baseball games and cheering activities for the Lotte Giants to stimulate a sense of belonging and pride in the company. In addition, we fully support club activities at the Head Office, such as soccer, baseball, mountain climbing, and cultural performance/exhibition viewing, to help employees relieve work stress while cultivating kindred spirits and building well-rounded relationships with each other.



In-house club activities

ISSUES 04. MUTUAL GROWTH



Why reporting topics are important

As competition in the global marketplace grows increasingly fierce, the range of networks for companies to manage also widens. On this note, companies are striving to ensure their sustainability by improving their competitiveness across all supply chains, from raw material quality to after-sales service and transportation. Similarly, Lotte Chemical is strengthening its partnership-based relationships in the long term based on transparent and sound trading practices with our partners. Through practical and systematic mutual growth programs, we will nurture the self-reliance of our partners and create a positive cycle in the corporate environment.

Scope of influence of reporting subject

Systematic implementation of Lotte Chemical's mutual growth strategies and programs directly and indirectly affects not only our partners but also our overall performance. In addition, creating positive relationships with partners contributes directly to enhancing our corporate image in the eyes of local and international communities and future human talent joining us.

Future direction on the subject of report

In 2018, we plan to contribute to building fair trade relationships by implementing systematic strategies and programs for our employees and partners to disseminate a supportive culture of fair trade and compliance. In addition, we will continue to execute a comprehensive mutual growth program to strengthen the competitiveness of our partners that includes financial support, technical support, and sales growth support.

Our Response

Performance in 2017

| Classification | Key Issue | 2017 Goal | Achievement Index | Deadline | Performance | Achievement |
|----------------|----------------------------|---|--|----------|--|-------------|
| Mutual growth | Support for sales increase | Support for sales increase of partners at home and abroad | Increase of supply prices and export performance | 2017 | Support exports: Expand overseas exports of domestic partners (23 billion KRW for 61 companies) | ● |
| | Financial support | Increase using finance for the mutual growth fund | Increasing finance for the fund and for use | 2017 | Raised a total of 135 billion KRW (67.5 billion KRW donated by the company and 86.3 billion KRW currently on loan) | ● |
| | Technological support | Increased technological support and joint research | Selected projects and technological support Supported customers and/or business partners by sharing information on the latest trends in the petrochemical industry | 2017 | 1. Selected and executed 16 research projects 2. Analyzed products and measurements of their physical properties by researchers (1,157 times) 3. Supported professional maintenance human resources (technical maintenance support to 20 companies) | ● |
| | Other support | Increased management support to partners | 1. Provided direct and indirect support for management activities of business partners 2. Continued to conduct the 'Stepping Stone for Employment Program' and supported on-the-job training and basic quality education for employees of business partners | 2017 | 1. Supported innovation activities of business partners 2. Supported business partners' participation in overseas exhibitions - Chinaplas 2016 (3 partners) 3. Convened meeting with procurement partners (Yeosu Plant / Daesan Plant / Ulsan Plant) - Attendance: 92 partners 4. CEO visited major partners: 2 partners 5. Provided consultations for business partners in the environmental and safety sector: CEOs from two companies and other partners (23 participants) 6. Implemented the 'Employment Stepping Stone Program' - Opportunity to expand employment by supporting human resources development - 33 trainees completed the final course 7. Supported job competencies / elementary education for employees of partner firms: Mutual Growth Academy (16 partners, 292 online training courses) | ● |

Plans for 2018

| Classification | Key Issue | 2018 Goal | Achievement Index | Deadline |
|----------------|----------------------------|--|---|----------|
| Mutual growth | Support for sales increase | Support for increase in sales of domestic and overseas business partners | Achievements in delivery unit price increase and exports | 2018 |
| | Financial support | Increase using finance for the mutual growth fund | Achievements in expansion of fund resources and usage | 2018 |
| | Technological support | Increase technological support and joint research | Achievements in project selection and technical support Support customers / partners by sharing petrochemical trends | 2018 |
| | Other support | Increasing management support to business partners | 1. Provide direct and indirect support for management activities of partners 2. Continue to conduct the 'Stepping Stone for Employment Program' and support on-the-job training and basic quality education for employees of business partners | 2018 |

Fair Transactions

We have been striving to spread the culture of fair transaction to infuse a law-abiding spirit, which is the foundation of corporate sustainability, into transactions with our partners.

By improving subcontracting practices and continuously reinforcing win-win partnership programs with partners, we uphold our social responsibilities as a large corporation.

Compliance Program

Lotte Chemical introduced the Fair Trade Self-Compliance Program in 2006 to prevent violations of the Fair Trade Act in advance. We create and distribute the Fair Trade Compliance Handbook to our employees so they can utilize it as the basis for all the work that they do. We updated the Fair Trade Compliance Handbook in 2017 while establishing internal Standard Operating Procedures (SOPs) on a variety of fair transaction situations (e.g., internal regulations, checklists, Do's & Don'ts, handbooks, and guidelines, etc.) and introducing a preliminary monitoring system as part of our commitment to establish our compliance system. Additionally, we continually spread a fair trade compliance culture, both inside and outside the company, by expanding the scope of the required use of standard contracts. Professional compliance instructors provide regular and special training to employees to emphasize the importance of fair trade. As we make faithful efforts to manage this practice company-wide, we established the Compliance Team, which is dedicated to fair trade transactions and reports on the results of business operations to the Board of Directors.

Most critically, preventing legal violations was of utmost importance. Therefore, it is now mandatory for the Compliance Team to review all work ahead of time while major departments conduct pre-diagnosis and follow-up audits. In addition, internal transactions over a certain scale are subject to prior deliberation and approval by the Internal Transaction Committee, which is led by outside directors. Furthermore, we endeavor to increase awareness of fair trade compliance by expanding the operation of the Fair Trade Compliance Program to subsidiaries.

7 Factors of the Compliance Program

- 1 CEO's pledge of commitment to follow a corporate Compliance Program (CP)
- 2 Appointment of a Compliance Officer responsible for the CP
- 3 Preparation and distribution of a compliance manual
- 4 Operation of regular and systematic compliance training
- 5 Establishment of an internal supervision system
- 6 Disciplinary action for employees who violate fair trade laws and regulations
- 7 Establishment of a documentation system

Extension of Assistance for Compliance

A Compliance Newsletter, compiling related news, commentary on relevant laws and amendments, and precautions in business affairs, is distributed on a regular basis to executives and employees, and a variety of situation-specific Compliance Guidelines (checklist, Do’s & Don’ts, standard contracts, etc.) are also recommended to help employees better understand and apply principles and protocols to observe in the course of their work.

Establishment of Integrity Code of Conduct on Suppliers' Contracts

Since the OECD Anti-Bribery Convention entered into force in 1999, global sanctions against corrupt companies and countries have increasingly toughened. In this spirit, Lotte Chemical recognizes that transparent and fair corporate governance is a factor of international competitiveness, and thus, in April 2015, established the Code of Integrity for Suppliers, which stipulates the basic matters required for all suppliers wishing to do business with Lotte Chemical. The suppliers must register an electronic signature by agreeing to e-procurement (www.ebiz.lottechem.com), the e-commerce system of Lotte Chemical, before proceeding with any type of transaction. Lotte Chemical’s Code of Integrity for Suppliers consists of three articles, including prohibition of price-fixing to maintain bidding price or successful bidding, prohibition of offering bribery or unfair interest to our employees, and protection of whistle blowers who report bribery or price-fixing.



Clean Holiday Campaign

Led by the CEO’s pledge, Lotte Chemical has implemented a campaign of ‘No Giving or Receipt of Gifts’ during traditional Korean holidays for employees and partners since 2012. In the 2017 holidays, we sent out a letter of support to 2,001 customers and business partners to prohibit the offering and acceptance of gifts. In addition, we have informed our employees about the integrity of their job performance standards, how to deal with inevitable gifts, and the prohibition on gifts and gifts.

Gift Return Center

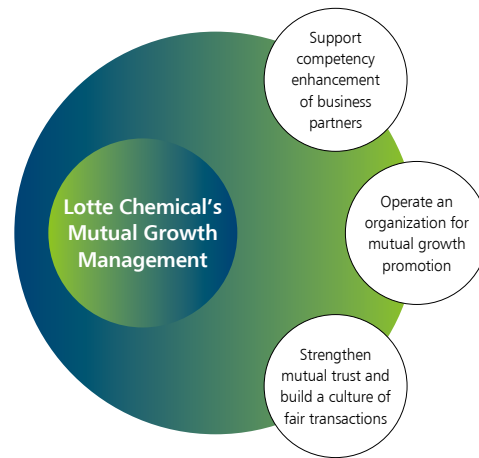
Lotte Chemical operates a gift return center to return any gifts received inappropriately from stakeholders for holidays and promotions. For gifts that cannot be returned due to spoilage/deterioration in quality and/or unidentifiable return address, we donate them to communities in need to prevent the risk of bribery and corruption once and for all.

Mutual Growth Policy and Program

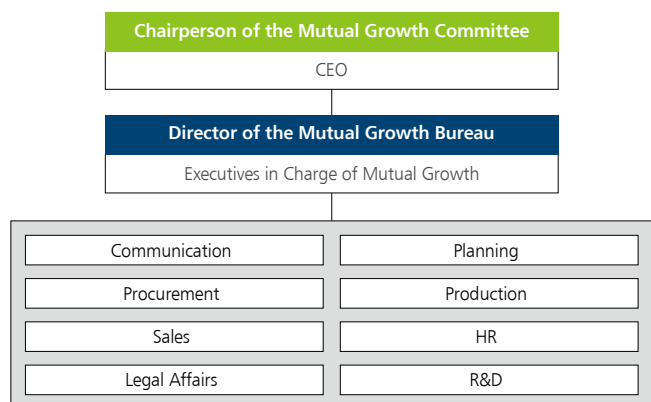
Lotte Chemical implemented a mutually beneficial growth program to solidify its win-win partnerships with partners and to reinforce a positive circle of relationships. We provide our partners with support in building a sound corporate environment and strengthening capabilities, such as financial support and technical cooperation, consulting and training, and bolster communication so that we can grow and develop into long-term partnerships.

