Chemical Industry's Commitment to Sustainable Development

Responsible Care

Issue No + 40

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CONTENTS

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Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Responsible Care® is a voluntary program in the chemical industry continuously promoting the environment through safety and health improvement activities by pledging commitment and implementing it through management policy to protect the environment, safety and human health throughout its entire lifecycle from the development of chemical products to its manufacture, sale, distribution, use and disposal.

BECOMING THE MAIN ARTERY OF KOREA'S FUTURE INDUSTRY IN THE ECO-FRIENDLY ENERGY BUSINESS

Mr. Park Il-young, President & CEO
Air Liquide Korea

Air Liquide Korea Co., Ltd. is a Korean subsidiary of Air Liquide Group, a global leader in industrial and medical gas, technology and services. Since 1996, it has been providing industrial gas and related services to contribute to the growth of major domestic industries (petrochemical, refinery, steel, electronics industries) and to meet eco-friendly demands. In addition, it is trying to lay the groundwork for future eco-friendly energy business such as hydrogen energy.

Air Liquide's industrial gas solutions are essential to its customers' production activities, contributing to customers' performance and energy efficiency. Air Liquide Korea provides industrial gas through pipelines to oil, chemical, steel and energy companies. Pipelines connected to its customers' production network ensure long-term, continuous gas supply based on high reliability. Air Liquide Korea supplies gas to its customers in the major petrochemical and refinery industries located in the Yeosu industrial complex through pipelines of about 40km.

At the same time, hydrogen, an eco-friendly clean energy, is one of the solutions to address the pending issues of reducing greenhouse gas emissions and air pollution along with high dependence on petroleum. Hydrogen energy is a fast-growing field and Air Liquide plays a major role in the entire hydrogen industry chain. Air Liquide's Hydrogen Business Division in Korea is striving to expand the supply of hydrogen-powered electric cars through development of the domestic hydrogen energy infrastructure ranging from production of hydrogen to storage/transportation and production/installation/operation of hydrogen filling stations.

Please introduce Air Liquide Korea

Since 1996, Air Liquide Korea Co., Ltd. has been providing industrial gas and related services to contribute to the growth of major domestic industries(petrochemical, oil refining, steel, electronics industries) and to meet eco-friendly demands.
Especially, since 2000, Air Liquide Korea has been supplying hydrogen and carbon monoxide to major customers in the pipeline system at Yeosu Industrial Complex and is trying to lay the groundwork for future eco-friendly energy business such as hydrogen energy.

As a multi-national enterprise producing hydrogen and carbon monoxide, Air Liquide Korea is contributing to the growth of major industries (petrochemical, oil refining, steel and electric commerce). Please briefly introduce a typical future eco-friendly energy business and direction for implementation.

Air Liquide plans to play various roles to promote the growth of the hydrogen-powered electric car market in Korea. Air Liquide will cooperate with Hyundai Motors, Korea Gas Corporation and other key interested parties in investing in hydrogen energy infrastructure to provide hydrogen filling stations and hydrogen supply networks for the supply of large-scale hydrogen-powered electric cars by 2020. We will also develop and invest in a competitive supply-chain solution to supply hydrogen from the hydrogen production plant to hydrogen filling stations and contribute to progressively reducing carbon dioxide emitted from hydrogen production. In this regard, we are already running the Blue Hydrogen program. In order to suggest the vision of hydrogen as an energy conversion solution, Air Liquide has planned a program of producing at least 50% of hydrogen in the process without carbon dioxide emissions by 2020 by means of biogas reforming, waster electrolysis using electricity supplied from the regenerated energy source, and natural gas reforming through the technologies of carbon dioxide capture and storage, and is currently operating this program. This is the commitment of Air Liquide, which is preparing for the era of eco-friendly hydrogen energy.

Air Liquide Korea places great importance on social responsibility, such as helping children and cleaning up the environment for local communities and is actively engaged in social contribution activities. Please tell us about your sustainable management and social contribution activities.

As part of the '"Act for a Clean and Safe Community," which is a social contribution activity for fostering clean and safe local communities, Air Liquide Korea has proceeded with cleanups of local children's centers and local communities near business sites through the programs, "Safe Day" and "Clean Day." Recently we have been carrying out various social contribution activities such as charity bazaars, community volunteer activities, and donations to the Children's Foundation with the in-house volunteer activity club as the central player.

As for eco-friendliness, the industry is considering various ways to combat the problem now. There is also growing public interest in hydrogen and eco-friendly energy. What is your opinion on the demand of eco-friendly energy and the future course of development in Korea?

Since the Paris Convention on Climate Change in 2016, major countries have been implementing strong regulatory policies and incentive schemes in order to expand the supply of renewable energies and energy conversion. In Korea, interest is picking up in enhancing the use of renewable energy and energy efficiency across industries to achieve the goal of reducing greenhouse gas emissions by 2030 (carbon dioxide emissions - 37% in BAU).

In this age of energy conversion, hydrogen is very highly utilized as an energy source that can be used omnidirectionally in most of the fields requiring energy in modern society, such as power generation, household use, transportation, etc., and it is expected to emerge as the ultimate eco-friendly energy. In addition, new business related to hydrogen is expected to be activated, thereby contributing greatly to creation of new jobs.

Air Liquide launched the Hydrogen Committee in January 2017 with global industry leaders and is now taking an active part in creation of the hydrogen energy society around the world by co-chairing the Committee together with Hyundai Motors. Especially, as for the hydrogen electric vehicle market, which is considered as one of the measures to cope with fine dust in Korea recently, Air Liquide possesses various advanced technologies of hydrogen filling stations and has experience in supplying and operating more than 100 hydrogen filling stations worldwide.

Based on this, we will actively cooperate in establishing a hydrogen energy society in Korea including participation in the business agreement contract for "foundation of special purpose corporation for establishment and operation of hydrogen filling stations" concluded by 18 institutions including the Korean government and the industrial sector on April 25.

Tell us about the talented people recruited by Air Liquide Korea and the principle of human resources development.

The concept of "talented people" means more than people with skills. Air Liquide's talents are those who will lead the group to success with their abilities, passion and endeavors.

Air Liquide believes in the power of people and their talents. The goal of the Company is to improve performance by developing such talents. Employees must actively pursue career development for these goals and we also are helping employees to gain diverse experience through internal transfer (geographical or business-functional) which is one of the main driving forces of career development. This is because we think the key of the Company's development is the employees' constant dedication and creativity.

It is said that Air Liquide is currently reviewing establishment of a production plant in Yeosu Industrial Complex. Please tell us how the project is progressing.

Air Liquide has been supplying hydrogen and carbon monoxide through pipes to Yeosu Industrial Complex since 2000. Yeosu Plant 4 is under construction to cope with increasing customer demand and to improve supply stability. The new plant will be equipped with world-class technologies that guarantee the highest level of safety and reliability as well as energy efficiency.

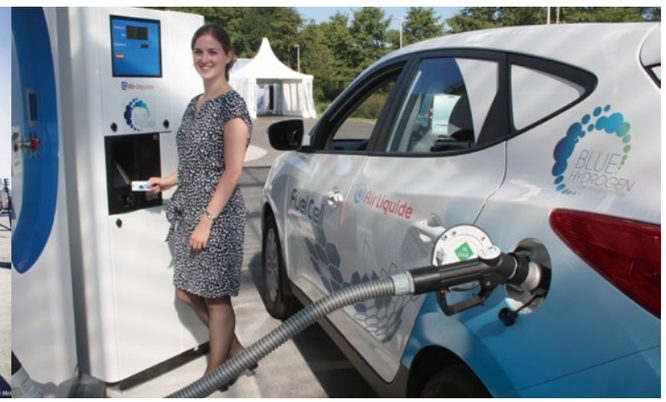
Please tell us about Air Liquide Korea's future goals. What is your vision of the future?

