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Responsible Care

Chemical Industry's Commitment to Sustainable Development Issue No + 41

Intro Attending the second half of 2018 ICCA RC and CP&H Leadership Group Meeting

Special Sustainable Development Goals (SDGs) and the Future of Business

Issue Holding of the Chemical Sector's Sustainable Development Forum

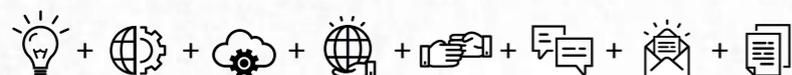
Members Focus Members' News

RC Activity Key Activities of the KRCC Secretariat





Responsible Care ²⁰¹⁸ Issue No + 41



Serial number : 41
 Publisher : Sim Hong-seop
 Published by : Maekyung Buyers Guide Corp.
 Date of issue : December 13, 2017
 Tel : +82-2-3668-6174
 E-mail : rcmaster@krcc.or.kr
 Website : <http://www.krcc.or.kr>

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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.

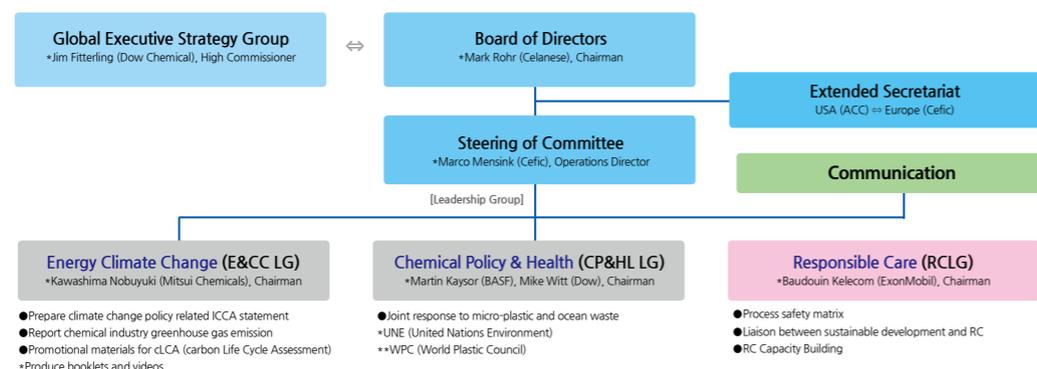




ATTENDING THE SECOND HALF OF 2018 ICCA RC AND CP&H LEADERSHIP GROUP MEETING

The second half of 2018 International Council of Chemical Association (hereinafter, 'ICCA') Chemical Policy & Health (hereinafter, 'CP&H') and RC Leadership Group Meeting was organized by Responsible Care New Zealand ('RCNZ') with great success on November 27~30, 2018 at Lakeside Novotel Rotorua Hotel in New Zealand, attended by 47 persons responsible for chemical policy and health matters from over 20 member countries. Under ICCA, each leadership group deals with three fields: energy & climate change; chemical policy & health; and responsible care. These leadership groups hold a meeting semiannually (twice per year) to discuss the main issues and their countermeasures for each field. Different from the existing leadership group meeting which was held individually, the CP&H meeting and the RC leadership meeting were held simultaneously at this New Zealand meeting. The CP&H Leadership Group Meeting is attended by ICCA member groups from 46 countries over the world, while the RC leadership group is attended by RC groups from 62 countries throughout the world. Because most of the ICCA member groups also join the RC group, holding these meetings simultaneously, synergy effects could be expected in the meeting through items sharing and discussion with more attendees.

[MICCA's Organizational Chart and Main Business]



Next, main issues which were discussed in RCLG and CP&H Leadership Group Meeting is introduced to discuss their influence on the chemical industry and implications.



Topic ① Country Association - RC global charter (draft)

In the RC leadership group, the RC global charter (Global Charter) is prepared for each country's RC Chemical Association and it is planned to obtain signatures from the heads of the chemical association for each of the member countries in future. In this RC global charter, RC fundamental features are added to the existing RC global charter targeting chemical company CEOs, and its main theme includes a promise for supporting the fulfillment of the RC global charter to strengthen RC activities. Now a draft for the RC global charter is ready and some of the attendees exchanged their opinions through this meeting on the draft prepared as of now.

※ Review comments

- ① As recent RC activities are expanded to customer management beyond the fields of environment, safety, and health in chemical companies, it is necessary to track such flows.
- ② Details related to governmental roles are not reflected, and differences of RC maturity among countries and chemical companies need to be considered.
- ③ It is necessary to present the condition of RC more specifically, and reflect details, especially, about the significance and the value of RC.



Because supplementation and refinement of the draft is required, taking the opinions discussed in the meeting into account, converging additional feedback will be taken by December 31 this year for RC members. After collecting the review comments, they will be included in the agenda for the first half of 2019 ICCA Steering Committee and the Board of Directors. However, in regard to the subsequent utilization for the global charter, there is no confirmation on a specific utilization plan in ICCA level at the moment, which will be discussed further.

Topic ② KPI Metrics (index) TF report

ACC (America Chemical Council) that takes charge of the Secretariat of ICCA has collected KPI (Key Performance Indicator) data every year for RC member countries. In this context, data collecting process and status as of now were presented. To review the data collection process briefly, the ICCA KPI team completed a website review and test in May this year. The user manual update and KPI website were completed in June, and the website was opened and the data was entered from July to October. For your information, over 30 additional groups will submit new data for next term (2017) data collection.

Associations without data in the submission database	Associations responsible for submitting data in future
Argentina, Malaysia, New Zealand, Peru, Taiwan, Thailand, Chile, Turkey, Ukraine, United Arab Emirates, Indonesia, Israel, Latvia, Lithuania, Morocco, Myanmar	(2019) China (2020) Vietnam, Egypt, Malaysia, Myanmar, Pakistan

RCLG has already voted and made a decision on recommended basic data set for compulsory reporting. To review this data set structure, RC member associations are obliged to submit data for RCLG and GPS (Global Product Strategy, corporate voluntary environment-friendly product development strategy), while it is optional for KPI data.