Mutual Growth System

Lotte Chemical encourages executives to actively make efforts to build win-win partnerships with partner companies by reflecting their records of undertaking initiatives for mutual growth, fair trade compliance status, and communication with partners as those factors are demonstrated in Key Performance Indicators (KPIs) for mutual growth. In addition, the Mutual Growth Bureau, which has been in operation since 2011, undertakes systematic mutual growth strategies.



Mutual Growth Bureau> The Mutual Growth Bureau establishes and promotes systematic mutual growth strategies with the CEO as the chairperson. To this end, we work closely with relevant departments, such as planning, purchasing, production, sales, training, legal affairs, and research. We monitor related core performance and conduct improvement activities.



Overview of Mutual Growth Activity

Lotte Chemical supports partners to grow and develop in a self-reliant manner through financial support, overseas advancement support, technical support, and training support. In addition, we established diverse interactive channels to strengthen trust and create a culture of win-win cooperation.

2017 Mutual Growth Program Performance



- 2016 mutual growth fund of 67.5 billion KRW (Total amount raised: 135 billion KRW)
- Credit guarantee amount: 93 billion KRW (cumulative)



- Support for visiting overseas exhibitions
- Support for 61 business partners to expand overseas in 2017



- Industry innovation campaigns, M/S support for customers
- Consulting services on the environment and safety issues
- Meetings with purchasing partners



- Various training courses including mutual growth academy, polymer school, and employment stepping stone, etc.
- In 2017, a total of 157 employees at business partners participated in training

Financial Support> The company has operated a mutual growth fund since 2010 and provides loans at an interest rate that is 1.3% lower than market rate to relieve the financial burden of small and medium-sized partner companies. Through this mutual growth fund, which amounts to 135 billion KRW in total as of the end of 2017, 138 partner companies received financial support.

In particular, we signed a convention guarantee agreement with the Korea Credit Guarantee Fund for mutual growth between large companies and SMEs in 2017. In 2008 and 2011, respectively, we secured a total of 93 billion KRW worth of loans through four times of appropriation to support the liquidity of SMEs and actively undertake win-win cooperation between large companies and SMEs.



Financial Support MOU for Mutual Growth

Industrial Innovation Movement> The Industrial Innovation Movement is a mutual growth program in which large enterprises support innovations, such as overall management and production technologies, in order to assist the pioneering productivity of SMEs. In 2013, Lotte Chemical has actively participated in the Industrial Innovation Movement promoted by the Korea Chamber of Commerce and Industry (KCCI) and provided customized consulting services to our partners. In 2017, we contributed to the production of quality food safety containers by supporting the development of the Safety Eco Labeling System (SELA), a hazardous material safety labeling system by Namyang Magic Corp., which fundamentally blocks volatile organic compounds from entering PET containers.

CASE

Namyang Magic Corp.

Namyang Magic Corp., a company specializing in the production of PET bottles, was selected as an excellent company for industrial innovation in 2017 through the promotion of the Industrial Innovation Movement with Lotte Chemical. We improved the layout of the manufacturing process and rearranged facilities to create a safe and efficient working environment. This resulted in financial savings of approximately 150 million KRW per year thanks to shortened logistics lines and secured space. The Industrial Innovation Movement stimulated us to establish a corporate culture that emphasizes innovation so we established an in-house improvement proposal system and a manual for quality improvement, while also actively ameliorating inconvenience by considering employees' needs and capacities propensities.

| Tasks | Details |
|--|---|
| Improving Manufacturing Layout | <ul style="list-style-type: none"> Improvement of preform cutting method and preform robot moving method Installation of visual inspection bench after packaging Installation of molding cooler alarm system |
| Activities to Eliminate Problems such as Irrationality, Difficulty, etc. | <ul style="list-style-type: none"> Activity to organize unused items at the workshop and balance management of work in process Installation of labeling room and reduction/mitigation of foreign matter in the pipeline |
| Seeking efficient facility layout | <ul style="list-style-type: none"> Change of Production Line 2 layout Improvement of handle feeder and reduced movement path of the PF1 blowing machine packaging process |



Namyang Magic Corp. worksite

Safety Environment Management> Lotte Chemical supports safety environment improvements to secure the work safety of employees of partners and fulfill responsibility for their health. We hold regular safety meetings with our partners every month to emphasize the importance of safety environment management at worksite. Meanwhile, we prevent accidents at partner companies through regular checkups and strengthen mutual communication. In 2017, we provided safety inspections and maintenance skills to 20 customers.

Support for Strengthening Human Resources Capacity> In order to secure the competitiveness in the human resources of partner companies, we operate the Mutual Growth Academy in various fields, such as management, job, language, and leader training. In 2017, we contributed to strengthening the human resource capabilities of our partners as 16 partners completed 292 online training sessions provided by our Mutual Growth Academy. In particular, we established regular sessions for technical training and polymer school, etc. to meet the needs of our partners, resulting in their enhanced satisfaction in training activities. In 2017, a total of 157 trainees completed courses. We will continue to expand our customized training initiatives to help our partners bolster their competitiveness.

Regular Meetings & CEO's Visits to VIP-Exemplary Partners> Each year, we hold a regular meeting to address problems and solidify cooperative ties by communicating with purchasing partners. In 2017, a total of 92 companies were invited to the meeting to share common issues and find ways to resolve obstacles. In addition, the CEO of Lotte Chemical visited VIP-exemplary partners to express our appreciation for their contributions and listen to their needs in order to further bolster our partnership for mutual growth.



CEO Visiting VIP-Exemplary Partners



Invitational Meeting with Business Partners

ISSUES 05. CUSTOMER VALUE



Why reporting topics are important

Customers are consumers who directly handle a company's products, and therefore successful business performance flows from customer trust. In this spirit, Lotte Chemical recognizes the importance of realizing customer satisfaction. Thus we strive to listen to the voices of customers and provide the best products that meet their needs. We operate various communication channels to create value by collecting opinions from customers, strengthen our technological capabilities, and lead the way in delivering high-quality products. In addition, we continue to improve our products and services by considering the safety and health of our customers as the top priority. We also continually update our information security system and protect our customers' valuable private information.

Scope of influence of reporting subject

Lotte Chemical conducts customer satisfaction management for our domestic and overseas customers. Based on such product quality improvements, we operate various strategies and processes to enhance customer satisfaction.

Future direction on the subject of report

To improve customer contact points, Lotte Chemical established a multi-channel system to improve its website, introduce products through social media such as YouTube, and collect customer complaints, while integrating the technology of the 4th Industrial Revolution to provide sales and logistics customer management based on big data, aiming to increase customer values.

Our Response

Performance in 2017

| Classification | Key Issue | 2017 Goal | Achievement Index | Deadline | Performance | Achievement |
|------------------------|---|--|---|----------|---|-------------|
| Customer communication | Customer satisfaction survey | Regular monitoring of customer satisfaction | Continuous execution, receiving feedback on quality improvement | 2017 | Improve customer satisfaction through continuous satisfaction survey and quality improvement feedback | ● |
| | Awards to best customers | Invitation of customers and continuous communication | Continuous execution | 2017 | Continuously build trust relationship through communication | ● |
| | Invitation of customers for green communication event by region | Customer communication by region | Continuous execution | 2017 | Conduct tight-knit customer service, Collect and reflect customer needs and improvements | ● |

Plans for 2018

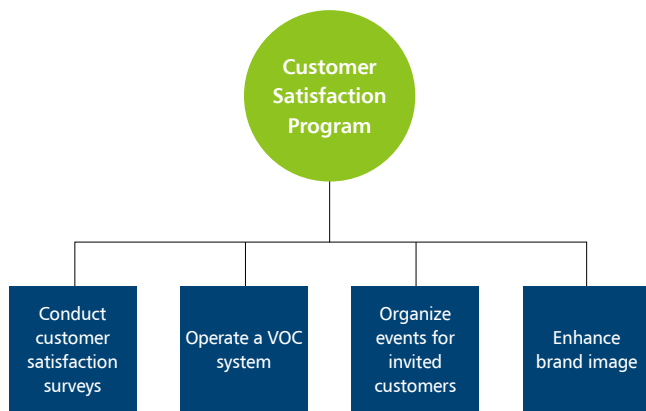
| Classification | Key Issue | 2018 Goal | Achievement Index | Deadline |
|------------------------|---|---|--|----------|
| Customer communication | Customer satisfaction survey | Regular monitoring of customer satisfaction | Continuous execution, quality improvement feedback | 2018 |
| | Awards to best customers | Continue customer invitational events for communication | Continuous execution | 2018 |
| | Invitation of customers for green communication event by region | Customer communication activities by region | Continuous execution | 2018 |

Customer Satisfaction Management

Lotte Chemical considers the realization of customer value as the top priority, and thus provides products and services that meet customer needs while actively performing customer satisfaction activities.

Customer Satisfaction Activities

Lotte Chemical pursues customer value realization in various ways including providing support to customers and corporate clients, strengthening customer communication channels, and enhancing brand image. We will listen to our customers' voices and create new value to draw and develop customer trust.



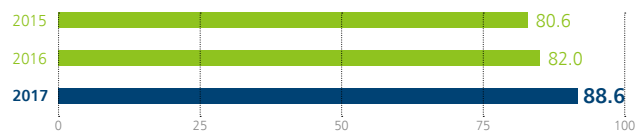
Customer Satisfaction Enhancement

Lotte Chemical conducts annual customer satisfaction surveys for domestic customers who purchase our products and gathers specific opinions and feedback on the entire production process, including the quality of raw materials, packaging, delivery, and follow-up management.

These collected opinions are delivered to the relevant departments so they can be incorporated in the product quality improvement process in the future. All these efforts positively contributed to steadily improving results in customer satisfaction surveys, and, in 2017, we achieved 88.6 points.

Customer Satisfaction Survey Results

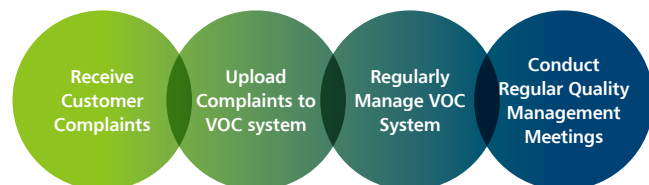
Unit: Points



VOC System

Lotte Chemical operates a dedicated customer support organization to establish a systematic VOC handling procedure that records and manages the entire process of resolving customer complaints from the moment a complaint is registered. The opinions collected by this process are discussed at regular quality meetings, so the relevant departments can promptly resolve complaints and create action plans to prevent the issue from reoccurring.