What will Korea look like in 100 years? Air Liquide Group started in France 116 years ago. Comparing Air Liquide's business one hundred years ago with the current one, we find that there are some common areas between the two, while others are completely different. A hundred years from now, Air Liquide Korea may be offering products and services to its customers in an area different from the current business area. However, the value of Air Liquide, which has been lasting over 100 years, will be the same after 100 years.

Finally, please let us know if you have any wishes for industry, academia, researchers, and the government regarding sustainable development.

Sustainable development is an obligation for the older generation for future generations. I hope that the platform for sharing various research results and success stories will expand and develop as "shared joy is a double joy."





2018 Results and Implications of the RC Leadership Group conference

The RCLG Conference of the first half of 2018 was held from April 16 to 17 in Dubai, UAE, with 34 attendees from 24 countries including RCLG Chairman Patrick Vandenhoeke. The RCLG Conference is held twice annually both in the first and the second half of each year, and it is a venue for sharing and discussing the international RC trends and RC implementation status by country.
The major items discussed at the RCLG Conference in the first half of 2018 were as follows.

Concluding an MOU with the International Chemical Trade Association (ICTA)

The RC, pursuing management of chemicals from production to disposal, agreed on mutual cooperation with ICTA, which represents the worldwide distribution of chemicals, and the representatives of each organization attended the RC, ICTA Board Meeting and General Meeting, making their positions clear.
Especially in developing countries where distribution of chemicals is more common than manufacturing, enhancing international cooperation among chemical distributors can improve the chemical management system. We plan to strengthen the competence of managing chemicals with countries of mutual interest (China, Africa, the Middle East, etc.) through conclusion of MOUs and to share work through international events including SAICM and participation in conferences and workshops.

Cooperation with the United Nations Environmental Program (UNEP)

The RCLG has been endorsed by the Board of Directors to continuously implement the four tasks of working with the UNEP in reference to requiring more specific goals that are linked with SDGs goals and should be pursued by all interested parties including the industrial world. The four tasks consist of ①Discussing knowledge and information sharing; ②Researching sustainable development outcomes; ③RC and GHS support in Argentina; and ④RC support activities in Kenya. Both ICCA and UNEP will hold a circular economic symposium in September. Recently, awareness of marine plastic problems has been rapidly spreading throughout the world. In response to this, CP&H of ICCA has explained that they established a taskforce to investigate information on microplastics (regulation on plastics, microplastics, wastes and products) and are improving the understanding of various potential risks to human health and the environment.
Through this, CP&H has planned to establish an implementation plan of ICCA for achieving the sustainable development goals (SDGs) by introducing an implementation strategy based on scientific facts, promoting sustainable use and management of materials, recognizing the value of plastics and generating common opinions of the industrial world on the marine plastic issue. Regarding plastic pollution, it was suggested that education for consumers and distributors should be essential, focusing on prevention of contamination, waste management solutions and human behavior as the primary cause of contamination.

Cooperation with Organization for the Prohibition of Chemical Weapons (OPCW)

The RCLG explained that both ICCA and OPCW are collaborating on chemical accident prevention and security activities, which is a common area of concern, and that it is stated in the OPCW's "The Hague Ethical Guidelines."
In addition, RCLG has clarified that the use of toxic chemicals for weapons has emerged as new challenges and there is a limit to solving these challenges through the OPCW alone.
Accordingly, RCLG shared various events and related works of the ICCA and OPCW (workshops, conferences, etc.), expressed its opinion on the need for guidelines for sustainable development, including the social responsibility of the industry, and concluded that this issue should be discussed at the ICCA Board of Directors in the future.

Support and Approval of 2018 Capacity Building

The RCLG supports budget (the Capacity Building) for the RC activities carried forward by the Member States for the sake of proliferation and sustainable development of RC. Capacity Building TF is organized to efficiently support and utilize the budget and it deliberates and approves the action plans submitted by the member countries. In 2018, the total budget of € 362,500 was approved for supporting 27 countries, and the content of the offered support is as follows:

1. ASEAN	€ 17,000	10. India	€ 20,000	19. Russia	€ 8,925
2. Australia	€ 8,500	11. Indonesia	€ 12,750	20. Singapore	€ 9,775
3. Brazil	€ 12,750	12. Kenya	€ 21,250	21. Slovenia	€ 8,500
4. Bulgaria	€ 7,000	13. Morocco	€ 14,875	22. South Africa	€ 8,500
5. China-AICM	€ 12,750	14. Myanmar	€ 12,750	23. South Korea	€ 5,525
6. China-CPCIF	€ 12,750	15. Pakistan	€ 12,750	24. Sri Lanka	€ 19,550
7. Colombia	€ 12,750	16. Philippines	€ 6,375	25. Thailand	€ 8,500
8. Croatia	€ 4,500	17. Poland	€ 5,374	26. Turkey	€ 4,000
9. France	€ 8,500	18. Romania	€ 3,000	27. Vietnam	€ 17,000

In addition, during the Conference on this day, detailed guidance on the use of Capacity Building funds was explained and the results reporting format was also outlined for effectively evaluating the activities.
In response to this, there was an opinion that more time was needed to share the activities of each country more actively. In addition to reporting the results, RCLG said they would try to make time for sharing related activities.

Relationship between RC and Sustainable Development Goals (SDGs) and the Establishment of a Development Strategy

At the recent Davos Forum, the United Nations (UN) presented 17 common goals, namely, Sustainable Development Goals (SDGs), which must be addressed at the global level, among various issues occurring throughout the world. The UN also explained that it focused on simultaneously optimizing the impact on societies, the environment and global economies in relation to internationally sustainable development.

Though the RC has made a significant contribution to sustainable development goals in the past, it is said that as interest in sustainable development increases throughout the world, many countries and interested parties are raising questions about the relationship between RC and sustainable development.
At the Conference, the attendees concluded that the RC should maintain a complementary system with the sustainable development of the United Nations and added that the key issues facing the chemical industry (e.g. product stewardship, environmental protection, occupational and process safety, emergency response, community involvement, chemicals transport, security management) should be continuously dealt with.
In addition, RC explained that it will organize a TF with ICCA in order to achieve the UN's sustainable development goals and to maintain a complementary system with the UN while continuing with both external and internal activities, which aims at better communicating the essential role of RC that supports broader sustainable development.

Internally, RC will clarify its position on sustainable development, how to promote sustainable development, including definitions and nomenclature, and its stance on environmental and safety issues (circular economy, marine waste, microplastics, etc.).
Externally, RC will carry forward its plan to realize its own sustainable development, disclose information to the outside world and strive for communication about sustainable development with related organizations (UN Environment Program, WBCSD, OPCW, E & CC LG, etc.).

Implications and Future Plans

In recent years, international issues have been occurring continuously, which cannot be solved by individual countries single-handed, but require mutual cooperation among countries. In this context, the need is raised that rather than one entity approaching problems by itself, diverse professional entities should respond to such issues jointly through close cooperation one another.
RC is also striving to provide fundamental solutions to the recent environmental safety issues by continuously cooperating with chemical-related organizations such as the United Nations Environment Program (UNEP) and OPCW in recent years and sharing relevant issues carried forward. In addition, overseas multinational enterprises are striving to fulfill their social responsibilities by carrying out relevant activities initiatively for achieving the 17 Sustainable Development Goals (SDGs) announced by the UN and disclosing them publicly.
The Korean RC Association will also continue to share these activities of overseas multinational enterprises with its member companies. All Korean chemical companies should thus take responsibility as members of the chemical industry apart from the scale of their company and participate in the related activities and goal achievement in accordance with the international trends related to sustainable development.