To review data collection results as of now, the level of data submission is high by RC country associations for safety & health, sulfur/nitrogen compounds, and direct emission of carbon dioxide, whereas the submission is as low as 40% reply ratio for transportation accidents.

[Recommended Basic Data Set]

Generals	KPI(4)			
	Safety & Health	Environment	Transportation	Resources Use
National chemical industry - # of companies - # of employees - Annual sales	Death toll - # of employees Injury time incidence - # of employees	Nitrogen oxide Carbon dioxide - Total amount - Direct emission Chemical oxygen demand Phosphorus compounds Sulfur compounds	Total - Total count of accidents - Pipeline (add)	Energy use Water consumption
Association member companies - # of companies - # of employees - Annual sales				
RC member companies - # of companies - # of employees - Annual sales				

All of the RCLGs are obliged to report process safety accidents to ICCA by 2020. Currently, 12 groups reported 502 accidents voluntarily by way of showing an example, but all agreed that complementary measures including training staffs on how to report process safety accidents are required additionally for RCLG. For process safety accidents, it is meaningful because RCLG initiated the report voluntarily for the first time. In order to increase the utilization of KPI performance reports in future, first, it is necessary to expand the number of countries including China, subjected to data submission. Simultaneously, it has to be preceded by finding ways of reducing the number of RCLG members who do not possess such data.

Topic ③ Cefic Rejuvenation (refection, reviviscence) project ad RC maturity model

Cefic (European Chemical Industry Council) is promoting rejuvenation projects for more European chemical companies to participate in voluntary and performance based RC management systems and to contribute to image improvement and trust building for chemical industry Through this project, we are planning to associate RC with international standards and sustainable rules and establish RC maturity levels for sustainable development by developing tools that can contribute to supporting local RC fulfillment and more harmonious approaches. The core values of this project include Unify, Harmonize, Simplify, Strengthen, Engrain, Empower, Share, and Improve. Also, we are planning to prepare user friendly and flexibly applicable RC management and self assessment tool systems based on local demand for all chemical companies. But, the unique features of existing RC shall be respected and the system will be available for international use. To evaluate RC maturity, spontaneous self assessment, expansion to small & medium-sized enterprises (SMEs), improvement incentives, results sharing, and benchmarking best practices were considered. However, third party verification, authorization process, ISO (International Standardization Organization), and escape of low performers were not considered in the maturity level.



[Definition of Maturity Level]

Level 1	Compliance	Law observance and promise
Level 2	Continuous improvement	Plan and fulfillment → Immediate action
Level 3	Excellent maintenance	Plan, fulfillment, inspection, action → Total management system approach
Level 4	Promotion	Complete fulfillment of improved performance, enhanced efficiency, cases of excellent fulfillment

For this project, the budget was approved in May this year through a decision made by the Cefic Board of Directors in last year, and an initial meeting was held by the consulting company. Between July and September this year, a pilot program was operated with member companies, and the final verification is planned from December this year to January next year. Cefic plans to share future RC Rejuvenating project results with chemical companies and associations in ICCA.

Korea RC Council needs to look at the details about the project background and implications, monitor the promotion process and results constantly, and plan to share the information with its member companies.

Topic ④ Attending and Responding to ICCA the 4th UN Environment Assembly (UNEA-4)

ICCA leadership group introduced future plans and activities to attend and respond to UN Environment Assembly (UNEA-4). The 4th UN Environment Assembly will be held from March 11 to 15, 2019 in Nairobi, Kenya. But ICCA concerns increasing regulations including negotiations for plastic (micro-plastic, ocean plastic, etc.) related to a new international treaty. If a plastic related international treaty is concluded, it will exercise



foreign and domestic influence directly and indirectly. In this context, this ICCA CP&H leadership group plans to identify decision-makers in charge of government environment division for each member country, and develop ICCA's level of future confrontation strategy and logic to share the response guideline with ICCA members.

Because ICCA has no voice in resolution negotiation in the UN Environment Assembly, it plans to share the position of ICCA and deliver its concerns to each government of the member nations, if possible, before the meeting. As a concrete step, ICCA Advocacy TF prepares a list of agenda to share the subjects of discussion with Steering of Committee. In particular, all agree that classifying topics is required to secure topics raised actively by the government of each member nation and united messages from the industry, rather than just presenting various issues. ICCA made a unanimous decision to dispatch a delegation to UNEA-4 (5 seats), and will determine the representatives subsequently.

Finally, the Korea RC Council announced a promotion plan to host the 2019 APRCC (the 16th) to RC members. Event synopsis to celebrate the 20th anniversary of the Korea RC Council foundation including APRCC opening background, schedule, venue, and topic were introduced, and the cooperation was requested of attendees from RC members for participation and presentation. Meanwhile, we expressed our hope to hold the second half of the 2019 RCLG leadership in Korea during the APRCC period. Attendees from RC member nations responded positively to open the RCLG meeting associated with APRCC, but the final venue will be confirmed in the first half of next year through official procedures as Morocco and Sri Lanka also want to hold the RCLG. 🌱

SUSTAINABLE DEVELOPMENT GOALS(SDGs) AND THE FUTURE OF BUSINESS

Yoonjeong Lee Researcher

Business Institute for Sustainable Development in Korea Chamber of Commerce and Industry



● Step for sustainable future

Representatives of 193 member countries including heads of over 160 states were gathered at UN Headquarters in New York on September 25, 2015. Here the UN announced a big 15-year plan for the coexistence and development of humankind.

These are the 'Sustainable Development Goals (SDGs).' The concept of 'sustainable development', which most people have heard of at least once, appeared first on the report of 'Our Common Future' presented in the 1987 meeting of UN World Committee on Energy & Development. As the problems of environmental pollution worsen due to indiscreet development, the international community realized that the current development method would not sustain the earth. Through the subsequent Conference on the Environment and Development and the World Summit on Sustainable Development, the international community prepared various goals and plans to fulfill actually sustainable development instead of mere declarations.