VOC Process



Enhanced Communication with Customers

We hold customer invitation events on a regular basis and conduct technical support activities for customers. In 2017, we invited VIP customers to our events, meetings, and technical seminars as a customer communication channel to discuss the latest trends in the chemical industry, share high-tech information, and strengthen customer trust.

| CEO Level Event |
|---|
| <ul style="list-style-type: none"> • Invitational event for 36 corporate VIP clients • Strengthen response by organizational level through smaller scale events by region |

| Working Level Event |
|--|
| <ul style="list-style-type: none"> • Support for PE next-generation leaders meetings and training, meeting venues, etc. (28 companies participated as of October 2017) • Continuous implementation of the Polymer School |



2017 Best Customer Appreciation Event



Polymer School

Maintenance Service for Customers

Starting in 2016, Lotte Chemical established a permanent support system throughout the year to provide safety inspections and maintenance technology to customers utilizing our environmental and safety technologies. We provide appropriate solutions for customers' problems, such as facility inspection and diagnosis, replacement of consumables, and transfer of facility management expertise. This has enabled us to improve our customers' independent maintenance capabilities and the stability of their working environment, resulting in elevated customer satisfaction. Moving forward, we will continue to conduct practical inspections and support improvement activities for our partners and strengthen technical exchanges.

| Classification | Performance for 2017 |
|--------------------------------|---|
| Subject | <ul style="list-style-type: none"> • 20 customers (6-7 customers per plant) |
| Period | <ul style="list-style-type: none"> • In accordance with prior consultations with customers (customer-oriented service) |
| Field of Support | <ul style="list-style-type: none"> • Provided inspections of equipment and facilities to support for mutual growth • Dispatched 1-2 employees each for rotational machineries, electricity, and relaying |
| Number of Employees Dispatched | <ul style="list-style-type: none"> • Total of 71 employees (personnel from Yeosu, Daesan, and Ulsan plants) • Identified in advance where support is needed and made necessary preparations • Senior members included to identify customer needs |



Support for Partner Companies
CASE 1 (EALTECH):
Replacement/Repair of Aged Equipment



Support for Partner Companies
CASE 2 (KWANG JU FISHING NET):
Safety Inspection and Repair of Electrical and Instrumental Equipment

Brand Image Enhancement

Sports Marketing

Lotte Chemical undertakes sports marketing activities through a variety of advertising platforms. We promote our brands by sponsoring the Lotte Giants, the most popular sports club in Korea, the LPGA Lotte Championship with high recognition among golf fans in Korea, the KLPGA Lotte Rent-a-Car Women's Open Tournament and other domestic and international professional golf tournaments, and the KOLON Marathon Competition, resulting in increased awareness and enhanced sales.



Lotte Giants uniform advertisement



KLPGA Lotte Rent-a-Car Women's Open Tournament advertisement



Lotte Giants Baseball Festival

Airport Billboard Advertisement

In order to communicate the philosophy of Lotte Chemical and gain natural exposure of our brand, we have published corporate image ads at Yeosu and Ulsan airports, where our business sites are located, since 2013. We display advertisements to airport passengers and visitors to expand awareness of Lotte Chemical and enhance a positive corporate image.



Image ad in Yeosu Airport

Quality Management

Lotte Chemical is devoted to providing safe and high-quality products and services. In order to supply excellent customer optimization products, we conduct proactive quality control and continuous quality innovation activities throughout the product life cycle.

Product Safety

We make sure to secure the safety of our customers at all stages of production and supply. By implementing internal OR by complying with, we actively assure compensation for damages caused by product defects. We also hold product liability insurance to protect victims and pursue prompt and stable follow-up measures. In addition, information on the relevant laws and regulations of the exporting country is displayed to maintain safe delivery and use and to reduce risks in transporting and handling of all products.

CASE

Quality Improvement Cases

MELT Blend LLDPE Quality Improvement

MELT Blend LLDPE, the first high transparency film developed by Lotte Chemical in Korea, has been received very favorably in the market. In recent years, the quality of LLDPE film has become increasingly sophisticated, while a shortage in on-site specialized workers heightened customer demand for high productivity. In this regard, our R&D Center through proactive research and development activities succeeded in developing MELT Blend LLDPE in 2016, which increased per-hour productivity by approximately 7% compared to conventional production, while effectively retaining the existing transparency and mechanical properties. This product boasts remarkable transparency and mechanical properties equal to or better than existing Dry Blend LDPE because of its superior LDPE dispersibility. It is used as packaging films for toilet paper, fresh food, and clothing, etc., and has garnered a very positive response from customers for its high productivity and quality.



MELT Blend LLDPE

Efforts to Improve PIA Quality

Lotte Chemical's PIA is recognized for its competitiveness and superior quality in the global market. We focused on quality improvement by benchmarking superior products and successfully secured cost reduction and flexibility of production by reinforcing production stability and efficiency. At the same time, we send our employees to markets around the world to make regular visits to our clients and provide feedback on improvements to build trust-based relationships, and we diversify sales outlets while continuing to improve our quality. In order to maintain the top position in the global market share of PIA products, Lotte Chemical will continue to improve product quality, establish customized strategies, and cultivate our competencies.

Strengthened Information Protection

As the risk of information leaks increases, customer information security has become the basis of customer trust and a duty for all companies to fulfill. In accordance with the Personal Information Protection Act, Lotte Chemical strictly protects customer information as well as the personal information of employees and job applicants. In addition, we established a swift and systematic response system in accordance with the information protection manual by conducting periodic emergency mock drills. Moreover, we continue our activities to effectively protect corporate information assets by establishing information protection policies and implementing intellectual property management each year. As part of these efforts, Lotte Chemical acquired ISO 27001, an international standard information security certification in 2016, and acquired an additional certification for our information security management system by the Head Office after relocating to Jamsil Lotte World Tower in 2017, thereby establishing a global level information security system.

1) ISO 27001: This is an international information security management system drawn up by the ISO. The certificate is one of the world's most authoritative recognitions in the field of information security and is awarded only to those companies that meet 114 controls in 14 groups, including those on the organization's information security policies, intellectual asset management, and physical and environmental security.



Renewal of ISO27001 International Certification

Strengthened Information Security Level

Lotte Chemical provides clear information management guidelines internally to thoroughly manage the personal information of customers acquired in the course of business. We conducted a self-inspection to remove from existing personal information those items that are unnecessary aside from the minimum information required for the business and made it mandatory to provide notice of any information storage beforehand. In October 2016, we strengthened our customer information management system by establishing multi-level security systems to encrypt information. In addition, we restrict information access rights to prevent the risk of information leakage. Moreover, we extended the scope of information protection activities to external partners in order to encourage periodic inspection of personal information retention, appropriate changes in the volume of information retention, and proper personal information handling activities. We also provide personal information protection training, thereby reinforcing our practical capabilities across the entire supply chain.

Furthermore, we plan to create an Information Security Management Committee for more systematic internal and external information protection activities. Based on these initiatives, we will raise awareness of information security at Lotte Chemical and enhance reliability in our relationships with customers by implementing policies and agendas related to information protection on a company-wide basis.

Four Chemical Subsidiaries of Lotte Group Participated in Chinaplas 2017, Asia's Largest Petrochemical and Rubber Exhibition

Lotte Chemical participated in Chinaplas 2017, Asia's largest petrochemical and rubber exhibition, held at the China Import and Export Fair Pazhou Complex in Guangzhou, China from May 16 to 19, 2017. Chinaplas is one of the largest chemical industry exhibitions in Asia, with global heavyweight petrochemical companies participating, including ExxonMobil, DuPont, BASF, and Dow, and visited by hundreds of thousands of industry stakeholders and customers each year. In 2017, about 3,300 companies from 40 countries attended. This exhibition was the first exhibition in which the four chemical subsidiaries of Lotte Group participated and the booth consisted of four zones to focus primarily on each of their specialized business fields and displaying the latest material solutions. It represented a great opportunity for the chemical division of Lotte Group to fully demonstrate its top-notch technological capacity to stand tall as a global chemical company.

The 'About Us' Zone space represented the synergy and vision of the four chemical companies of Lotte Group. Our global network, business portfolios, and new businesses were covered, centered on the new vision of Lotte Group: "Lifetime Value Creator."

In the 'Enriching Value' Zone, we introduced each of our products used in daily life as custom-made material solutions for eco-friendly materials, household appliances, and smart devices.



In the 'Driving Value' Zone, core materials and lightweight products were displayed by each company to provide future-oriented high added-value with the concept of prefabricated kits reminiscent of a plastic model.

In the 'Powering Value' Zone, a line of highly functional products optimized for various areas needed for sustainable living, such as architecture, medical care and energy, were exhibited.



ISSUES 06. SOCIAL CONTRIBUTION



Why reporting topics are important

As corporate members of the community, companies are required to create social value that goes beyond the financial value of pursuing profits and to pursue the interests and benefits of consumers and employees as well as the local community. In particular, as the direction of social contribution activities has shifted away from one-off charitable donations to toward the resolution of mid- to long-term social issues, we strive to foster differentiated social contribution strategies by considering the characteristics of our companies and their businesses. As a corporate citizen, Lotte Chemical strives to fulfill our corporate social responsibilities and to coexist with local communities. Based on core values that put people first and invest in people first, we aim for the joint development of community and value, rather than pursuing only immediate profits. Based on this, we are building an image as a socially responsible company.

Scope of influence of reporting subject

Local enterprises should engage in cooperation with communities to enhance mutual competitiveness by returning corporate profits gained from economic activities to society. Long-term and consistent social contribution activities linked with corporate strategy create a positive corporate image, contributing improving faithfulness and reliability from an external perspective.

Future direction on the subject of report

Lotte Chemical plans to develop a consistent long-term social contribution program focusing on key areas, such as helping neighbors in need, social welfare, and improvement of the residential environment. At the same time, we will continue to strengthen the connections between social welfare facilities and underprivileged neighbors by region. We strive to establish a positive relationship with local communities as a neighboring citizen.