• Activities of Overseas Multinational Enterprises •

① **BASF:** Improved nutrition status of low-income groups for enhancing productivity of the local population and provided technical support and product solutions with scientific competence to local food producers through the "Food Fortification" movement (UN Sustainable Development Goal No. 2)

② **Sumitomo Chemical Co., Ltd.:** Led producing, distributing and using insecticide-treated bed nets for prevention of malaria in Africa to protect children (UN Sustainable Development Goal No. 3)

③ **Dow:** Provided safe and clean drinking water through desalination of seawater worldwide and distributed technology to remove parasites, bacteria, etc. by applying plastic resin to water purification equipment (UN Sustainable Development Goal No. 6)

④ **Braskem:** Implementing programs to reduce waste, save water and energy, and improve worker safety at overseas sites through innovative management of all phases of the products and seeking strategies to provide solutions for this (UN Sustainable Development Goal No. 11)

⑤ **Dupont:** Striving for realization of more efficient and clean energy future and job creation through establishment of eco-friendly energy systems and expansion of employment by commercializing advanced low-carbon biofuels such as cellulose ethanol and bio-butanol and constructing eco-friendly energy system through expanded production of solar panels (UN Sustainable Development Goal No. 9)

Enactment and Amendment of Main Legislation on Environmental Safety in 2018

01 Prior Announcement of Legislation for Overall Amendment of the Occupational Safety and Health Act (February 9 ~March 21)

○ Prohibition of contracts for harmful and dangerous work (Draft Article 58)

- **(Content)** Prohibiting some of the works currently subject to authorization from being plated

  * ①Plating, ②Refining, injection, processing and heating of mercury and lead, ③Manufacturing and use of substances subject to authorization (Draft Section 1 of Article 123)

○ Introduction of contracting approval system for harmful and dangerous works (Draft Article 59)

- **(Content)** Adopting the approval system of Ministry of Employment and Labor for harmful and dangerous work designated by Presidential Decree
- **(Detail)** ①Contract approval validity period (3 years) granted, ②When changing the contents of approved contract work, prepared a change approval process, ③Adding work such as modification of facilities for treatment of sulfuric acid, hydrofluoric acid, nitric acid, and hydrochloric acid to the subject of contract approval

○ Prohibition of subcontracting for approved contract work (Draft Article 60)

- **(Content)** A contractee who has received contract work approved in accordance with Article 59 of the Act is prohibited from subcontracting the work

○ Expansion of safety and health measures duty for subcontractor (Draft Article 62 and 63)

- **(content)** ①Expansion of the designation scope of the general manager of safety and health related to the contract (place where the contractor and the contractee work together ⇒ all places) ②Expansion of the places for safety and health measures for the contractee from existing 22 places to all places (Article 30 of the Enforcement Regulations of the current Act)

○ Establishment of plan on safety and health by CEO (Draft Article 13)

- **(content)** The CEO of the company shall establish a safety and health plan and report it to the board of directors and receive their approval.

○ Measures taken by the Minister of Employment and Labor in the event of a fatal accident (Draft Article 55)

- **(content)** Granting to a separate deliberation committee the authority to specify the task* to be stopped and to release the suspension of the task

  * ① The corresponding work in which a fatal accident occurred, ② Same work as that involving fatal accidents in the same workplace, ③ Other work that is likely to cause industrial accidents in connection with the cause of a fatal accident

○ Owner's safety and health measures (obligations of the owner in each phase of construction) (Draft Article 75)

- **(Content)** Obligation of safety and health measures shall be imposed on the business owner ("the owner") who ordered the construction work in each phase of planning, designing and construction

  *Owner: An employer who has contracted a construction work to another person pursuant to Article 2 (10) of the Act and does not lead the construction work

○ Preparation and submission of material safety data sheet (MSDS) (Draft Article 113)

- **(Content)** ① Changing the subject to preparation of MSDS from a person who transfers or provides the existing chemical substances to a person who manufacturers or imports the substances, ② There is no obligation to submit at present, but after the amendment, all the MSDS should be submitted to the Ministry of Employment and Labor (disclosure of information on constituents, name and content of chemical substances)

  *Objects to be submitted: Chemicals causing health problems of workers, etc. (Article 39 of the existing Act, Draft Article 107)

○ Provision of material safety data sheet (MSDS) (Draft Article 114)

- **(Content)** In principle, the person providing the MSDS shall disclose and provide all information to the transferor or recipient of the MSDS.

○ Closed assessment of material safety data sheet (MSDS) information (Draft Article 115)

- **(Content)** ①For keeping the constituents and the contents in the MSDS closed, approval from the Ministry of Employment and Labor is required, ②Establishing valid period of closed items such as constituents and content (3 years)

○ Disclosure of material safety data sheet (MSDS) (Draft Article 120)

- **(Content)** The Minister of Employment and Labor shall disclose the contents in the MSDS (MSDS manufacturer or importer, name and content of constituents, information on harm and danger, etc.) (Online, etc.)

○ Introduction of the low limit of imprisonment (Draft Article 172)

- **(Content)** Introduced the low-limit imprisonment system (imprisonment for one year or longer) for those who caused workers to die in violation of safety and health measures for workers and safety and health measures obligation of the contractor.

02 Prior Announcement of Legislation for Some Amendments of Clean Air Conservation Act (May 4 ~ June 14)

○ Nitrogen oxide added to the imposition items of air emission charges

- Nitrogen oxide was added to the imposition items of the basic emission charges and excess emission charges (Newly creating Draft item 3 of first clause and item 10 of the second clause of Article 23)

① **(Unit price of imposition)** KRW2,130/kg (Amendment Draft of Enforcement Decree in the Attached Table 4): Considering the result of industry consultation (17) and treatment cost of NOx at the site of industry

* Treatment cost = (installation cost of prevention facilities + operating expenses)/reduced amount of nitrogen oxide

② **(Imposition coefficient by concentration, etc.)**Imposition coefficient by concentration[1], imposition coefficient by region[2] and computation index of imposition amount by year[3]

1) Imposition coefficient by concentration: Coefficient to impose differently according to emission concentration compared with allowable emission standard
2) Imposition coefficient by region: Coefficient to impose differently according to location of workplace
3) Computation index of imposition amount by year: Coefficient notified annually to consider an inflation rate, etc.