'Millennium Development Goals (MDGs)' were adopted in 2000 as a global target to be achieved by 2015 to improve the standard of living for people suffering from poverty and underdevelopment. MDGs were organized with eight goals and 21 detailed targets focusing on developing countries, and the goals including antipoverty and reducing infant mortality rates could be achieved through 15 years of efforts by the international community. However, problems such as environmental contamination, inequality, and polarization became more serious for this period and have hindered the sustainability of the earth.

SDGs started from self-reflection of MDGs and discussion of the limitations and completed through the participation of various groups including governments corporate, and civic groups. SDGs-that brought up a conversation topic among the international community about MDGs as a significant milestone in global development beyond the aspects that could

not be achieved and the limitation of focusing on developing countries-took 15 years of long steps in 2016 for enhancing our sustainable future. SDGs started from self-reflection of MDGs and discussion of the limitations and completed through the participation of various groups including governments corporate, and civic groups. SDGs-that brought up a conversation topic among the international community about MDGs as a significant milestone in global development beyond the aspects that could not be achieved and the limitation of focusing on developing countries-took 15 years of long steps in 2016 for enhancing our sustainable future.

● Getting Everyone Involved in Sustainable Development Goals

SDGs adopted unanimously by 193 member countries are organized with 17 goals and 169 detailed targets to be achieved from 2016 to 2030, and suggests three aspects of 'sustainable development': social magnanimity, environmental sustainability, and comprehensive goals embracing economic growth.

SDGs with a rule of 'Leave no one behind (universal development not neglected by anybody)' means a lot in the way that it is a universal goal covering various problems occurring in all countries and regions and prepared a one-step advanced blueprint for common prosperity on earth. Also, SDGs proposed goals in much more specific areas than MDGs and encourage all persons concerned including not just governments of advanced and developing countries but also civic societies and enterprises to join forces for goal achievement.

[Figure1. 17 Sustainable Development Goals (SDGs)]



International organizations, development banks, and international NGO are already setting the direction of their strategies and business programs according to the SDGs framework. The Organization for Economic Cooperation and Development (OECD), the International Chamber of Commerce (ICC), and the World Business Council for Sustainable Development (WBCSD) are also actively involved in achieving SDGs utilizing various policy means and experience.

In addition, governments in every member country are preparing SDGs implementation scheme to fulfill international agreements and raise their own sustainability, and our country is also establishing 'National Sustainable Development Goals (K-SDGs)' accordingly. In line

with the purpose of SDGs, everyone gets involved together, and 192 persons concerned from various groups including government, academies, and civic groups are involved in establishing K-SDGs, and detailed goals and the implementation plan will be ready by the end of this year.

● **SDGs and Company Business**

The questions that arises is: how can these SDGs be relevant to companies? At first glance, it seems that these SDGs that start with antipoverty as the 1st goal and the end of starvation as the 2nd goal are representative issues that need to be handled by international organizations. But, if society is not operated properly, there is no guarantee of sustainability for companies either. Because, the number of consumers who can buy company products and services will be reduced without resolving poverty and starvation problems, and it will become increasingly difficult for companies to get raw materials required for production, if our ecosystem is destroyed. In other words, implementation of sustainable development goals is necessary for the survival and the future of companies. It is thus a global agenda everyone has to participate in and practice beyond just good behaviors of helping developing countries.

SDGs announcement enables companies to estimate the worldwide sustainable development paradigm and rapidly changing business circumstances. As a result, they can prepare new business strategies through universal issues that can be valid in 2030 or even later instead of just a one- or two-year on-again off-again issue.

[Case of connection company business and SDGs]

<p>Philips SDG 3. Health and Welfare</p> 	<p>Philips SDG 3. Health and Welfare</p> 
<p>Coca-Cola SDG 6. Clean Water and Hygiene</p> 	<p>Coca-Cola SDG 6. Clean Water and Hygiene</p> 

According to the UN Population Report, the population of developing countries is expected to increase from 5.9 billion people in 2013 to 8.2 billion people in 2050, and the population of lower-income group less than US\$3,000 in annual per capita income, the so-called BoP

(Bottom of the Pyramid), will also increase to 6.5 billion people. If a company prepares a new strategy related to health, education, and poverty issues in developing countries and identifies a business opportunity, the company can expect entry into a large untapped market. Also, if a lower-income group emerges from poverty, its increased buying power would naturally lead to an increase in the company's sales. In this way, recognizing global business circumstances from SDGs point of view and identifies any business opportunities within the circumstance enables a company not only to secure its engine of growth but also to contribute to solving social issues.

Unilever, a global company supplying daily cleansing necessities, actually showed how efforts to enhance social sustainability can result in a virtuous cycle promoting company growth. Unilever set itself three goals: Improving health and well-being for more than 1 billion of human beings; Halving environmental effects created from production and consumption processes, and Enhancing the livelihood of millions of people under the management strategy of the Sustainable Living Plan — and promote activities to achieve these goals in many countries. The company performed health and hygiene training for a total of 600 million people until now in developing countries that have high infant mortality due to poor sense of hygiene. Not only has this resulted in actual disease prevention and mortality reduction effects, but also leads to image enhancement and sales increase for utilized Unilever products such as soaps, toothpastes, and water purifying filters.

In addition to Unilever, the number of cases kept rising for global companies trying to achieve SDGs related to the company's business. Companies set SDGs to utilize their experience and strengths as well as essential to maintain future business, and keep promoting relevant activities, such as LEGO, a toy company, set itself a goal of 'Good quality education'; BP, an oil company, targeted 'Sustainable energy'; Coca-Cola, a beverage company, targeted 'Clean water and hygiene'; and Philips, a company for healthcare and household appliances, targeted 'Health and welfare.'

● **Companies involved in the new paradigm**

According to WBCSD/DNV • GL report^① published in last July, survey results with more than 250 companies from 43 countries revealed that 78% of them responded that they prioritized 17 SDGs according to their own company strategies. Also, it revealed that 43% of the respondents found new business opportunities through SDGs, and 33% utilized SDGs in their risk analysis. Companies throughout the world have already recognized SDGs as a new paradigm and made efforts to integrate the goals into their business.