Our Response

Performance in 2017

| Classification | Key Issue | 2017 Goal | Achievement Index | Deadline | Performance | Achievement |
|--|--|---|--|----------|---|-------------|
| Engagement in the development of local communities | Employee engagement | Encourage employees to engage in sharing activities | Develop new programs and set up a talent donation pool | 2017 | 1. New program activities (child center programming and education support, volunteer activities by new hires) 2. Talent donation activities by employees (swimming, bowling, etc.) | ● |
| | Improved the residential environment of families in need | Identified and took measures in areas for improvement in the residential environments of Yeosu, Daesan, and Ulsan | Implementation | 2017 | Offered painting, papering, floor replacement, and electric device and drainpipe repair services to 24 families in need | ● |
| | Green sharing activity | Developed green sharing programs at all worksites | Implementation | 2017 | 1. Riverside nature purification activity 2. Industrial complex street garbage collection | ● |

Plans for 2018

| Classification | Key Issue | 2018 Goal | Achievement Index | Deadline |
|--|---|--|--|----------|
| Engagement in the development of local communities | Strategic social contribution | Launching 'More than Safety' (safety project for sharing and coexistence) | Sponsorship program by four business sites (Yeosu, Daesan, Ulsan, Daejeon) | 2018 |
| | Improve the residential environment of families in need | Identify and take measures in areas for improvement in the residential environment of Yeosu, Daesan, and Ulsan | Implementation | 2018 |
| | Green sharing activity | Develop green sharing programs at all worksites | Implementation | 2018 |

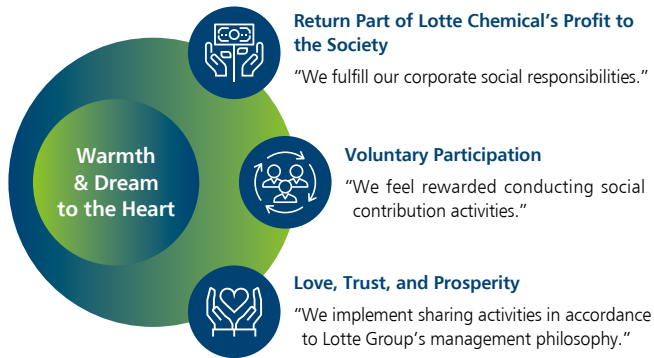
Strategic Social Contribution Activities

Lotte Chemical establishes a strategic social contribution system to promote company-wide activities to become a company that grows and develops with the local community. We create organic relationships with local communities through active social contribution activities by the Head Office and by business sites at home and abroad.

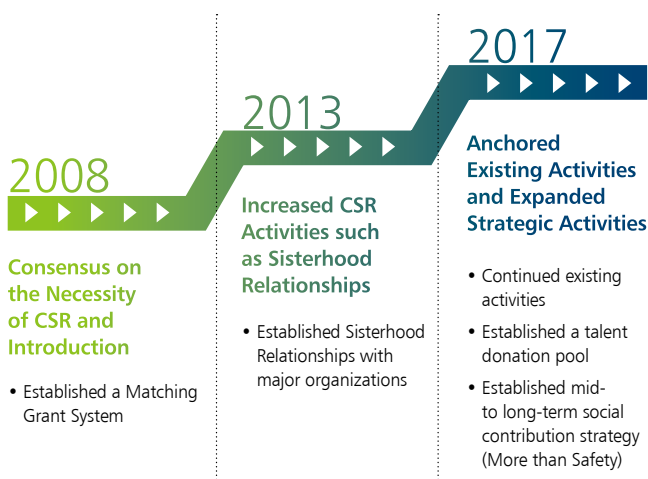
Social Contribution Implementation System

Based on the social contribution slogan of "People with warm heart, Future with passion", we perform company-wide social contribution activities. Centered on activities for social welfare, helping neighbors in need, external cooperation, and improving the residential environment, we promote long-term and practical social contribution activities.

Social Contribution Slogan



CSR Activity Roadmap



Social Contribution Program

Lotte Chemical develops and continuously performs wide range of social activities, grouping them into four areas - social welfare, charity event, collaboration, and improving the living environment.



Vitalization of Charlotte Volunteer Group

In 2015, the volunteer groups which operated independently by business sites were integrated into the "Charlotte Volunteer Group" to motivate employees to participate voluntarily. As a warm companion of the local community, they actively promote social contribution activities, and also they use this as a channel to establish an innovative labor-management culture and engage in various activities together.



Social Contribution Activity Status of Charlotte Volunteer Group

| Classification | Unit | 2015 | 2016 | 2017 |
|--------------------------------------|---------|--------|--------|---------------|
| Participant | Persons | 1,700 | 1,893 | 2,248 |
| Participation time | Times | 11,500 | 12,500 | 14,800 |
| Average participation time by person | Times | 6.76 | 6.6 | 6.58 |

1) including duplicate persons

Promote Social Contribution Activities by Worksite

Headquarters

Lotte Chemical headquarters has organized a volunteer service corps to continuously implement social contribution activities for the local community. Major activities include charitable support and volunteer activities at the welfare center for people with disabilities as well as book donations. Most notably, we donated 200 million KRW to local victims affected by a large fire at Yeosu Fishery Market in 2017. In these ways, we actively practiced the value of cooperation and sharing with local communities.



Donation to Fire Recovery & Support for Yeosu Fishery Market



Volunteer Activities by New Hires at Welfare Center



Eoullim Kimchi Sharing Event



Eoullim Kimchi Sharing Event

Volunteer Activities at the Welfare Center for People with Disabilities> In March 2017, our new hires engaged in volunteer activities at the Seoul Municipal Nambu Welfare Hall for people with disabilities. We prepared this activity for new employees to practice Lotte Chemical's social role in the local community and to provide opportunities to realize the rewards of volunteer service. In addition, we have been donating 1 million KRW each month to the welfare facility for its smooth operation. We plan to increase volunteer participation and interest of our employees through continuous regular volunteer activities.

Eoullim Kimchi Sharing Event> In November 2017, 45 Lotte Group subsidiaries gathered together to engage in the Eoullim Kimchi Sharing Event. More than 1,100 Lotte employees made winter kimchi to be delivered to the underprivileged. For Lotte Chemical, nearly 30 employees participated in this event divided in groups of packing, making, and ingredient transporting to make a total of nearly 700 heads of cabbage kimchi. A total of 15,000 tons of kimchi was made that day and it was delivered to the underprivileged across the country through the Korean Red Cross.

Matching Grant> We have operated a Matching Grant scheme since 2008 to raise charitable funds each year and the company matches the entire amount raised voluntarily by employees.

The fund set up by this program is used for social contribution activities at each worksite, and regular donations to institutes with sisterhood ties, including Korea Children's Foundation and community center for persons with disabilities.

Yeosu Plant

Volunteer corps of Yeosu Plant join local residents in regular activities for the local community. We organize events to improve the local environment and engage in activities to improve roads in coastal areas. We also operate a meal delivery service through the Red Food Truck and provide support for daily necessities.



Volunteer Activities at Yeosu Daycare Center



Red Food Truck Event



Natural Purification Activity at Yeosu Dolsan Coastal Road



Taking Photos for Senior Citizens in the Area

Volunteer Activities at Yeosu Daycare Center> The Yeosu Plant Charlotte Volunteer Group visits the Yeosu Daycare Center every second week of the month to spend time with the children at the center. Since the first meeting with the children in March 2017, they have engaged in volunteer activities together including sharing rice cake soup for the Lunar New Year, stationeries support on Children’s Day, and more.

Improvement of Roads by Coastal Areas> The Yeosu Plant Charlotte Volunteer Group conducts preservation activities on the Yeosu Coastal Road, which has emerged as a tourist attraction. The old Yeosu Coastal Road was restored by a private entity in 2013 with three tour courses. The volunteer group carries out natural purification activities, such as collecting marine pollutants like styrofoam, and puts into practice the preservation and expansion of tourism resources, which is an urgent agenda of the community.

Red Food Truck Event> On every third Friday of the month, Lotte Chemical offers Red Food Truck free meals to seniors in cooperation with Yeosu Senior Welfare Center. In addition, the company conducts diverse volunteer activities for the underprivileged in the region, such as provision of daily necessities and donation of talent to local children’s centers or orphanages.

Taking Photos for Senior Citizens in the Area> We took longevity photos for approximately 30 local senior citizens at Yeosu Senior Welfare Center. A ceremony was held to express gratitude to seniors in the community and wish for their health and long life. Our employees who belong to the internal photography club donated their talent for this occasion.

Veteran Family Support> Paying tribute to “Patriots Veterans Month”, we selected veterans’ families to help improve their residential environment by replacing wallpaper and floor coverings at damaged houses and kitchen sinks. We also support their daily necessities to show our appreciation for the spirit of sacrifice of the veterans’ families.

Daesan Plant

The Daesan Plant divided their volunteer activities into the four groups: for improvement of the housing environment, for underprivileged neighbors, for external cooperation, and for social welfare to ensure systematic and practical support activities. By providing scholarships for underprivileged students and support fuel costs for those with lower incomes, we promote friendly relationships with local residents. Other social contribution activities include item donations to underprivileged children and to the welfare facilities for people with disabilities, and volunteer activities at the welfare center.



Environmental Cleanup Activity for 'Make Chungnam Clean' Campaign



Joint Charity Bazaar



Kimchi Sharing Event



Hearing Aid Donation for Happiness Sharing

Environmental Cleanup Activity for 'Make Chungnam Clean' Campaign> Lotte Chemical Daesan Plant participated in making a joint declaration for the 'Make Chungnam Clean' campaign to contribute to creating a clean local environment and has been a participant from the beginning. In the second half of 2017, a total of approximately 100 employees cleaned the villages and roads near the Daesan Plant and collected approximately 10 tons of waste. In 2018, we plan to perform cleanup activities once every quarter, a change from the existing schedule of once every six months, to expand our efforts to support environmental improvement at the company level.

Joint Charity Fundraiser> With over 2,000 people including employees and their families attending, the Joint Charity Fundraiser was held jointly by Employees and Spouses Committee at the Daesan Plant. This event has been ongoing for 11 years, and we strive to coexist harmoniously with the local community by donating proceeds from sales of various goods, clothing, and food to the charity for the needy.

Making and Sharing Kimchi> The Daesan Plant Charlotte Volunteer Group sent over 2,000 heads of winter kimchi to 24 social welfare facilities and 29 families in need in the area.