③ **(Implementation time)** Considering the time required to invest in environmental facilities, it shall be implemented from the date of one year after the promulgation, increasing the minimum concentration of imposition step-by-step

[Phased implementation time and exemption criteria]

	Grace period	Phase 1	Phase 2	Phase 3
Implementation time	One year after promulgation	One year after promulgation ~ '20.12.31	'21.1.1 ~ '21.12.31	'22.1.1 ~
Minimum concentration of imposition	-	70% of allowable emission standard	50% of allowable emission standard	30% of allowable emission standard

④ (Emission coefficient of Air Pollutants) Adding emission coefficient for nitrogen oxides to the emission coefficient needed to calculate the emissions when imposing a basic charge

[Outline for improved system of emission charges (draft)]

Category	Excessive emission charge (1983 ~)	Phase 3
Goal (character)	Compliance with allowable emission standard (penalty)	'22.1.1 ~
Target to impose	workplace exceeding allowable emission standard (class 1~5)	Implementation time
Items to impose (unit price)	① Dust (770 won/kg) ② Sulfur oxide (500 won/kg) ③ Ammonia (1,400 won/kg) ④ Hydrogen chloride (7,400 won/kg) ⑤ Hydrogen sulfide (6,000 won/kg) ⑥ Carbon disulfide (1,600 won/kg) ⑦ Fluorine compounds (2,300 won/kg) ⑧ ~~Chlorine (7,400 won/kg)~~/nitrogen oxide (2,130 won/kg) ⑨ Hydrogen cyanide (7,300 won/kg)	① Dust (770 won/kg) ② Sulfur oxide (500 won/kg) ③ Nitrogen oxide (2,130 won/kg)
Method of calculation	[In case of self-improvement] ① Excess emissions × ② Imposed unit price × ③ Regional imposition coefficient × ④ Yearly calculation index [When confirmed by instruction and inspection] ① Excess emissions × ② Unit amount of imposition × ③ Imposition coefficient by excess rate compared with emission standards × ④ Imposition coefficient by region × ⑤ Yearly calculation index × ⑥ Imposition coefficient by number of violations	① Emissions within standards × ② Unit amount of imposition× ③ Calculation index by year × ④ Imposition coefficient by region × ⑤ Imposition coefficient by concentration
Period of Imposition	From the time of excess to completion of improvement	Every half year (twice a year)
Exemption	Emissions facilities using liquefied natural gas or liquefied petroleum gas as fuel (dust, sulfur oxides)	

- Newly establishing an excess emissions charge calculation standard (Attached Table 4) and a daily excess emission calculation method (Attached Table 5) in order to impose excess charges on nitrogen oxides
- Classifying imposition coefficient by concentration of the basic charge and method of calculating the amount of emission depending on presence or absence of self-measurement (Attached Table 8, 9)
- Newly establishing an imposition coefficient by concentration for facilities without self-measurement result and an imposition coefficient of nitrogen oxide by concentration for facilities with self-measurement results (Attached Table 8)

▷ Attached Table 8 ◁

1. Facilities without self-measurement result, etc. under Paragraph 1 of Article 39 of the Act

A. Facilities emitting sulfur oxides by burning fuel

Category	Sulfur content of the fuel (%)		
	0.5% or less	1.0% or less	More than 1.0%
Imposition coefficient by concentration	0.2	0.4	1.0

B. The imposition coefficient of the facilities for the facilities emitting sulfur oxides except for that of Item A shall be 0.15, 0.15 for the facilities emitting dust, and 0.15 for the facilities emitting nitrogen oxides.

2. Facilities with self-measurement result, etc. under Paragraph 1 of Article 39 of the Act

Category	Percentage of allowable emission standard			
	Less than 30%	30% or more less than 40%	40% or more less than 50%	50% or more less than 60%
Imposition coefficient by concentration	0	0.15	0.25	0.35
Category	**Percentage of allowable emission standard**			
	60% or more less than 70%	70% or more less than 80%	80% or more less than 90%	90% or more less than 100%
Imposition coefficient by concentration	0.5	0.65	0.8	0.95

3. Notwithstanding Subparagraph 2, the imposition coefficient by concentration for nitrogen oxides is applied to each Item as follows.

A. The coefficients to be applied from the date one year after the promulgation until December 31, 2020

Category	Percentage of allowable emission standard			
	Less than 70%	70% or more less than 80%	80% or more less than 90%	90% or more less than 100%
Imposition coefficient by concentration	0	0.65	0.8	0.95

B. Coefficients to be applied from January 1 to December 31, 2021

Category	Percentage of allowable emission standard		
	Less than 50%	50% or more less than 60%	60% or more less than 70%
Imposition coefficient by concentration	0	0.35	0.5
Category	**70% or more less than 80%**	**80% or more less than 90%**	**90% or more less than 100%**
Imposition coefficient by concentration	0.65	0.8	0.95

C. Coefficients to be applied from January 1, 2022: Subparagraph 2 shall be applied

○ Changes in the imposed item names of excess emission charges

- Changing "fluorine compound" to "fluoride" in Subparagraph 6 of Paragraph 2 of Article 23 of the Enforcement Decree and Item A of the Attached Table 4 and 5 respectively

- Changing "Specific Hazardous Substances" in the Attached Table 4 of the Enforcement Decree to "Specific Atmospheric Hazardous Substances"
- Deleting the items of chlorine from Subparagraph 8 of Paragraph 2 of Article 23 of the Enforcement Decree and Item A of Attached Table 4 and 5 respectively

○ Reinforcing collection of charges for the submission of false data on emissions (Draft Subparagraph 3 of Article 30)

- If the emission data are falsely submitted, it is required to add 20% to the emissions measured at the site. In this case, based on the estimation that the pollutants from the workplace have been discharged to the maximum (allowable emission standard concentration, the maximum capacity of the emission facilities, and working 24 hours a day), 20% shall be added.

○ Payment of emission charges by credit card (Newly creating Article 36-2)

- Improving the system so that charges can be paid by credit card or debit card for convenient payment.

03 Prior Announcement of Legislation for Certain Amendments to the Chemicals Control Act (May 3 ~ June 12)

○ Changing the system from submitting the chemicals confirmation statement to reporting the chemicals confirmation (Draft Article 9)

- **(content)** ① Converting the system from confirming the existence of toxic substance in the manufactured or imported chemicals and submitting the result to just reporting the result, ② Reporting required when major matters are changed (delegated to the Ordinance of the Ministry), ③ Assigning a unique number to the relevant substances according to the report and issuing the chemicals identification certificate, ④ Establishing a system for granting validity period (5 years) of chemicals confirmation report and reporting renewal of such validity period
- **(Subject)** existing submission subject (seven accident preparedness substances) + priority control substances stipulated in The Act on the Registration and Evaluation of Chemicals (added)

○ Providing information on downstream users, etc. (Draft Article 9-3)

- **(content)** ① The transferor of chemicals is obliged to provide information* on the relevant chemicals to the transferee (if MSDS is prepared and provided under the Occupational Safety and Health Act, such information can be included in the MSDS) ② If the provided information is changed, the result should be guided to transferee within one month. (Method of creation and guidance shall be delegated to the Ordinance of the Ministry.)

*Chemicals identification number, hazardous chemical content information, hazard / risk information, safety handling information, etc.

○ Indicating the hazardous chemical substances, etc. (Draft Article 16)

- **(Content)** Adding items to be marked on hazardous chemical containers and packaging (chemical identification number)

○ Abolishing the declaration for import of toxic substances (Draft Article 20)

- **(Content)** Abolishing the declaration for import of toxic substances due to duplication following the conversion into the chemicals confirmation declaration system under Article 9 of the amended draft of the Act

○ Improving the system of impact evaluation outside of the business place (Draft Article 23)

- **(Content)** Defining the subject exempt from creating the impact evaluation on the outside of the business place (In case that there is less impact following chemical accident occurring in the laboratory under the Act on the Establishment of Safe Laboratory Environments (delegated to the Environment Ministry Ordinance)), ② Preparing for regulations on the subject to submit amendment of impact evaluation on the outside of the business place (Constructing and expanding the handling facilities in the same workplace, changing the location of the handling facilities in the same workplace, changing hazardous chemicals, etc.)

○ Improving the management standards for hazardous chemical handling facilities (laboratory) (Draft Article 24)

- **(Content)** The laboratory operated in compliance with The Act on the Establishment of Safe Laboratory Environment shall be exempt from periodic and occasional inspection defined in Chemicals Control Act. (except for the facilities for test production (pilot facilities) delegated by Environment Ministry Ordinance)

○ Obligation to report changes related to contracts for handling hazardous chemicals (Draft Article 31)

- **(Content)** In case that important matters are changed among the contents of the existing contract report, the obligation of reporting such changes is incurred (beneficiary and content and period of the contract are delegated to Ordinance of Ministry.)