Interest by Korean companies in SDGs is also increasing gradually. Indeed, this can be verified through the number of company sustainable management reports including details about SDGs. Of reports published in 2015, those mentioning MDGs were only two

① Business and the SDGs: A survey of WBCSD members and Global Network partners



while those including SDGs were 32 of reports published in the country in 2016 after SDGs was announced, which increased rapidly to 85 in 2017. There are companies that declare their support for SDGs and future participation, but more cases can be found gradually that seek connection between 17 SDGs and the company activities and establish concrete implementation goals.

Moreover, there are opportunities to encourage participation in SDGs and discuss implementation plans by individual industries including recent forums organized by the Chemical Industry Council to share the trend of SDGs and company cases, so participation by Korean companies in worldwide sustainable development paradigms will be more active.

● Chemical industry, shaping the future of humankind.

While SDGs are adopted, a definite direction has been set for the international community through 2030. Various policies will be established, resources will be saved for sustainable activities and projects, and economic incentives will increase as well in accordance with this trend. Therefore, companies need to recognize SDGs as a system that brings big changes in their management environment instead of superficial slogans, and respond to it strategically. Also, as SDGs become a worldwide paradigm, not just the international community and governments, but also all interest parties including investors, civic groups, and consumers pay attention to see whether a company's activities head in a sustainable direction, or whether the business reflects SDGs strategically. Global business expects a company's sustainable activity as one of the trading conditions in this context. Now, it is not easy to secure respect from the global market by simply crying for sustainable management without efforts of connecting with the company's vision or strategy or supporting SDGs vaguely without concrete goals. It is necessary to establish business strategies and implementation plans specifically considering SDGs and perform them step-by-step; and what's more, it is necessary to communicate with interested parties in the course of implementation to discuss goal achievement and report the performance.

Now, the chemicals sector that has made a large contribution to enrich people's lives all the while faces a chance of growing one step further through a big sustainable paradigm of SDGs. The chemicals sector that intertwines closely with our whole lives, from daily household appliances to foods and medicines can perform various roles throughout 17 SDGs. WBCSD prioritized 10 SDGs to identify business opportunities for the chemical sector and contribute to the society simultaneously through the 'Chemical Sector SDGs Roadmap' report, and emphasized the need for innovation — not only in terms of products, but also in process and partnership.

[Figure 2. [10 SDGs, something chemical sector should note]

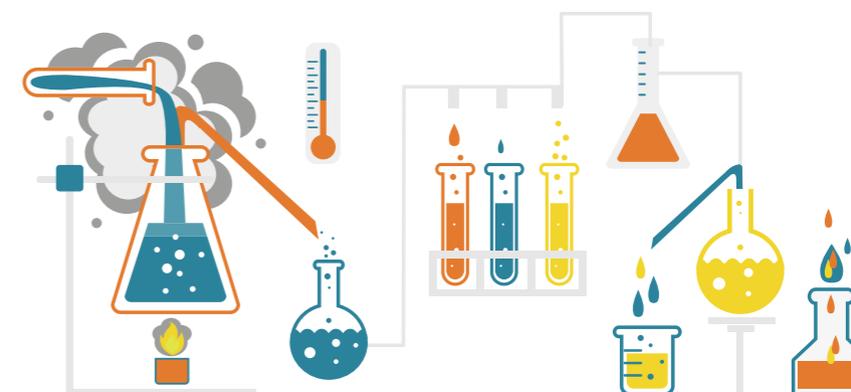
Priority SDGs for the sector

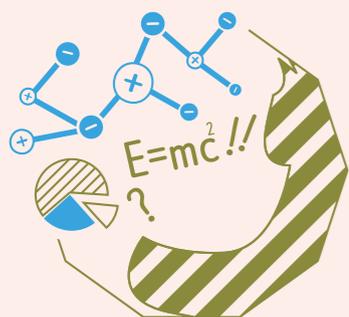


Although relevant goals, scope, the degree of involvement would be different depending on business area and activity area for each company, the synergy effects influencing our humankind would be very big if all of chemical companies sympathize with the significance of SDGs and join this large voyage of sustainable development for the earth.

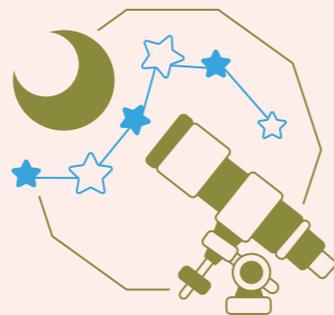
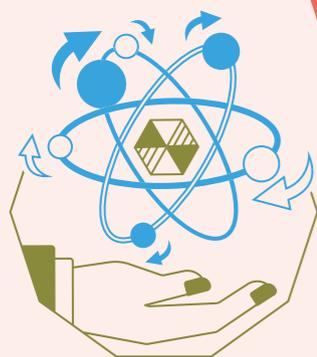
SDGs is not a new concept irrelevant to the activities chemical companies have performed all the while. Many domestic chemical companies have previously improved sustainability for humankind through technical innovation and also contributed to solving social issues in various ways. Now, however, it is necessary to seek sustainable solutions throughout all company activities from raw material collection to manufacturing, processing, packing, final consumption, and disposal by integrating SDGs into overall management rather than in the manner of responding individually to respective issues.

Sustainable development of a company is possible based on the premise that the earth is sustainable. We expect our chemical companies to move one step ahead and secure a sustainable future for the earth and humankind rather than react passively to the SDGs paradigm. 🌱





HOLDING OF CHEMICAL SECTOR'S SUSTAINABLE DEVELOPMENT FORUM



Korea RC Council and Korea Chemical Industry Council co-hosted the 'Chemical Sector's Sustainable Development Forum' on November 13, 2018 (Tue.) in the Westin Chosun Hotel, Seoul, and 60 staff and executives were in attendance, from government, local government, academies, researches, chemical industry, and civic groups.



The Chemical Sector's Sustainable Development Forum was arranged to reflect international trends related to sustainable development goals (SDGs) which was adopted in UN 2015 by the chemical sector, and to discuss the role and the direction of chemical companies and interested parties for sustainable development.