Hearing Aid Donation for Happiness Sharing> We subsidized the entire purchase amount of hearing aids for recipients of basic national life support and foster care. The Daesan Plant plans to continue efforts to improve welfare through donations by discovering areas not covered by welfare.

Home Repair Volunteer Program> We visit families in Daesan-eup, such as the elderly living alone and marginalized neighbors suffering from cerebral palsy disorders, to provide clean and comfortable living spaces by fixing broken doors, replacing windows and wallpaper, and installing washstands and curtains. The Daesan Plant intends to identify people in dire need and to support them in a consistent manner.

Ulsan Plant

The Daesan Plant divided volunteer activities into three groups: for home repair volunteering, for facility volunteering, and for underprivileged neighbors. Specifically, the home repair volunteering group works with local volunteer centers to improve the living conditions of the underprivileged in rural areas. The group for facility volunteering visits welfare facilities and elderly nursing homes once a month to fix electrical equipment and make replacements, while also spending time with the elderly there. The group underprivileged neighbors selects the eligible candidates to whom to provide daily necessities and home visits every other month.



Areum Atti Daddy Longlegs Study Mentoring



Volunteer Activities at Nursing Facilities



Ulsan Plant Santa Expeditioners



Support to Low-Income Brackets

Areum Atti Daddy Longlegs Study Mentoring> The Charlotte Volunteer Group at the Ulsan plant provides regular study mentoring to middle school students once a week. The study mentoring is an educational donation activity that provides learning guidance for English and Mathematics as well as career counseling and study coaching to support the healthy growth and development of teenagers.

Let's Be Santa> The Charlotte Volunteer Group at the Ulsan Plant organized the Santa Expeditioners in concert with the Child Fund Foundation Ulsan Regional Division to deliver Christmas cards and Christmas gifts to children of nearly 40 low-income families.

Volunteering for Nursing Homes and Support to Low-income Brackets> Each month, we perform volunteer activities to improve the environments of welfare facilities, such as cleaning living facilities and repairing fixtures for small-scale nursing homes while spending time with the inhabitants. Other sponsorship activities include support of daily necessities for a total of 67 low-income households in the Ulsan area five times a year.

Research Institute

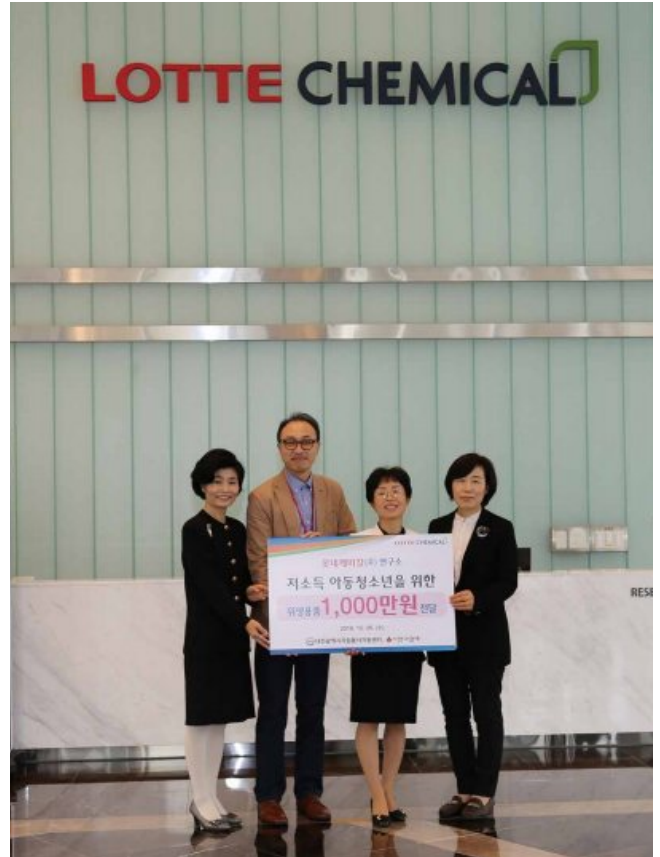
The Research Institute contributes to the growth and development of local communities through systematic and diverse activities, such as educational scholarship projects and social welfare projects, thereby moving toward a richer world.



Commendation for Meritorious Heroes



Funding for Children and Youth Cultural Activities



Donation to Alternative Sanitary Napkin Support

Commendation for Meritorious Heroes> Lotte Chemical R&D Center provides diverse and differentiated forms of social contribution activities, such as cultural activities for adolescents to bridge the cultural divide and alternative sanitary napkins for young female adolescents, as well as educational scholarship activities including the annual “Hope Sharing Scholarship” for which funds are raised voluntarily by our employees, PC support for social welfare facilities, and science book donations. These activities led us to be acknowledged as a group that contributes to establishing a donation culture and to revitalizing sharing, earning us a commendation award for practicing the spirit of sharing.

Volunteer Activity at Social Welfare Facilities > We designate volunteer programs at social welfare facilities as a mandatory training course for our new hires. They visit community welfare facilities to engage in volunteer activities as first steps as a member of society, such that they are imparted with a sense of belonging and build an honorable set of values and responsibilities as a member of a socially responsible company like Lotte Chemical. In 2017, we donated dishwashers and fruit for free at senior homes near Yuseong-gu and cleaned, organized fixtures, and aided the inhabitants in eating meals.

Donation to Alternative Sanitary Napkin Support> Recently, disposable sanitary napkins stirred quite a scandal to the degree of becoming a ‘phobia’ in Korea due to the detection of volatile organic compounds that are carcinogenic substances. In this regard, the R&D Center donated funds to support alternative sanitary napkins to female students from low-income families in Yuseong-gu, Daejeon, so adolescents from underprivileged brackets may achieve healthy growth.

Office Furniture Sharing Event> We donated office furniture used by Lotte Chemical researchers, including desks, chairs, bookshelves, and document storage cabinets, to social welfare facilities, such as local children's centers and youth support centers. This contributes to improving the operating environment of social welfare facilities and to practice resource recycling.

Global Social Contribution Activities

Lotte Chemical actively makes locally specialized social contributions at its overseas worksites. We will continue to move forward and fulfill our social responsibilities as a global chemical company.



Bus Stop Construction Support



Seedling Planting for Earth Day



Scholarship support



Free Eye Medical Camp

LC Titan

Support to Local Communities> LC Titan conducts regular charitable activities for the underprivileged, including food aid and donation of charitable funds. We also helped establish orphanages and nursing homes for the elderly, while our employees spent time with children at the orphanages and accompanied them to visit cultural and recreational activities like the Angry Birds Activity Park Johor Bahru. Moreover, we roll out various community contribution activities, such as support for building public restrooms, bus stops, and mosque to improve the quality of life for residents.

Educational Support> We offer scholarships to help students from low-income families focus on their studies so as to ensure equal educational opportunities. The Malaysian worksite provided scholarships in conjunction with local schools to 200 students who achieved great academic performance despite difficult circumstances at home. The Indonesian worksite provides programs such as plant tours, technical training, and scholarships to high school and university students. These continuing activities helped LC Titan become a company that strives to support education within local community.

LC Pakistan

Environment • Earth Day> In April 2017, 98 employees voluntarily participated in an Earth Day event. We planted approximately 300 trees on the plant campus, resulting in more than 6,000 trees altogether. We also organized a poster drawing contest related to Earth Day for the children of employees to raise awareness of environmental conservation.

Community Support • Free Eye Medical Camp> In 2017, the EYE CAMP was established in concert with the Sindh Police - Welfare Department and LRBT organization in the PQA region where our worksite is located. Conducted in April, September, November, and December 2017, this program provides medical service for eye disease diagnosis and treatment for nearby residents who are in poor condition such that they may obtain crucial medical benefits. April CAMP aided 180 people in receiving free medical care for the whole month.



Employees at LC Pakistan Visiting Dar ul Sakoon



Scholarship Project



TFC scholarships granted

Community Support • Visit to Dar ul Sakoon> Dar ul Sakoon is a charity organization that accommodates children who have been abandoned by their parents or have a physical disability. Employees at LC Pakistan visited the facility in December 2017 for charitable activities. From 2018, five children will be selected for our regular support.

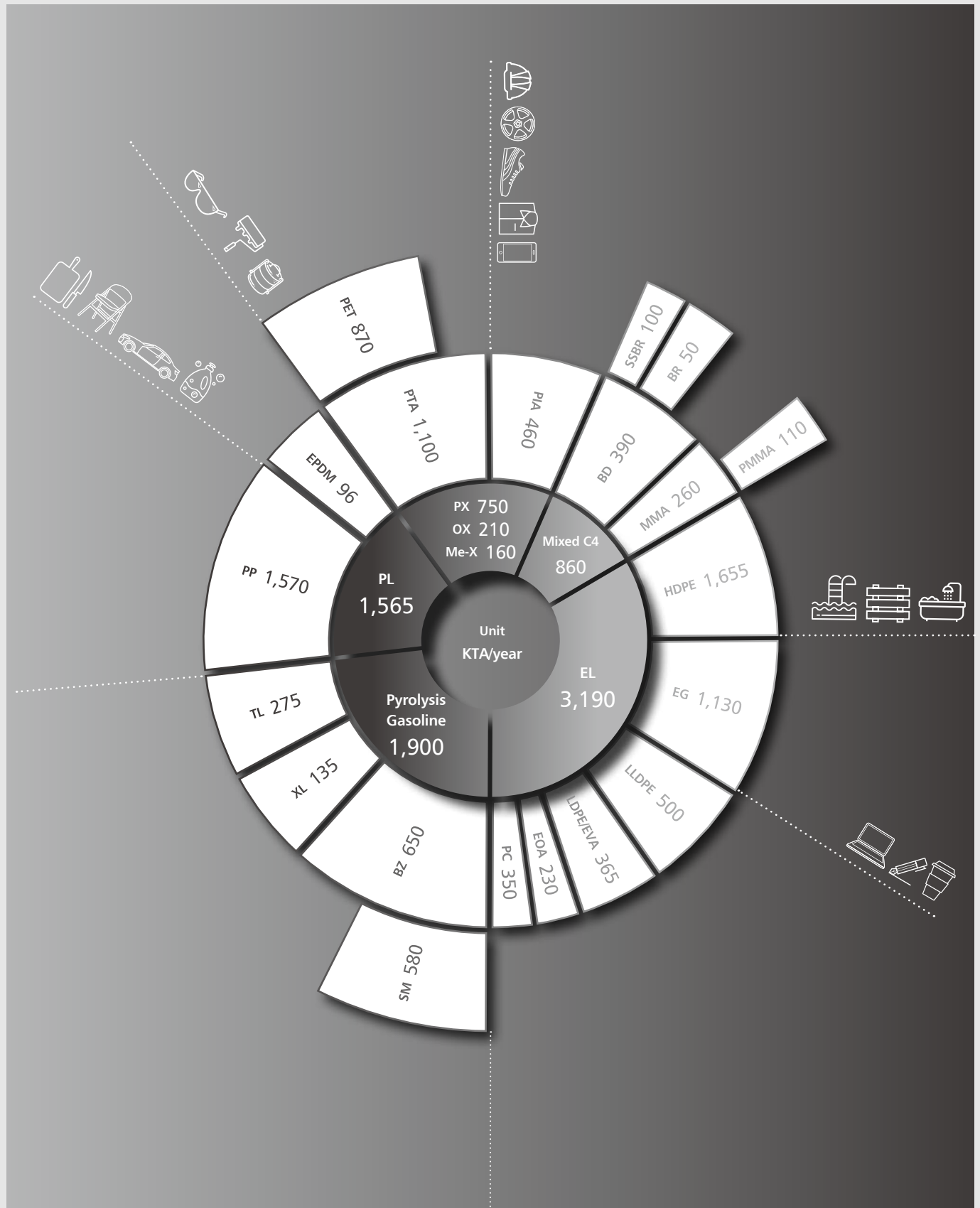
Educational Support • Scholarship Project> In December 2017, we signed a Memorandum of Understanding with NED University in Pakistan and have conducted scholarship projects through the Lotte Scholarship Foundation. NED University has a long history and tradition with intensive training programs in the fields of engineering and technology. A total of 12 students were awarded our scholarships, and, among them, students who graduate with excellent academic records will be hired at our local worksite.