○ Adding actions subject to revocation of the business license and suspension of operation (Draft Article 35)

- **(Content)** Adding targets of the administrative disposition in case that information on hazard and danger of chemicals are not provided on top of the existing 26 violations

○ Clarifying the subject exempted from submission of the hazard control program (Draft Article 41)

- **(Content)** The exemption clause of the hazard control program shall be prepared in case that there are no facilities handling accident preparedness substances (Draft Article 41)

○ Planning to notify the local community of the hazard control program (Draft Article 41)

- **(Content)** The local community notification plan shall be included in target of the control program review*, the notification method should be registered and notified in the comprehensive chemicals information system, and the information shall be notified in two ways out of written notice, individual explanation, or collective delivery

* ① Information on hazard of handling materials and risk of chemical accidents, ② Scope of impacts such as air, water quality and groundwater in case of an accident, ③ Method of delivering information to residents, tips on residents' evacuation when an accident occurs, etc.

○ Matters related to changes in the fee system (Draft Article 54)

- **(Content)** Abolition of toxic substance import declaration fee and establishment of handling facilities installation and inspection fee

○ Penalty and fine (Draft Article 59, Article 61, Article 62 and Article 64)

- **(Content)** Failing to submit or falsely submitting the impact evaluation on the outside of the business place (up to 3 years in prison, up to KRW50 million in fines), ② Not providing information on chemicals

to downstream users (up to 1 year in prison, up to KRW30 million in fines), ③ Not declaring manufacturing or import of chemicals (up to one year in prison, up to KRW30 million in fines), ④ Not submitting the impact evaluation on the outside of the business place report on changes (up to six months in prison, up to KRW5 million in fines), ⑤ Not declaring confirmation contents of chemicals (up to KRW10 million in penalty)

04 Consumer Chemical Products and Biocides Safety Act

○ Definition and examples of biocides

Biocides	Definition	Examples
Biocidal substances	Substances have the effect of eliminating, controlling, making harmless, and inhibiting harmful organisms	PHMG, PGH, CMIT / MIT, OIT, etc.
Biocidal products	Product of which the main function is eliminating harmful organisms	Disinfectant, insect repellent, insecticide, preservative, humidifier disinfectant, ozone / ion generator, etc.
Biocide-treated products	Products having used biocidal products intentionally for secondary purposes such as elimination of harmful organisms other than their main purpose	Antibacterial air conditioner filter, deodorant socks, products containing preservative, etc.

○ Survey and hazard evaluation of consumer chemical products (Article 6 ~ Article 7)

-**(content)** The Minister of the Environment shall make it possible to implement survey of sales volume, ingredients, etc., for the daily consumer chemical products that are likely to be harmful to the public health or the environment. As a result of surveys, if there are concerns about hazards or product safety concerns are raised at home and abroad, a hazard evaluation shall be conducted and, when hazard is confirmed, the relevant product shall be designated as a "consumer chemical product subject to safety confirmation."*

* For the product designated as the consumer chemical product subject to safety confirmation, it is required that both safety standard and labeling standard on hazards shall be set for each type (such as designation of prohibited substances, restriction of chemicals content, setting of containers and packaging standards, etc.) and the testing laboratory shall check every three years whether the substance meets the safety standards.

○ Approving biocidal substances, etc. (Article 12 ~ Article 19)

- **(Content)** Manufacturers / importers of biocidal substances should submit the application for approval to the Minister of Environment by preparing the hazard and risk data of the affected biocidal substances. The Ministry of Environment shall permit only the use of biocidal substances that have proven safety in consideration of effect on human body and the environment (inhalation toxicity, persistence, etc.).
- **(Postponement of approval)** Biocidal substances distributed in the domestic market before the enactment of the law should be applied to the Ministry of Environment for postponement of approval. The Ministry of Environment, considering the period for preparing data such as creation of toxic information, shall allow the use of affected substances to be used for a certain period of time.*

*Allowing a grace period of up to 10 years in consideration of the production volume and use of the biocidal substances (The EU also postponed approval until 2024 after implementing the BPR system in September 2013.) In case the information on harm and hazard is not created or any new hazard is revealed during the grace period, manufacturing and import shall be prohibited.

** The Ministry of Environment shall notify the list of usable substances among the existing biocidal substances that have applied for the approval postponement (Dec. 31, 2019.) Non-notified substances shall be withdrawn from January 2020.

○ Approving biocidal substances, etc. (Article 12 ~ Article 19)

- **(Content)** Anyone who wants to manufacture or import biocidal products (products intended for elimination or inhibition of harmful organisms) is required to obtain the approval from the Ministry of Environment by submitting the data which evidence safety.
- **(Obligations after approval)** It is regulated that manufacturers or importers of the approved biocidal products should mark the list of biocidal substances contained in the product and risk of the product use on the surface of the product.

* Existing biocidal products are allowed for sale for up to two years from the date when the approval grace period of the biocidal substances in use is terminated.

○ Safety management of biocide-treated products (Article 87)

- **(Content)** It is regulated that, when using or treating biocidal products for ancillary use (e.g. adding antimicrobial function) besides the main use (e.g. air filter) like antibacterial filter (biocide-treated product), you should use approved biocidal products only (safety standard).
- **(Obligations after approval)** Anyone who intends to promote the functions of biocide-treated products to remove harmful organisms, etc. shall be obliged to notify the facts that biocidal products were used and attach the danger label on the container of the product (labeling standard).

○ Disclosing information and protecting data, etc. (Article 29 ~ Article 33)

- (content) Substance and product list, ham and hazard information, and details of approval for the approved biocidal substances and biocidal products should be disclosed to the public.

○ Restricting labelling and advertisement (Article 34)

- **(Content)** For consumer chemical products and biocidal products subject to safety confirmation, advertisement that can mislead consumers is prohibited, such as "safe, eco-friendly, non-toxic," etc. Any product except biocidal products and biocide-treated products is prohibited from advertising that it has the function to remove harmful organism such as "antibacterial" and "eliminating bacteria."

○ Prohibiting sales and recalling the products (Draft Article 35 ~ Article 37)

- **(Content)** If manufacturers or importers report side effects of products or product safety concerns are raised both home and abroad, manufacturers or importers shall be recommended to recall the affected products. → In case of non-implementation, regulations such as recall order shall be provided.

○ Imposing the penalty surcharge, officially announcing the violation fact, etc. (Article 38 ~ Article 40)

- **(Content)** In order to recover unfair profits from the sale of illegal products, penalties equivalent to the sales of illegal products shall be imposed (up to KRW1 billion if it is difficult to calculate the sales amount). In case the administrative disposition is confirmed due to manufacturing or importing illegal products, selling products in violation of safety standards, etc., the violation fact related to the disposition shall be announce publicly.

Members' News

Infineum Korea | Infineum

■ Joining Korea RC Council as a new member

Infineum is one of the global leaders in the lubricant and fuel additives industry and was established by ExxonMobil and Shell as a joint venture in January 1999. Currently headquartered in the UK and with priority given to Regional Business & Technology Centers in the USA, China, Japan, and Singapore, Infineum is truly the best enterprise in the industry where about 2,000 employees in more than 70 countries around the world are researching, producing and selling the world-best products through close mutual cooperation with world-renowned vehicle makers and oil refiners. Infineum emphasizes safety and health environment more than anything else and enhances corporate, customer and business value through technology excellence, reliability and collaboration. After the deliberation of the first Steering Committee in 2018 (March 26) and the second Board of Directors decision (March 30), Infineum Korea joined Korea RC Council as a new member. We expect that Infineum will achieve World Class SHE culture and performance through RC implementation.