Chemical Sector's Sustainable Development Forum is structured with the 'Subcommittee meeting

for sustainable development' and 'Subcommittee meeting for bond of sympathy with local communities', and each meeting discussed given pending issues. The subcommittee meeting for sustainable development shared 17 sustainable development goals adopted by the UN in 2015, implementation plan by subjects such as government and industry, and mutual cooperation plan, while the Subcommittee meeting for bonds of empathy with local communities discussed how to build mutual understanding and trust for coexistence despite the conflict between chemical companies and local residents caused by environmental contamination and safety problems.

Session 1

Main Contents Of Subcommittee Meeting For Sustainable Development



● Prof. Jaehyuk Lee (director, Myongji University) Although I have many experience of discussion and presentation regarding the chemicals industry, I believe this Sustainable Development Forum is very meaningful in many ways. In the present situation where a company knows CSR activity is good but questions how it helps to create more profit, we need an approach from a longer-term perspective because the current government mentions a company's social value and basic trends like CSR and SDG would not change until 2030. Our companies have competence in the value chain and just having report card corresponding to their capability would get favorable evaluation from overseas. Now about 20% of the national pension fund (about 460 trillion KRW) is invested domestically and because discriminative investment is expected in future focusing on companies reporting good SDG performances, a company thus needs to make good use of such trend.

● Dr. Backsoo Park (Korea Institute of Industrial Technology) The Chemical sector has provided autonomic RC activities from early 2000 with the Korea RC Council as the central figure beyond just legal compliance, but RC activities are still shared limited information with limited targets even through such environment, safety and health activities.

A company basically sustains growth and development, but it is necessary to check how a company will connect its social responsibility to SDG in future or how much a company contributes to domestic environmental safety. In future, our industry need to ① lead the industry through technical and product innovation; ② support activates to secure environment, health, and safety for whole society and expand contribution to the local society by our companies that extended their business abroad, utilizing lead company-oriented technical know-how; and ③ promote contribution by expanding voluntary participation including communication with interest parties. Finally, under the situation that we have remarkably insufficient channels to communicate between domestic movement and companies compared to the USA or Europe, we hope various interested parties will participate in this forum, and request the



Secretariat to establish a vision and implementation plan for the strength and role of the chemical sector through the forum in future.

- **Eungyeong Lee, chief of department (UN Global Compact, Korea Association)** Because the launch of the SDG has both positive and negative influences on the industry, the role of the industry has been highlighted constantly, but I always had a question before as to why domestic chemical companies, differ from global chemical companies, did not show any interest. However, I can be assured this time that the value of SDG is already reflected in the RC Guidelines for domestic chemical companies. As the business area of the chemical industry sector becomes more diversified including bio, water, and energy beyond existing conventional business and the paradigms of the persons concerned keep changing, all the scope of company activities need to be integrated with SDG and set the strategy accordingly. For company management, our tasks include reviewing company management plan and policy integration plan from leadership to operation department in terms of sustainability of SDG, actual SDG application status in energy/chemical companies, and developing global versions of implementation tools in terms of opportunity and crisis, for which it is important how to respond within the value chain.
- **Hakgyun Maeng, Section chief (Manager in charge of sustainable strategy, Ministry of Environment)** Food, clothing, and a place to live will not be a big issue in our country any more, and I believe that Korean companies have already reached to a certain level. I hope that Chemical Sector's Sustainable Development Forum triggers you to think about how chemical products should be produced or how chemical product should be transported. Currently, the world's population is 7.5 billion and it is expected to increase to 10 billion by 2050. In order to enable the 10 billion population to enjoy material affluence, somebody has to provide innovative solutions. We need sustainable technology not impacting the earth negatively, and I believe the chemical sector has to seize this opportunity.
- **Nokyoung Kim, chief of department (Business Institute for Sustainable Development in the Korea Chamber of Commerce and Industry)** Companies complain about difficulties in communicating with the Ministry of Environment while environment regulations are strengthened recently, but I expect they can have smooth communication with the Ministry of Environment about sustainable development at least. For instance, a textile company (six employees), which is very small but possessing great technical skills based in Daegu has received an inquiry from an importer in the course of proceeding with textile product export to Europe about the company's CSR activities. This company reported on its existing activities including supporting needy neighbors specifically and sincerely through domestic and external CSR consultation, and eventually concluded a contract with a global high-end brand. This has implications for us. CSR activities are not a business risk any more but a business opportunity in future, and SDG activities can be a language which can be a benefit if you utilize it wisely.



- **Jongpil Kim, Manager (LG Chem)** If company CSR evaluation is exposed to the media voluntarily or involuntarily, the department or the person in charge of CSR will be in trouble. CSR rating agency can see notifications about the execution of CSR2020, CSR2030, CSR2050 in association with SDG or management vision, but it seems that there are not even a detailed tasks associated with such management vision until 2030 for Korean companies. I expected that only when relevant associations or governments publish SDG related detailed goal, companies may implement and monitor the goals. Starting from this forum, if this situation can be complemented through the Korea RC Council and Korea Chemical Industry Council, I think the chemical sector's initiative can be a model case worldwide.

Session2

Main Contents Of Subcommittee Meeting For Bonds Of Empathy With Local Communities



- **Prof. Dongil Shin (director, Myongji University)**, I think communication is important for coexistence in moments of crisis, and the Bonds of Empathy With Local Communities is an appropriate topic for the Chemical Sector's Sustainable Development Forum. The reason why humankind can survive even though we have poorer physical conditions than Neanderthal man are we are better in communication as we have genes to make longer sounds. Like this, I expect the chemical industry to be developed one step further as a sustainable industry by building the bonds of sympathy through continuous communication between chemical companies and residents in industrial complexes.
- **Hyusik Min, Team manager (Hanhwa Total)** Paradigms on the environment have changed a lot compared to the past. Companies also respond properly according to given situations, as they keep promoting environment-based investments for coexistence with local communities and in preparation for strengthened regulations. It is important to understand mutual positions between companies and local residents, but they often have a poor understanding. For example: residents misunderstand steam from cooling towers in chemical factories as smoke pollution; or a company does not know how much the residents are damaged by explosions and fire accidents in a factory. For mutual sustainable development between companies and local residents, all of them have to fully understand that there are both positive and negative aspects in the business activities of companies in industry complexes. Also, companies and local residents need to recognize that they are groups bound together by a common destiny, because companies cannot achieve sustainable development without trust and responses from the residents, whereas local communities cannot develop without the companies' development.