Educational Support • The Citizen Foundation School (TFC)> We provide scholarships to 20 underprivileged students among those who attend the Citizen Foundation School (TFC), a nonprofit organization in the Mosa Goth & Cattel Colony area in which our worksite is located, helping them focus on their studies and lay the cornerstone for their self-determination and reliance.

APPENDIX

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WHAT IS OUR PRODUCT COMPETITIVENESS



GRI STANDARDS INDEX

| Topic | Disclosure | | Pages/ References |
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| | 102-17 | Ethical guidance and grievance handling mechanism | 36~37 |
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| | 102-42 | Stakeholder identification and selection | 40~41, 46 |
| | 102-43 | Stakeholder engagement method | 40~43, 46 |
| | 102-44 | Key topics and interests raised through stakeholder engagement | 46~47 |
| GRI 102 : Reporting practice | 102-45 | List of entities (subsidiaries and joint ventures) included in the consolidated financial statements of the organization | 8~11 |
| | 102-46 | Boundary definition of report content and topics | 46~47 |
| | 102-47 | Material topics list | 46~47 |
| | 102-48 | Re-description of information | 52 |
| | 102-49 | Changes in reporting | N/A |
| | 102-50 | Reporting period | About this report |
| | 102-51 | Date of the most recent previous report | About this report |
| | 102-52 | Reporting cycle | About this report |
| | 102-53 | Inquiry information about the report | About this report |
| | 102-54 | Reporting method according to GRI Standards | About this report |
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| 102-56 | External validation | 105~106 | |
| GRI 103: Management Approach | 103-1 | Explanation of materiality topics and their boundaries | 46~47 |
| | 103-2 | Management policy and composition | 50, 58, 63, 76, 81, 87 |
| | 103-3 | Management policy evaluation | 50, 58, 63, 76, 81, 87 |
| GRI 201 : Economic Performance | 103-2 | Management Approach | 23 |
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| | 201-3 | Appropriation of defined benefit-type pension plan liabilities of the organization | 102 |
| GRI 202 : Market Presence | 202-1 | Defined benefit plan obligations and other retirement plans | 68 |
| GRI 203 : Indirect Economic Impacts | 103-2 | Management Approach | 87 |
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| | 203-2 | Significant indirect economic effects and impact | 87~95, 103 |
| GRI 205: Anti-corruption | 205-1 | Risk assessment of worksite corruption | 34~35 |
| | 205-2 | Notices and education on anti-corruption policies and procedures | 34~35 |
| | 205-3 | Identified corruption cases and actions taken | 34~35 |
| GRI 206 : Anti-competitive Behavior | 206-1 | Legal action against unfair trade practices such as competitive inhibition, monopoly, etc. | 34~35, 77 |

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| | 401-2 | Compensation for full-time employees not available to non-regular or part-time employees | 63~75, 102 |
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| GRI 417 : Marketing and Labeling | 417-3 | Violation of regulations related to marketing communication | 84 |
| GRI 418 : Customer Privacy | 418-1 | Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data | 85 |

CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Statement of Financial Position

| Item | Unit | 2015 | 2016 | 2017 |
|---|------|--------------------|--------------------|---------------------------|
| Assets | | | | |
| I. Current assets | KRW | 5,405,499,989,622 | 5,851,675,895,722 | 8,225,469,338,408 |
| 1. Cash and cash equivalents | KRW | 1,942,218,655,868 | 2,202,944,465,224 | 1,685,211,989,030 |
| 2. Short-term financial instruments | KRW | 841,697,947,914 | 425,756,558,256 | 3,086,656,512,787 |
| 3. Accounting for assets | KRW | - | 6,685,073,198 | 2,434,730,122 |
| 4. Available-for-sale financial assets | KRW | 45,639,020,000 | 20,588,275,000 | 100,046,195,000 |
| 5. Trade and other receivables | KRW | 1,016,335,868,734 | 1,551,920,459,156 | 1,667,550,760,928 |
| 6. Inventories | KRW | 1,162,746,555,678 | 1,477,157,254,043 | 1,535,989,483,699 |
| 7. Financial lease receivables | KRW | 138,598,084 | 138,598,084 | 138,598,084 |
| 8. Current income tax assets | KRW | 18,567,576,319 | 16,403,225,181 | 15,381,900,865 |
| 9. Other current financial assets | KRW | 16,740,348,522 | 13,242,873,191 | 19,507,537,143 |
| 10. Other current non-financial assets | KRW | 361,415,418,503 | 136,839,114,389 | 112,551,630,750 |
| II. Non-current Assets | KRW | 6,062,308,909,152 | 10,015,158,274,179 | 11,325,501,762,242 |
| 1. Long-term financial instruments | KRW | 67,509,500,000 | 67,515,500,000 | 67,512,500,000 |
| 2. Available-for-sale financial assets | KRW | 193,646,663,061 | 304,235,250,235 | 255,241,155,482 |
| 3. Financial lease receivables | KRW | 3,139,735,572 | 3,014,310,692 | 2,888,357,916 |
| 4. Investments in associates | KRW | 846,144,172,015 | 1,288,114,096,686 | 1,438,963,136,291 |
| 5. Investments in joint ventures and associates | KRW | 800,374,671,919 | 848,082,771,318 | 945,616,486,554 |
| 6. Tangible assets | KRW | 3,964,852,431,989 | 5,546,663,157,027 | 6,716,184,181,432 |
| 7. Investments in real estate | KRW | 81,298,743,603 | 99,471,563,871 | 114,606,808,510 |
| 8. Goodwill | KRW | 3,196,151,567 | 723,796,856,918 | 723,796,856,918 |
| 9. Intangible assets | KRW | 34,442,559,894 | 1,068,600,007,244 | 986,777,410,423 |
| 10. Other non-current financial assets | KRW | 8,277,637,186 | 20,898,712,615 | 20,253,421,140 |
| 11. Other non-current non-financial assets | KRW | 4,655,761,108 | 5,552,909,940 | 15,230,234,510 |
| 12. Deferred income tax assets | KRW | 54,770,881,238 | 39,213,137,633 | 38,431,213,066 |
| Total Assets | KRW | 11,467,808,898,774 | 15,866,834,169,901 | 19,550,971,100,650 |
| Liabilities | | | | |
| I. Current liabilities | KRW | 2,146,107,848,882 | 3,448,810,302,356 | 3,790,891,299,787 |
| 1. Trade and other payables | KRW | 934,257,282,162 | 1,076,521,955,744 | 1,420,006,265,123 |
| 2. Accounting for liabilities | KRW | 179,284,262 | - | 133,610,266 |
| 3. Short-term borrowings | KRW | 911,337,908,046 | 1,745,873,962,485 | 1,498,617,635,176 |
| 4. Current income tax liabilities | KRW | 157,692,458,677 | 365,609,755,774 | 516,405,147,316 |
| 5. Other current financial liabilities | KRW | 57,933,582,156 | 94,350,571,980 | 181,182,416,161 |
| 6. Other current non-financial liabilities | KRW | 75,530,844,307 | 146,913,527,427 | 161,173,576,770 |
| 7. Current provisions | KRW | 9,176,489,272 | 19,540,528,946 | 13,372,648,975 |
| II. Non-current liabilities | KRW | 1,766,114,975,036 | 3,017,206,697,113 | 3,505,312,739,432 |
| 1. Financial liabilities at fair value through profit or loss | KRW | - | - | 25,238,394,790 |
| 2. Long-term borrowings | KRW | 1,500,781,746,218 | 2,439,574,476,416 | 2,703,800,471,060 |
| 3. Retirement benefit liabilities | KRW | 30,263,275,849 | 23,195,912,697 | 26,509,772,488 |
| 4. Deferred income tax liabilities | KRW | 204,218,459,079 | 524,809,517,144 | 587,754,527,688 |
| 5. Other non-current financial liabilities | KRW | 17,651,966,771 | 14,558,572,798 | 43,060,201,548 |
| 6. Other non-current non-financial liabilities | KRW | 3,398,126,882 | 7,735,920,277 | 10,557,221,128 |
| 7. Non-current provisions | KRW | 9,801,400,237 | 7,332,297,781 | 108,392,150,730 |
| Total Liabilities | KRW | 3,912,222,823,918 | 6,466,016,999,469 | 7,296,204,039,219 |
| Equity | | | | |
| I. Equity attributable to the owner of the parent | KRW | 7,524,751,244,619 | 9,363,112,350,552 | 11,489,628,164,151 |
| 1. Share capital | KRW | 171,377,095,000 | 171,377,095,000 | 171,377,095,000 |
| 2. Other share capital | KRW | 476,522,242,395 | 478,576,150,133 | 880,743,872,602 |
| 3. Retained earnings | KRW | 6,739,344,145,893 | 8,486,992,508,654 | 10,582,113,942,798 |
| 4. Other reserves | KRW | 137,507,761,331 | 226,166,596,765 | -144,606,746,249 |
| II. Non-controlling interests | KRW | 30,834,830,237 | 37,704,819,880 | 765,138,897,280 |
| Total Equity | KRW | 7,555,586,074,856 | 9,400,817,170,432 | 12,254,767,061,431 |
| Total Liabilities and Equity | KRW | 11,467,808,898,774 | 15,866,834,169,901 | 19,550,971,100,650 |