Daelim Industrial Co., Ltd. | DAELIM

■ Carrying forward development of a petrochemical complex in the US together with PTT Global Chemical of Thailand

Daelim Industrial Co., Ltd. ("DAELIM"), together with the largest petrochemical company in Thailand, will start out in overseas investment to develop a large-scale petrochemical complex in the USA. DAELIM announced on the 30th that they will conclude an investment agreement with Thailand PTT Global Chemical, to carry forward development of a petrochemical complex in the USA together with PTTGC America, the U.S. subsidiary of PTT Global Chemical. Both DAELIM and PTT Global Chemical plan to construct and jointly operate an ethane cracking center (ECC) which produces ethylene by cracking ethane and a plant which produces polyethylene by utilizing the ethylene.

The two companies are proceeding with the business development aiming at a final investment decision making by the end of this year. Through this, the details of investment volume, stake, etc. are expected to be confirmed.

DAELIM is carrying forward this business to realize stable sales and profits in the petrochemical sector. They will secure a production base for petrochemical products with excellent cost competitiveness in the USA where there is rich domestic market and cheap raw materials are supplied. DAELIM will also complete a business portfolio of operating a petrochemical complex in Korea producing ethylene from naphtha and another one in the U.S. producing ethylene based on ethylene at the same time. The petrochemical complex will be constructed in Ohio, which is a typical shale gas producing region in the United States. Therefore, they can procure ethane, the raw material of ethylene, inexpensively. As the complex will be located in the eastern part of the USA, which accounts for 70% of the domestic polyethylene market, logistics cost will be saved, too.

DAELIM plans to complete financing by the end of this year. Then, it is expected to take about 4-5 years before the final commercial operation. When the petrochemical complex is completed, it can produce 1.5 million tons of ethylene and polyethylene products annually.

When the petrochemical complex in the USA is completed, DAELIM will secure a total production capacity of ethylene amounting to 3.45 million tons, including the YNCC plant in Korea. Through the ethylene plants in Korea and the USA, DAELIM is expected to implement customized strategies in export markets such as North America and Asia.

DAELIM plans to pioneer markets in Europea, North and South Americas based on the petrochemical plant in the USA. Until now, Korean petrochemical companies could not enter these markets due to entry barriers and high transportation costs, but it is expected for them to be competitive if the petrochemical complex in the USA is used.

Lotte Chemical Corporation | LOTTE CHEMICAL

■ The world's No. 1 production facilities of PIA product expanded about twice

Lotte Chemical Corporation ("Lotte Chemical") will make its first investment in the new year to enhance business competitiveness and maximize profitability. Lotte Chemical held a Board of Directors Meeting and resolved the plan to expand the production facilities of the purified isophthalic acid (PIA) in Ulsan by investing about KRW50 billion.

PIA (Purified Isophthalic Acid) is used as a raw material for PET, paints and unsaturated resins and it is a high value-added product produced by only seven companies in the world. Lotte Chemical is boasting the world's largest production volume since 2014. Through the decision made this time, Lotte Chemical expects to increase its existing production capacity of about 460,000 tons to about 840,000 tons, thereby further consolidating its status as the world's No. 1 supplier of PIA.

The expansion of PIA production facilities of Ulsan Plant means establishment of facilities which can produce PIA in combination with the existing PTA (Purified Terephthalic Acid), aiming at enhancing profitability by increasing production of relatively price-competitive products.

GS Caltex | GS 칼텍스

■ Establishment of olefin production facility for operating in 2022

GS Caltex will expand its olefin production facility (Mixed Feed Cracker (MFC) facility) by investing KRW2 trillion in the area of 430,000㎡ near Yeosu 2nd factory in Jeollanam-do. The new facilities can produce 700,000 tons of ethylene and 500,000 tons of polyethylene respectively per year. GS Caltex will start designing this year and construction next year, aiming at beginning commercial operation in 2022.

MFC is a facility that produces ethylene and propylene. Unlike NCC, which uses naphtha as the raw material, MFC has the advantage of being able to feed various oil components such as LPG and by-product gas produced

in the oil refining process as well as naphtha as raw materials Ethylene, which is a typical product, is converted to polyethylene through a polymerization process and is used in plastic products such as vinyl, containers and disposable products which are used variously in everyday life through the process of processing or molding.
According to IHS, a market research institution, the volume of global polyethylene market is 100 million tons per year, accounting for the largest share out of the total 260 million tons of olefins market. Global demand growth rate is solid at 4.2% per annum.
GS Caltex expects to advance into the olefin business by investing in MFC facilities and lay a foundation for building a balanced business portfolio. By expanding its business scope, GS Caltex will have an additional operating profit of more than KRW 400 billion annually and will be able to establish a foothold to advance significantly as a world-class company even in the petrochemical sector.

HYOSUNG | HYOSUNG

■ Transition to the holding company structure --- Split-off into four companies

Hyosung Group ("HYOSUNG") has been divided into a surviving corporate holding company and four business companies and re-launched its business. With this split-off, HYOSUNG has come to be divided into five companies including Hyosung Corporation, which is the holding company; Hyosung T&C Co., Ltd., which is the business company; Hyosung Advanced Materials Co., Ltd.; Hyosung Heavy Industries Co., Ltd.; and Hyosung Chemical Co., Ltd.
Hyosung Corporation and each business company had their own board of directors meeting for the first time after the split-off. At the board of directors' meeting of each entity, the holding company and four business companies elected a total of 11 directors and 20 outside directors. HYOSUNG has reinforced its objectivity and transparency by recruiting experts in various fields as outside directors.
Next, they held the comprehensive board of directors' meeting in which Chairman Cho Hyun-joon and the chairman of each company participated and discussed the win-win strategy for maximizing the synergy effect through close cooperation between companies under the holding company system.
As part of this split-off, Hyosung Corporation, the holding company, will play a role as a control tower of the group focusing on building a multi-income business portfolio and enhancing brand value for growing HYOSUNG continuously for the next 100 years. In addition, Hyosung Corporation will take the lead in improving corporate governance and realizing transparent management by managing the performance of each business company and supervising their operations so that each company can be run with the board of directors and professional executives as the center.
Four business companies will be operated as an independent management system in which professional executives are responsible, focusing on enhancement of global competitiveness. Meanwhile, HYOSUNG plans to complete the listing of each new company on July 13 and to finalize the transition of the holding company by carrying out contribution in kind and paid-in capital increase before the end of the year.

Lotte Advanced Materials | LOTTE ADVANCED MATERIALS

■ Holding a ceremony for completion of the Vietnam EP Compounding Plant

Lotte Advanced Materials held a ceremony for completion of the Vietnam EP Compounding Plant (LAMVN) at Nhon Trach Industrial Zone located in Dong Nai Province of Vietnam, attended by more than 200 people including Mr. Lee Ja-hyeong, CEO &President of Lotte Advanced Materials, Mr. Kim Jun-su, President of Lotte Advanced Materials Vietnam Co., Ltd., local related parties, main customers and employees.
By securing a production base in Vietnam with an area of 25,000㎡ and an annual EP production capacity of 21,000 tons, Lotte Advanced Materials has paved the way to have the supply system of short-term delivery in the Southeast Asian market and to expand the competitiveness of overseas business.