- **Gyeongran Jeong, Secretary-general (Seosan Council for Sustainable Development)** Companies need to discover what local residents want and provide more specialized and customized contribution activities (regional capacity development, education, training, and cultural programs, etc.) within the range of what they can support. Sometimes, areas that are not national industrial complexes request to build industrial complexes for regional development, but there is concern that the state does not sufficiently invest tax collected from the companies in the management of the industrial complex or in handling civil complaints, which may cause conflict between local residents and companies. Because social contribution activities that can be provided by the companies and demand by local residents conflict with each other, more communication is required to form bonds of empathy between both sides.
- **Dr. Daeho Han (Korea Environment Institute)** With the precondition of environment-based sustainable development, the chemical sector would have powerful competitiveness, and the state is also promoting policies to make the people healthy and to minimize the influence of environment/ safety problems with sustainability in mind. Because central government has a rule that local community issues need to be solved within the region, it is necessary for companies to respond with an active sense of obligation, and I hope this forum can provide an opportunity for issues to be shared among companies and find ways for mutual improvement. In addition, in order to resolve the conflict accumulated for a few decades from the time when the industrial complex was arranged for the first time, trustworthy relationships and periodic discussions need to take place among the interested parties.
- **Seongjin Kang, Team manager (LG Chem)** Accidents caused by defects in facilities are inevitable in factory operation. To prevent these accidents, we keep working on intensifying inspections on our emergency response system. As such, the field of environmental safety becomes an essential part of our business operation. Also, there has been so much changes of attitude to the significance of environmental safety over the past 7~8 years when environmental safety related matters were mentioned even in the New Year's address of LG group. For coexistence of industry and local residents, we need rational communication through which interested parties have an opinion that can represent entire local residents instead of a minor opinion in responding to company activities.
- **Gangjae Lee, Secretary General (Yeosu Council for Sustainable Development)** Resident consciousness and evaluation of social contribution activities for Yeosu Industrial Complex are quite good, but there are negative perceptions toward environmental safety preventive activities for Yeosu Industrial Complex. Given that there were many requests about supporting disadvantaged groups in the past while more support requests can be found recently about local community recruiting and stimulating the regional economy, the local community's expectations of Yeosu Industrial Complex have changed. However, the situation shows diminished company participation in council activity in Yeosu industrial complex. On the one



hand I can understand this unavoidable circumstance due to intensified system enforcement including recent environmental policies, but on the other hand, industry needs to participate in environmental safety preventive activity and job creation aggressively, because of consistent SDG activities in the UN.

Item	Question	Results
Residents' consciousness on Yeosu Industrial Complex	Yeosu-si's suitability for business activity	Good 44.8% Normal 43.4%
	Mutual cooperative relationship between local community and industrial complex	Good 36.8% Normal 50.1%
	Positive recognition of petrochemical industry association in the region	Very much 19.9% Yes 56.7%
	Awareness about expanding factory by cancellation of greenbelt	Good 32.3% Normal 38.4%
Residents' consciousness on social contribution activity	Evaluation of company's social contribution activity	Good 42.2% Normal 43.1%
	Contribution to improving welfare in local community	Good 45.7% Normal 42.2%
	Social contribution projects required for local community	Job creation in local community 20.8% Stimulation of regional economy 20.8% Improvement of environmental safety 18.0% Support disadvantaged groups 12.5%
	Contribution to regional economy development in Yeosu Industrial Complex	Positive 53.6% Normal 32.6%
Environment and safety in Yeosu Industrial Complex	Environment preservation activity in Yeosu Industrial Complex	Normal 38.7% Problematic 32.4%
	Safety accident preventive activity in Yeosu Industrial Complex	Normal 39.8% Problematic 33.2%
	Cause of safety accident in Yeosu Industrial Complex	Factory deterioration 33.6% Safety frigidty 28.5%
Labor-management relations and job in Yeosu Industrial Complex	Labor-management relations in Yeosu Industrial Complex	Stable 30% Normal 50.2%
	Contribution to job creation in Yeosu Industrial Complex	Positive 44.6% Normal 39.6%
	Add Yeosu citizen's merit point system for recruitment	Positive 42.1% Normal 36.5%
Tasks required for cooperation between region and industrial complex	Tasks for co-living, development, and cooperation	Support local community in industrial complex 29.4% Company support by Yeosu-si 21.5%
	Tasks of Yeosu-si	Promote investment in industrial complex region 28.5% Reflect citizens' demands and situations 27.2%

Through the Chemical Sector's Sustainable Development Forum targeting domestic chemical companies, Korea RC Council and Korea Chemical Industry Council plan to share and collect the model cases of fulfilling SDGs to produce materials; connect influence of chemical sector on local community to SDGs to prepare materials based on objective statistics data; and guide and promote these materials to residents near chemical industrial complex. In addition, they will keep promoting this forum by expanding the scale and the participation (government ministries, relevant local governments, etc.) of the committee and interested parties to be in attendance (academy, specialized organizations, local governments, industries, etc.). 🌱



Members Focus



금호석유화학 | Kumho Petrochemical

Start the extension of NB Latex 0.55-million-ton system

Kumho Petrochemical raises production capacity for NB Latex used as a raw material of medical gloves. Kumho Petrochemical announced on the 20th of the month that they started extension of NB Latex production capacity in Ulsan rubber plant from 0.4-million-ton to 0.55-million-ton per year.

When the extension is completed in the 1st quarter of the next year Kumho Petrochemical would make its position of global 1st NB Latex maker secure based on its annual 0.55-million-ton system. The company doubled its NB Latex production before 2016 from 0.2-million-ton to 0.4-million-ton per year. But the company carried out 1.5-million-ton of extension for Ulsan rubber plant on the basis that global demand for latex gloves will keep increasing. Currently, the main rivals of Kumho Petrochemical's NB Latex product include Malaysian Synthomer and Taiwan Nantex.