Consolidated Statements of Income

| Item | Unit | 2015 | 2016 | 2017 |
|---|------|--------------------|--------------------|--------------------|
| I. Sales | KRW | 11,713,338,201,119 | 13,223,540,873,785 | 15,874,510,689,910 |
| II. Cost of sales | KRW | 9,646,291,210,590 | 9,956,835,878,305 | 12,081,876,222,814 |
| III. Gross profit | KRW | 2,067,046,990,529 | 3,266,704,995,480 | 3,792,634,467,096 |
| Selling and administrative expenses | KRW | 455,927,525,047 | 722,451,059,395 | 862,913,509,269 |
| IV. Operating income (loss) | KRW | 1,611,119,465,482 | 2,544,253,936,085 | 2,929,720,957,827 |
| Financial income | KRW | 145,410,485,658 | 156,147,422,909 | 253,053,655,691 |
| Financial cost | KRW | 204,624,157,754 | 241,023,186,030 | 273,186,322,842 |
| Share of profit or loss of associates and joint ventures subject to Equity Method | KRW | -23,405,936,491 | 71,447,129,465 | 284,443,693,668 |
| Other non-operating income (loss) | KRW | -107,131,849,529 | -43,452,202,472 | -109,345,943,222 |
| V. Net income before income tax | KRW | 1,421,368,007,366 | 2,487,373,099,957 | 3,084,686,041,122 |
| Income tax expense | KRW | 430,712,512,057 | 650,188,180,879 | 800,109,102,761 |
| VI. Profit (loss) for the year | KRW | 990,655,495,309 | 1,837,184,919,078 | 2,284,576,938,361 |
| VII. Other comprehensive income (loss) | KRW | 129,623,841,284 | 85,909,192,018 | -428,342,968,836 |
| 1. Items that will not be reclassified subsequent to income (loss) | KRW | -9,461,579,881 | -2,749,643,416 | -57,569,625,822 |
| Other comprehensive income before deducting income taxes, re-measurement of defined benefit plans | KRW | -8,064,009,146 | -5,608,108,254 | -14,646,011,391 |
| Retained earnings using the equity method | KRW | -2,192,046,077 | 1,658,336,122 | 553,133,535 |
| Overseas business translation gain / loss | KRW | 794,475,342 | 1,200,128,716 | -43,476,747,966 |
| 2. Items that will be reclassified subsequent to income (loss) | KRW | 139,085,421,165 | 88,658,835,434 | -370,773,343,014 |
| Taxable other comprehensive income of available-for-sale financial assets | KRW | 20,375,203,607 | -6,609,388,327 | 12,632,613,833 |
| Changes in capital variation of equity method | KRW | 10,651,905,170 | -2,207,049,932 | -29,013,393,026 |
| Other comprehensive income before tax for cash flow hedges | KRW | 2,946,242,373 | 591,062,562 | 945,848,298 |
| Foreign currency translation differences of foreign operations | KRW | 105,112,070,015 | 96,884,211,131 | -355,338,412,119 |
| VIII. Total comprehensive income | KRW | 1,120,279,336,593 | 1,923,094,111,096 | 1,856,233,969,525 |
| Net income attributable to: | | | | |
| Owners of the group | KRW | 992,512,355,206 | 1,835,812,632,200 | 2,243,875,142,823 |
| Non-controlling interest | KRW | -1,856,859,897 | 1,372,286,878 | 40,701,795,538 |
| Comprehensive income attributable to: | | | | |
| Owners of the group | KRW | 1,121,344,570,238 | 1,920,537,275,695 | 1,859,116,215,130 |
| Non-controlling interests | KRW | -1,065,233,645 | 2,556,835,401 | -2,882,245,605 |
| Earnings per share | | | | |
| Basic and diluted earnings per share | KRW | 29,458 | 54,488 | 65,625 |
| Earnings per share from continuing operations | KRW | 29,458 | 54,488 | 65,625 |

Major Products

| Sector | Unit | Sales | Item |
|--------------------------------------|-----------------|------------|--|
| Olefin | KRW in millions | 2,232,473 | Ethylene, propylene, benzene, toluene, para xylene, ortho xylene, etc. |
| Monomer | KRW in millions | 4,328,764 | Styrene monomer, butadiene, ethylene oxide adduct, ethylene oxide glycol, purified isophthalic acid, purified terephthalic acid, and methyl methacrylate monomer, etc. |
| Polymer | KRW in millions | 9,998,111 | High density polyethylene, polypropylene, low density polyethylene, polyethylene terephthalate, linear low density polyethylene, polycarbonate, LFT, and EPP, etc. |
| Others | KRW in millions | 162,057 | Byproducts, etc |
| Elimination of internal transactions | KRW in millions | -846,894 | |
| Total Sales | KRW in millions | 15,874,511 | |

SUSTAINABILITY DATA

Economy

Sales of domestic and overseas worksites

| Classification | Unit | 2015 | 2016 | 2017 |
|-----------------------------|------------------|------|------|-------------|
| Sales of domestic worksites | KRW in trillions | 8.6 | 10.2 | 12.9 |
| Sales of overseas worksites | KRW in trillions | 3.1 | 3 | 2.9 |
| Total | KRW in trillions | 11.7 | 13.2 | 15.9 |

Financial Assistance Received from the Government

| Classification | Unit | 2015 | 2016 | 2017 |
|----------------|-----------------|-------|-------|--------------|
| Financial aid | KRW in millions | 3,866 | 3,315 | 1,880 |

1) Limited to R&D subsidies only

Economic Value Allocation as of the End of 2017

| Classification | Unit | 2017 | Remarks |
|--------------------------|-----------------|---------------|--------------------------------|
| Government | 100 million KRW | 8,001 | Corporate tax |
| Employees | 100 million KRW | 2,898 | Salary(labor cost), Benefits |
| Business partners | 100 million KRW | 50,008 | Purchase cost of raw materials |
| Local communities | 100 million KRW | 163 | Donation |
| Shareholders & Investors | 100 million KRW | 2,732 | Financial cost |

1) Based on consolidated accounting

Society

Number of Domestic Employees

| Classification | Unit | 2015 | 2016 | 2017 | |
|------------------------------------|---------------------|--------|-------|--------------|--------------|
| Type of employment | Full-time | person | 2,728 | 2,774 | 2,958 |
| | Part-time | person | 72 | 83 | 203 |
| Gender | Male | person | 2,483 | 2,571 | 2,762 |
| | Female | person | 317 | 346 | 399 |
| By age | Below the age of 30 | person | 612 | 465 | 543 |
| | 30 - 50 | person | 1,658 | 1,746 | 1,853 |
| | 50 years and older | person | 530 | 706 | 765 |
| Total number of domestic employees | person | 2,800 | 2,917 | 3,161 | |

Number of Employees Overseas in 2017

| Classification | Unit | 2017 | |
|------------------------------------|---------------------|------------|------------|
| Type of employment | Full-time | person | 117 |
| | Part-time | person | 13 |
| Gender | Male | person | 129 |
| | Female | person | 1 |
| By age | Below the age of 30 | person | 4 |
| | 30 - 50 | person | 88 |
| | 50 years and older | person | 38 |
| Total number of overseas employees | person | 130 | |

1) Based on those who work in Korea

Number of Employees by Business Site

| Classification | Unit | 2015 | 2016 | 2017 |
|------------------------------|--------|-------|--------------|--------------|
| Number of domestic worksites | unit | 11 | 11 | 11 |
| Number of domestic employees | person | 2,800 | 2,917 | 3,161 |
| Number of overseas worksites | unit | 18 | 18 | 18 |
| Number of employees overseas | person | 2,365 | 2,463 | 2,376 |

1) Includes local workforce

Turnover Rate

| Classification | Unit | 2015 | 2016 | 2017 |
|----------------|------|------|------|------|
| Turnover rate | % | 2.3 | 2.1 | 2.0 |

Employees Subject to Periodical Performance Evaluation and Career Development Review

| Classification | Unit | 2015 | 2016 | 2017 |
|---|--------|-------|-------|-------|
| Percentage of employees subject to review | % | 41 | 41 | 39.6 |
| Number of employees subject to review | person | 1,145 | 1,192 | 1,251 |

Retirement Pension Subscription Rate

| Classification | Unit | 2015 | 2016 | 2017 |
|---------------------|--------|-------|-------|-------|
| Subscription rate | % | 97.9 | 95.8 | 84 |
| Number of employees | person | 2,741 | 2,794 | 2,655 |

1) As of the end of December of the corresponding year

Childcare Leave Status

| Classification | Unit | 2015 | 2016 | 2017 |
|--|--------|------|------|------|
| Number of employees on parental leave | person | 18 | 40 | 92 |
| Number of employees who returned to work after parental leave | person | 12 | 20 | 57 |
| Number of employees who have worked for 12 months or more after their return | person | 14 | 29 | 50 |

Result of Employee Engagement Surveys

| Classification | Unit | 2015 | 2016 | 2017 | |
|----------------|--------|------|------|-----------|-----------|
| Total | % | 91 | 89 | 89 | |
| Gender | Male | % | 92 | 90 | 91 |
| | Female | % | 89 | 86 | 79 |

Satisfaction Level of Employees

| Classification | Unit | 2015 | 2016 | 2017 |
|---------------------------------|-------|------|------|------|
| Satisfaction level of employees | point | 70 | 79 | 75 |