BASF Korea | BASF

■ Expanding the Yeosu Ultrason Plant and operating the production line

BASF, a global chemical company, has completed expansion of the high-heat-resistant thermoplastics Ultrason (poly aryl-sulfones) plant in Yeosu National Industrial Complex of Jollanam-do, Korea and started operation of the production line. With this expansion, BASF's global annual production capacity of Ultrason has increased from 18,000 tons to 24,000 tons. Yeosu Ultrason plant, which was first built in 2014, is its first factory in Asia.
Mr. Giorgio Greening, Head of BASF's Global Business Unit for Styrenic Foams and Specialty Polymer, explained, "The expansion of this time will enhance BASF's competitiveness and promote diverse uses of poly aryl-sulfones on a global level. Through expansion of production, now we can support customer growth with a high level of technology and the optimal product portfolio."
BASF is producing Ultrason at the Ludwigshafen Plant in Germany and the Yeosu Plant in Korea.
Both plants are designed to produce all the products of Ultrason (Ultrason S, E, P) and are flexible enough to supply optimized products to customers around the world.

Hanwha Chemical | 한화케미칼

■ Joining' the Recruit Merit System for Yeosu citizens

Hanwha Chemical joined the Recruit Merit System for Yeosu citizens for the win-win development with the region. Mr. Ju Cheol-hyeon, Mayor of Yeosu, and Mr. Kim Hyeong-joon, Senior Vice President of Yeosu Plant of Hanwha, entered into an agreement of the Recruit Merit System for Yeosu citizens in the mayor's office. This agreement is the third one following GS Caltex and Namhae Chemical Corporation and Hanwha Chemical plans to hire many local talents by establishing a reasonable level of merit system like the two companies. In addition, Hanwha Chemical plans to provide various incentives to the employees who are already hired or working so that they can work stably with their address in Yeosu.

Hanwha Total | Hanwha | TOTAL

■ Introducing the explosion-proof smartphone based on the wireless network in full measure

For the first time among the domestic petrochemical companies, Hanwha Total will fully introduce use of explosion-proof smartphones in the process area using wireless communication network. The introduction of explosion-proof smartphones is intended to basically prevent the possibility of a battery explosion, if it could occur once in ten thousand.

Hanwha Total will provide 350 explosion-proof smartphones to its employees, and after the period of guidance on use and enlightenment, will prohibit possession and use of mobile phones in all the process areas in Daesan Factory from March except for the safe area such as designated lounge, office, etc.

In the meantime, some companies have introduced mobile electronic devices to collect on-site data such as PDAs. However, according to the explanation of the related party of the company, it is the first case among domestic petrochemical companies to introduce explosion-proof smartphones based on the wireless communication network (P-LTE) established in the Daesan plant like Hanwha Total. Under the current law, petrochemical plants strictly restrict the use of non-explosion-proof electronic equipment in process areas. Personal mobile cell phones are also vulnerable to the possibility of battery explosion and fire caused by dropping, impact, etc. Due to the characteristics of the petrochemical plant, it is prohibited by law to possess and use cell phones in the process area as the battery explosion and fire caused by such cell phones could result in major accidents.

Therefore, most of the petrochemical plants relied on only explosion-proof transceivers for decades for communication in the process area and, as a result, have been limited to improving work systems and work efficiency in spite of changes of the times such as the development of ICT technology and the advent of the fourth industrial revolution, etc.

With the introduction of the explosion-proof smartphone, Hanwha Total not only enhances the safety of employees and the inside of the process area, but also improves facility management, collection of big data and communication in the working area by using the latest ICT technology, thereby expecting the effect of "killing two birds with one stone," which resulted in doubling the working efficiency of the petrochemical plants that had been restricted for a long time.

Hanwha Total had some difficulties in limiting the performance of smartphones in order to meet Korea's explosion-proof certification standards when introducing explosion-proof smartphones. However, Hanwha Total plans to complement such difficulties by continuously developing and distributing various applications tailored to the business needs, such as △ voice △ messenger △ photo transfer △ site proposal △ unit conversion so that employees' work can be completed at the site.

Due to the nature of petrochemical plants and oil refineries operated all-year-round, safe and stable operation of the plant is by far the best competitiveness. It is no exaggeration to say that the reason why domestic petrochemical-refining companies renewed their record-breaking business performance last year is based on the reflection effect resulted from maintaining safe and stable operation vis-à-vis overseas companies.

Hanwha Total also places safety at the forefront of management and factory operations and is making every effort to improve safety management beyond the domestic standard to the highest level in the world. As with the introduction of the explosion-proof smartphone, Hanwha Total has been concentrating its management capability on activities to prevent and minimize possibility that employees' safety could be endangered as soon as possible. This includes its obligation of high- place workers to wear a double safety belt and put on the wearable air vest of which the airbag bursts automatically when the worker falls, monitoring of safety blind spot using the portable safety management CCTV, and obligatory installation of flame protection net for vehicles operated in the complex.

Dongwoo Fine-Chem | DONGWOO FINE-CHEM

■ Donating Onnuri gift certificate to Gyeonggi Social Welfare Organization Community Chest of Korea ("Gyeonggi CCK")

Dongwoo Fine-Chem is an enterprise having continuously grown by producing touch sensors, polarizer films, color filters, chemical products (for semiconductor chips, TFT-LCD and OLED manufacturing processes), etc. and concluded a social contribution agreement for win-win with the local community together with the Gyeonggi CCK in January, practicing various sharing activities.

Previously, for the Family Month, the executives and employees of Dongwoo Fine-Chem had a mini sports day event with the children of Sung Yook Orphanage located in Pyeongtaek-si and participated in cleanup activities. Gyeonggi CCK will use the gift vouchers for the underprivileged families in Pyeongtaek-si.

AXALTA | AXALTA

■ Launching 'Cromax® EZ.' a waterborne basecoat system

AXALTA Coating Systems (NYSE: AXTA) has launched Cromax® EZ, a refinish waterborne basecoat system for repair shops that emphasizes simplicity and convenience. The new product is designed to enhance workers' convenience as seen in "EZ (meaning EASY)" included in the name, thereby having features of making easy mixing, color matching and painting possible.

Unlike the conventional method, which requires the use of a matching machine for paint mixing, this product makes it possible to mix easily by simply shaking the water-based paint, thereby improving the convenience of the work. More than 60,000 color mixing data are provided for the worker to match colors more conveniently, making easy color data measurement possible through interworking with the latest color meter. In addition, as this product is manufactured to be able to work in a painting method like that of oil painting, workers have the advantage of being able to adapt quickly to a waterborne system with minimal training.

NEWS

Holding Temporary Board of Directors' Meeting of 2018

Korea RC Council held the Temporary Board of Directors' Meeting of 2018, attended by 17 board members (9 attended and 8 delegated), including Chairman Lee Jong-hoo, at Seocho branch of Gyeongbok Palace on January 23, 2018 (Tuesday). The board meeting of this day discussed appointment of the next Chairman after expiration of the term of the current Chairman Lee Jong-hoo, in February 2018, and deliberated and resolved to submit appointment of Mr. Hong An-pyo, President & CEO of Tongsuh Petrochemical Co., Ltd. for the next chairmanship as the agenda of the 19th General Meeting

Holding the first Board of Directors' Meeting and the 19th Regular General Meeting of 2018

Korea RC Council held the first Board of Directors' Meeting and the 19th Regular General Meeting of 2018 in The Plaza Hotel on February 12, 2018 (Monday), attended by about 50 participants including Chairman Lee Jong-hu, executives and employees of member companies, RC coordinator, and related people of chemical industry. The General Meeting deliberated and resolved four issues in their original forms of the Secretariat, including ①Business and settlements report for 2017 (income: 97.8% of the budget and expenditure: 89.0% of the budget), ②Business plan and budget (draft) for 2018 (total annual budget and member's annual fee to be the same as the previous year), ③Change of the organization (change of the existing five committees (implementation, general affairs, public activities, international relations, and regulatory) to two committees (implementation, steering)), ④Changes of executives (4 newly appointed, 6 reappointed, 3 retired).