Kumho Petrochemical's NB Latex is being used as a raw material of medical gloves that are thin and light but hard to tear. Recently, they are also used for industrial purposes or cooking through consistent property improvement. Also, synthetic latex prevents protein allergic reaction which can be a concern when you use natural latex groves. The company recently enhanced safety in the properties and tensile strength compared to existing products and developed a new NB Latex product, KNL 834, suitable for even more detailed works.

As demand for latex gloves is expected to increase about 10% every year, Kumho Petrochemical established a sales office in Kuala Lumpur, Malaysia, in 2016, and responds to market expansion trend preemptively.



SKC-Mitsui Chemicals Joint MCNS start to target polyurethane market in India

MCNS (Mitsui Chemicals & SKC Polyurethanes Inc.), a polyurethane joint company of SKC(CEO: Wanjae Lee) and Japan Mitsui Chemicals (CEO: Tannowa chetomu) is increasingly targeting the Indian polyurethane market.

On the 8th of this month, MCNS held a system house completion ceremony in Sri-city industrial complex, Chittoor District, Andhra Pradesh, India. The 120 persons who attended this ceremony included ▲Gidon Wonm, Vice president of SKC Business Management; ▲Yoshino Tadashi, Director of Mitsui Chemicals; ▲Eujun Lim and Shinata shingo, co-representative of MCNS; and ▲Ravindra Sannareddy, chief director of Sri-city industrial complex. System house is a base that produce customized polyurethane raw materials (systempolyol) by branding additives into raw materials like polyol and isocyanate. MCNS decided in February last year to enter the rapidly growing Indian polyurethane market and start to build the system house from March of the same year. Annual output is approximately 15,000 tons.

India is an economic giant with 7th GDP in the world and have a robust domestic market that has great potential for growth. The output of automobiles with high polyurethane usage is 4.7 million cars per year, ranked 5th in the world. The output of refrigerators for which polyurethane is used as a insulator reaches to 9 million units per year.

Andhra Pradesh province is near the Chennai area where many Korean and Japanese automobile/home appliances manufacturers are based. Korean and Japanese manufacturers account for 70% of output for Indian automobiles and 50% of output for Indian refrigerators. MCNS provides stable and high- quality product supply to Korean and Japanese

customer first, meanwhile expanding its supply to Indian companies in future. Operating from its Indian system house, MCNS can run 11 system houses throughout the world.

LG화학 | LG Chem

Ranking 'Global Top 10' Chemical Companies for the First Time in the Country

For the first time among domestic companies, LG Chem finished 10th in global chemical company ranking considering sales and business profits comprehensively. LG Chem recorded rank no. 10, two steps higher than the previous year, in the '2017 Global TOP 50' announced after analysis of recent sales and intensification factors of sales and business profits by C&EN (Chemical & Engineering News), a special magazine published by ACS (American Chemical Society). Of Asian companies, it was ranked in 4th position following Sinopec (rank no. 3) in China, Formosa Plastic (rank no. 6) in Taiwan, and Mitsubishi Chemical (rank no. 9) in Japan.

C&EN mentioned about LG Chem that "Its battery business is growing and the R&D manpower is expanding in large-scale to 6,300 persons with an additional 800 persons by 2020" and analyzed that "The company carries on active investment, securing the demand and the supply of bipolar materials for batteries through joint venture establishment with China Huayou Cobalt."

GS칼텍스 | GS Caltex

Countdown to the Commercialization of Clean Energy 'Bio-Butanol'

Since GS Caltex (Jinsu Heo, CEO) completed construction of a bio-butanol demonstration plant at the end of last year, the company has worked final facility inspection and various license processes for full scale operation and started the 'countdown' for commercialization. Bio-Butanol is alcohol fuel with four carbons generated from glucose and bacteria extracted from wood wastes, rice straws, and marine algae. It is called three bio-energy together with bio-diesel and bio-ethanol. Existing production technique for bio-ethanol and bio-butanol uses edible biomass such as corn, sugar cane, and cassava and causes grain price rises. Also the existing technique has limitations in breaking food resources, but this is overcome by recent producing bio-butanol with non-edible biomass like cornstalks and wood wastes. Annual volume of wood wasted in Korea is about three million tons, and utilizing them enables us to produce 300 million liters of bio-butanol per year.

GS Caltex started research and development from 2007, secured relevant techniques required for the mass production of bio-butanol after 10 years of research, and applied more than 40 cases of domestic and international patents. Subsequently, the company invested 500 million KRW of total cost to complete the construction of a bio-butanol demonstration plant in GS Caltex Yeosu 2nd factory in Yeosu-si, Jeonnam, at the end of last year, and started demonstration business through commercialization test for the first time in the world. GS Caltex's demonstration plant can produce 400 tons of bio-butanol per year.

A spokesperson for GS Caltex explained that "Bio-butanol we provide is produced by crushing up wood and crop wastes, mixing with acid (酸) to generate bio sugar, and passing through continuous fermentation and separate purification processes with a self-developed high-performance strain that eats the bio sugar and excretes." and added that "Because we are using carbon source like carbon dioxide in the air absorbed and produced by biomass such as wood and crop wastes instead of using carbon contained in existing fossil fuel like petroleum or coal, this technology is considered to be reducing greenhouse gas."



| BASF

Neopor (Neopor®) Production Capacity Increase

BASF decided to raise production capacity by up to 0.4 million tons per year for Neopor (gray polystyrene foam containing special graphite), environmentally friendly, high-performance insulator, in the production factories in Ludwigshafen Germany and Ulsan Korea. To do this, they will continue with all control works for the respective factories until the 4th quarter of 2018. The Ludwigshafen factory has an annual production capacity of 200,000 tons of Neopor through several process improvement works, at the same time its annual production capacity for polystyrene foam (EPS) is increased by 20,000 tons and the total capacity reaches to 460,000 tons. On the other hand, white Sytropor produced by the Ulsan factory will be fully converted to gray Neopor that has better insulation performance by the end of 2018. With this, Neopor output will reach 85,000 tons. This enables BASF to meet increased demand for gray insulator in the Asia market.