Number of Employees Subject to Collective Bargaining

| Classification | Unit | 2015 | 2016 | 2017 |
|--|--------|-------|-------|--------------|
| Number of employees subject to collective bargaining | person | 1,316 | 1,377 | 1,421 |
| Total number of employees | person | 2,800 | 2,917 | 3,161 |
| Percentage of employees subject to collective bargaining | % | 47 | 47 | 45 |

Employees Represented by the Labor/Management Safety & Health Committee

| Classification | Unit | 2015 | 2016 | 2017 |
|---------------------|--------|-------|-------|--------------|
| Number of employees | person | 1,802 | 1,918 | 2,070 |

1) Yeosu/Daesan/Ulsan

Accident Rate

| Classification | Unit | 2015 | 2016 | 2017 |
|---------------------------|------|------|------|-------------|
| Total accident rate | % | 0.03 | 0.03 | 0.21 |
| Total number of disasters | case | 1 | 1 | 2 |

Training Time per Employee

| Classification | Unit | 2015 | 2016 | 2017 |
|---------------------------|--------|---------|---------|----------------|
| Total training time | Time | 360,671 | 377,181 | 388,382 |
| Total number of employees | person | 2,800 | 2,732 | 2,770 |
| Training time per person | Time | 128.8 | 138 | 140 |

Prevention of Sexual Harassment*

| Classification | Unit | 2017 |
|----------------------|-----------|--------------|
| Number of attendance | person | 2,994 |
| Training expenses | 1,000 KRW | 1,317 |

1) Based on domestic

Other Human Rights Education

| Classification | Unit | 2015 | 2016 | 2017 |
|---------------------------------|--------|------|------|------------|
| Number of training sessions | time | 5 | 5 | 5 |
| Trainee candidates | person | 165 | 184 | 190 |
| Trainees who completed training | person | 147 | 182 | 190 |

1) Other human rights training: Grade education which includes content about respect for diversity, and WoW to ensure female workers' human rights Forum, etc.

Ethical Management Training Status

| Classification | Unit | 2015 | 2016 | 2017 |
|--|--------|------|------|------------|
| Number of training courses | unit | 8 | 6 | 6 |
| Training time per course | time | 11 | 6 | 8 |
| Number of trainees who completed the courses | person | 405 | 89 | 805 |

Online Shinmungo Status

| Classification | Unit | 2015 | 2016 | 2017 |
|---|------|------|------|----------|
| Bidding & contracting | case | 1 | 3 | 1 |
| Sales & bonds | case | 2 | 1 | - |
| Grievances by partners | case | 7 | 8 | 1 |
| Complaints about business handling | case | 3 | 3 | 4 |
| Total | case | 13 | 15 | 6 |
| Follow-up measures and measures to prevent recurrence | case | 13 | 15 | 6 |
| Bidding & contracting | case | 1 | 3 | 1 |

Achievements in Supporting Shared Growth of Partners

| Classification | Unit | 2015 | 2016 | 2017 |
|---|-----------------|---|--|---|
| Shared growth fund | 100 million KRW | 1,350 | 1,350 | 1,350 |
| Number of companies subject to shared growth | unit | 350 | 350 | 350 |
| Partner support program | unit | 20 [Overseas export support (1) / Financial support (4) / Technical support (11) / Training support (1) / Business support for partner companies (3)] | 20 [Financial support (5) / Technical support (9) / Training support (2) / Business support for partner companies (4)] | 16 [Financial support (4) / Technical support (6) / Training support (2) / Business support for partner companies (4)] |
| Number of training courses held for partners | time | 1 | 2 | 2 |
| Number of trainees from partners who completed the training courses | person | 153 | 53 | 157 |
| Number of companies supported for overseas market forays | unit | 19 | 20 | 61 |

Related Organization Dues

| Classification | Unit | 2015 | 2016 | 2017 |
|-----------------------------------|---------------|------|-------|------------|
| Membership fees of related groups | 1 million KRW | 165 | 183.5 | 197 |

1) Expenses paid to the Korea Petrochemical Industry Association

2) Lotte Chemical has never provided funds to political parties, political organizations, or election candidates.

Social Contribution Investment

| Classification | Unit | 2015 | 2016 | 2017 | Remark |
|--|---------------|-------|-------|--------|--|
| Social welfare investment | 1 million KRW | 937 | 1,294 | 2,087 | Improvement of residential environment, social welfare facility investment, etc. |
| Education scholarships investment | 1 million KRW | 80 | 57 | 64 | Childcare center investment, etc. |
| Investments in environment and culture | 1 million KRW | 28 | 36 | 18 | Environmental cleaning, etc. |
| Others | 1 million KRW | 9,561 | 8,618 | 14,163 | |

LOTTE CHEMICAL'S DECLARATION OF HUMAN RIGHTS

As a global chemical company that looks forward to a prosperous future, led by the trust of our stakeholders, Lotte Chemical aims to realize its social responsibilities and ensure sustainable growth. Lotte Chemical hereby declares that we will support international standards with respect to human rights, including the United Nations Universal Declaration of Human Rights and UN Guiding Principles on Business and Human Rights (Ruggie Framework) endorsed by the UN Human Rights Council, and fulfill our responsibilities in relation to them.

Lotte Chemical hereby publicly announces that we will do our utmost to prevent any possible human rights infringements from occurring in the course of management, and we will respect and protect the human rights and free will of all our stakeholders, including customers, employees, local communities, and business partners, as mentioned below.

Human Rights of Employees

- Prevention of unfair discrimination based on gender, race, religion, disability, and regionalism, etc.
- Prevention of unjust labor practices, such as child and forced labor, on a fundamental level
- Compliance with all principles regarding labor – safety and healthy and working hours – recommended by the International Labor Organization and ratified by each country

Human Rights of Customers

- Demand for personal information kept to the minimum, recorded and saved in compliance with laws
- Optimal security system to prevent information leaks, including data encryption
- Limited and responsible use of personal information for service/marketing purposes

Human Rights of Local Communities

- Identify our social responsibilities and actively take part in social contribution activities to promote local development
- Consider and manage the impact of activities that might cause environmental and social issues
- Establish fair and equitable business relationships with partners for coexistence
- Prevent forced/child labor as well as discrimination against members of business partners

Lotte Chemical will fully execute our human rights policy to be followed by subsidiaries and partners as a responsible corporate citizen in the global business environment and will apply maximum efforts to stabilize and disseminate human rights management.

Thank you.



June 2018

President & CEO, Lotte Chemical Corp. **Kim Gyo-hyun**

THIRD PARTY ASSURANCE STATEMENT

To the Readers of LOTTE CHEMICAL Sustainability Report 2017:

Foreword

Korea Management Registrar Inc. (hereinafter “KMR”) has been requested by of Lotte Chemical Sustainability Report 2017 to verify the contents of its 2017 Sustainability Report (hereinafter “the Report”). Lotte Chemical is responsible for the collection and presentation of information included in the Report. KMR’s responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.

Scope and Standard

Lotte Chemical describes its efforts and achievements of the corporate social responsibility activities in the Report. KMR performed a Type 2, moderate level of assurance using AA1000AS (2008) as an assurance standard. KMR’s assurance team(hereinafter “the team”) evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI Standards indices as below, where professional judgment of the team was exercised as materiality criteria.

- GRI Reporting Principles
- Universal Standards
- Topic Specific Standards
 - Management approach of Topic Specific Standards
 - Economic Performance: 201-1, 201-3
 - Market Presence: 202-1
 - Indirect Economic Impacts: 203-1, 203-2
 - Anti-Corruption: 205-1, 205-2, 205-3
 - Anti-Competitive Behavior: 206-1
 - Materials: 301-3
 - Energy: 302-1, 302-2, 302-3, 302-4, 302-5
 - Water: 303-1, 303-2, 303-3
 - Emissions: 305-1, 305-2, 305-4, 305-5, 305-6, 305-7
 - Effluents and Waste: 306-1, 306-2, 306-3
 - Environmental Compliance: 307-1
 - Employment: 401-1, 401-2, 401-3
 - Labor/Management Relations: 402-1
 - Occupational Health and Safety: 403-1, 403-2, 403-3, 403-4
 - Training and Education: 404-1, 404-2, 404-3
 - Child Labor: 408-1
 - Forced or Compulsory Labor: 409-1
 - Human Rights Assessment: 412-2
 - Customer Health and Safety: 416-1, 416-2
 - Marketing and Labeling: 417-1, 417-2, 417-3
 - Customer Privacy: 418-1

This Report excludes a data sand information of joint corporate, contractor etc. which is outside of the organization, i.e. Lotte Chemical, among report boundaries.

Our Approach

In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, the team has carried out an assurance engagement as follows:

- Reviewed overall report
- Reviewed materiality test process and methodology
- Reviewed sustainability management strategies and targets
- Reviewed stakeholder engagement activities
- Interviewed people in charge of preparing the Report

Our Conclusion

Based on the results we have obtained from material reviews and interviews, we had several discussions with Lotte Chemical on the revision of the Report. We reviewed the Report's final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, the assurance team could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come to our attention that causes us to believe that the data included in the verification scope are not presented appropriately.

Inclusivity> Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability

- Lotte Chemical is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder Lotte Chemical left out during this procedure.

Materiality> Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders.

- Lotte Chemical is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out in this process.

Responsiveness> Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders.

- The assurance team could not find any evidence that Lotte Chemical's counter measures to critical stakeholder issues were inappropriately recorded in the Report.

We could not find any evidence the Report was not prepared in accordance with the 'Core Option' of GRI standards.

Recommendation for Improvement

We hope the Report is actively used as a communication tool with stakeholders and we recommend the following for continuous improvements.

- The report found that Lotte Chemical was engaged in a transparent communication with its stakeholders on the company's economic, social, environmental achievements and goals. In the future, we recommend to provide more detailed information including insights on the company's organizational strategies and their effect on the capabilities of creating short, medium, long-term values as well as capital and its use.

Our Independence

With the exception of providing third party assurance services, KMR is not involved in any other Lotte Chemical's business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.



June, 8th, 2018

CEO **Eun Ju Hwang**

*More
than
Chemistry*

LOTTE CHEMICAL SUSTAINABILITY REPORT 2017