As for the changes of executives, the appointment proposal of Chairman (Mr. Hong An-pyo, President & CEO of Tongsuh Petrochemical Corp, Ltd.) resolved at the Temporary Board of Directors' Meeting held last January was deliberated and resolved in its original form. The tenue of newly appointed Chairman Hong an-pyo is two years from February 2018 to February 2020.

Holding the second Board of Directors' Meeting of 2018 (in writing)

Korea RC Council held the second Board of Directors' Meeting of 2018 (in writing from March 30 to April 6) to discuss the new membership (Infineum Korea). 15 members out of total 21 were in favor of joining and Infineum Korea was approved as a new member of the Korea RC Council.

Holding the third Board of Directors' Meeting of 2018

Korea RC council held its 3rd Board of Directors' Meeting on June 2, 2018 (Saturday) in Lakeside CC for discussing revitalization of the board members' network and an issue (on appointment of the new Chairman). On the day, the Board of Directors discussed appointment of new Chairman as the Chairman Hong An-pyo (former President and CEO of Tongsuh Petrochemical Corp, Ltd.) appointed in the 19th Regular General Meeting had retired, and resolved to appoint Mr. Chae Jong-kyeong, President and CEO of Tongsuh Petrochemical Corp, Ltd. as the new Chairman (tenure: June 2018 ~ February 2020)

Holding the first Implementation Committee of 2018

Korea RC Council held the first Implementation Committee of 2018, attended by 12 members including Implementation Director Park In (Director of LG Chem.) on April 11, 2018 (Wednesday) in the conference room of the Council. The Committee reviewed the checklist of six RC Codes (process safety, employee safety and health, pollution prevention, distribution, community awareness and emergency response, and product stewardship) created in 2013 and discussed the future plan. The RC checklist will be finalized and made in June 2018 and distributed to members.

Holding the first meeting of the Steering Committee of 2018

Korea RC Council held the first meeting of the Steering Committee of 2018 on March 26, 2018 (Monday) in the conference room of the Council, attended by nine members including Steering Director Lee Hun-shin (Director of Dow Chemical Korea, Ltd.). On this day, the Committee deliberated the issues of ① Business plan and budget (draft) for the event of "Open the Pleasant Chemistry World in 2018!" and ② New membership (for Infineum Korea) and resolved them in their original forms of the Secretariat.

Holding the Meeting of Teachers Group hosting the event of 'Open the Pleasant Chemistry World in 2018!'

Korea RC Council held the meeting of teachers group hosting the event of Open the Pleasant Chemistry World in 2018! on February 23, 2018 (Friday) in T One located in the Seoul Station, attended by Steering Director Lee Hun-shin (Director of Dow Chemical Korea, Ltd.), and 10 teachers belonging to the hosting teachers group of three regions (Seosan, Yeosu and Ulsan). At the meeting of this day, they discussed the evaluation of the results of the 2017

NEWS

event and the implementation plans for the 2018 event. They decided on the main theme of the 2018 event as "Sustainable Development Goals (SDGs) of the Chemical Industry," and resolved to develop the experimental program by selecting the related sub-topics by each region.

Attending 2018 RC Leadership Group Meeting

The RCLG meeting for the first half of 2018 was held from April 16 (Mon) to 17 (Tue) in Dubai, UAE. As many as 36 RC members from around the world attended the meeting and discussed the RC issues and the implementation plan. Main contents of discussions coincided with the UN Environment Program (UNEP), follow-up of matrix survey on the process safety, results of 2018 Capacity Building support, relation between RC and sustainability, and strategy.

Holding the 2018 Workshop on Enhancement of Safety Leadership for Executives

Korea RC Council held the 2018 workshop on enhancement of safety leadership for executives on March 15, 2018 (Wednesday) at Ulsan Lotte Hotel, attended by 25 executives from member companies. The workshop of this day was jointly held with the Safety Consulting Division of Dupont. Korea RC Council shared with the executives of member companies in charge of safety (factory managers, and executives in charge of production and the environmental safety) on the importance of the model leadership and the pragmatic method that can enhance the safety leadership at the site (Felt Leadership, Safety Observation, Safety Activity Meeting and Accident Investigation) under the subject of “How can I show my safety leadership to the employees?”

Holding 2018 Education Seminar on the Environmental Policy of the Chemical Industry

The Korea RC Council held the 018 Education Seminar on the Environmental Policy of the Chemical Industry on May 30, 2018 (Wednesday) at the Korea Chamber of Commerce and Industry, attended by about 40 executives from member companies in charge of the environment (jointly held with the Korea Petrochemical Industry Association). During the seminar, regarding the recent issues of "difficulties of petrochemical industries and their future correspondence strategies in implementing the Consolidation Act" (Section Chief Kim Jae-hyuk of Korea Environment Corporation), and the Amendment of the Clean Air Conservation Act (Ministry of Environment) they invited representatives of the Korea Environment Corporation and experts in order to introduce the environment-related laws and regulations that should be recognized by the members and to share the corporate correspondent measures.

KRCC’s Major Events in the second half of 2018

Members

Regular Members

Air Liquide Korea
AK Petrochemical
ARKEMA
Axalta Coating Systems Korea
BASF Korea
Capro
Conell Bros
Covestro Korea
Daelim Industrial
Daesung Industrial Gases
Dongwoo Fine Chem
Dow Chemical Korea
Dowcorning Korea
Dupont Korea
Eastman Fiber Korea
Evonik Korea
GS Caltex
Hanhwa Chemical
Hanhwa Total
Hanju
Hansu
Hyosung
Ineos Styrolution Korea
Infineum Korea
ISU chemical
Kolon Industries
Korea Alcohol Industrial
Korea ASK Chemical
Korea Petrochemical
KPX Chemical
KR Copolymer
Kumho P&B Chem
Kumho Petrochemical
Lanxess Korea
LG Chem
LG MMA
Lotte Advanced Materials
Lotte BP Chem.
Lotte Chem
Lotte Fine Chem
Lotte MRC
Merck
OCI
Polymirae
Samnam Petrochemical
SH Energy Chemicals
SK Global Chemical
SKC
Taekwang
Tongsuh Petrochemical
TRINSEO KOREA
Yeochun NCC
Yongsan Chemical

Associate Members

Korea Petroleum Association
Kora Chemical Management Association
Korea Chlor-Alkali Industry Association
Korea Fertilizer Industry Association
Korea Petrochemical Industry Association
Korea Specialty Chemical Industry Association
Korea Testing & Research Institute
Metropolitan Process Safety Council

Information on the 2018 RC Annual Workshop

The Korea RC Council will hold the 2018 RC Annual Workshop as follows for vitalizing the network of member companies' personnel responsible for environmental safety and sharing information on the sustainable development of the petrochemical industry and the field of the environmental safety. We would like to invite the executives and employees of our company to extend open advice for the promotion of Responsible Care to be developed by the chemical industry.

Date: November 22 (Thursday) ~ 23 (Friday), 2018
Place: Jeju, Korea
Attendees: CEOs, executives and employees and coordinators of member companies

As the detailed program and schedule of this event will be announced at a later date,
we look forward to lots of interest and engagement of the executives and employees from our members.