Neopor is processed as eco-friendly efficient insulation board and allows saving heating energy in newly constructed and renovated buildings. As demand for Neopor has increased gradually throughout the world, BASF has expanded its production capacity constantly since its launch of Neopor in 1998. Neopor insulation board containing graphite provides better insulation properties than existing sytropor products. The density of Neopor is so low that it can be processed as a light board, which enhances efficiency in construction and also saves raw materials.

Dr. Klaus Ries, the director of global business management in BASF's styrenic foam division said that "In order to solve the tasks we are now up against in regard to climate protection and resource preservation, BASF is providing more customers more advanced products not just from an economic perspective but also from an environmental perspective. About 45% (40% for Germany) of worldwide oil consumption and carbon dioxide output are produced from building heating and air conditioning. Along with comprehensive and efficient insulation, proper use of building facilities and alternative energy sources can reduce such energy consumption remarkably."

BASF had invented sytropor (Styropor®) known as white foam particles in 1951, acquired patents, and launched Neopor (Neopor®), gray EPS that contains graphite for the first time in the world in 1998. Neopor, gray plastic particle, is an upgrade version of sytropor, white plastic particle, in terms of insulation performance. Adding graphite that makes Neopor grayish enhanced its insulation property up to 20%.

Compared to white ones, it reduces the use of raw material by 40%, through which insulator manufacturers can produce insulation board with enhanced insulation performance but lower mass. Insulators processed with Neopor can be used for various purposes, especially for outer walls, inner walls, and flat roofs.



| Yeochun NCC

Investing 740 Billion KRW in Olefin Production Facility to Boost Competitiveness

Yeochun NCC is extending its second naphta cracking center (NCC) and constructing a new butadiene (BD) plant by investing about 740 billion KRW. This investment increases annual ethylene producing capacity of Yeochun NCC becomes 2.285 million tons which is 0.335 million tons bigger than the current capacity. Moreover, it can be expected that this company will create jobs for 1,000 persons per year for the next three years.

Yeochun NCC announced on the 29th that it would revamp its second ethylene factory (NCC No.2) and the 2nd aromatic factory (BTX No.2) in the second business site to increase annual ethylene output by 335,000 tons, that is from current 580,000 tons to 915,000 tons. The company invested about 600 billion KRW in this project and plans to begin commercial operation from the fall of 2020.

This revamping increases ethylene producing capacity of Yeochun NCC from current 1.95 million tons to 2.285 million tons.

Also, the company will invest about 140 billion KRW by 2020 to construct a plant producing 130,000 tons of butadiene (BD), after which the amount of butadiene(BD) produced from Yeochun NCC will increase from 240,000 tons to 370,000 tons per year. A spokesperson for Yeochun NCC said that "While we proceeding revamping the second naphta cracking center (NCC) and new construction of butadiene (BD) plant, we can provide stable base material supply to affiliated companies: Daelim Industrial and Hanwha Chemical. Our competitiveness will be enhanced and we will move one step closer to achieving the world's best energy efficiency through cost saving and energy efficiency increase result from increased output."

Moreover, this investment may contribute to economic development as well as job creation and stimulating the regional economy. The size of Yeochun NCC's annual direct and indirect job creation is about for 100 workers, which will increase to 200 workers per year as the C4 fraction enhancing plant, and C5 fraction enhancing plant start their operation from 2015 and 2016 respectively. And it is expected that this investment in the second naphta cracking center (NCC) extension will induce 1,000 workers per year of job creation effects for the next three years from subcontractors in the field of equipment and relay facilities and construction.

Meanwhile, Yeochun NCC became a representative NCC company in 1999 owning three naphta cracking centers (NCC) through a large deal between Daelim Industrial and Hanwha Chemical. NCC where 1.3 million tons at the time of establishment was expanded to 1.95 million tons. It now provides a stable supply of base petrochemical materials including 1.95 million tons of ethylene, 1.11 million tons of propylene, 240,000 tons of butadiene, 780,000 tons of BTX, 290,000 tons of Styrene Monomer, and 38,000 tons of isoprene.



| Lotte Chem

Impending completion of the US ECC

Dongbin Shin, chairman of Lotte group expedited the final completion of the U.S. ethane cracker center (ECC) in which Lotte Chem put a large scale of investment in 2015. Also, the company already finished filming a commercial with this U.S. center as a background. Market situation is favorable as well. Shale gas yield in the USA is also increasing due to international oil price rises, and especially, starting to produce ethylene around two years ahead of rival companies is considered as a great move.

According to a related company by mid-September last year, the completion ratio of ECC plant in Louisiana USA where Lotte Chem invested about 3 trillion KRW passed over 90% and it will start commercial operation in March next year. The U.S. ECC plant is to enter the ethane cracking business using North American shale gas for the first time among domestic chemical companies, and can produce 1 million tons of ethylene and 0.7 tons of ethylene glycol (EG). This is, ECC produces ethylene, one of chemical stock generated from ethanol that is a by-product of shale gas. Therefore, if the oil price goes up, the profitability of shale gas increases and the supply expands, which would lead to maximizing of the ECC's sales.

After a decision was made for the U.S. plant in 2015, low oil prices have lasted and there were many negative views against the investment. However, as international oil prices have taken an upturn since this year and demand for ethylene has increased, these negative views are changing to hope. At the time of the groundbreaking ceremony for the Louisiana plant in 2016, chairman Shin mentioned that "It will be a critical opportunity for Lotte Chem to become a global chemical company beyond Asia."

Now domestic petrochemical companies are starting active investment in ethylene extension. However, the just started plant extension may get results of commercial production after 2020 at earliest.

When the U.S. ECC plant is completed, ethylene production capacity of Lotte Chem is estimated at 4.5 million tons per year. Given the fact that current domestic ethylene production capacity is 9 million tons, the production capacity can



be raised to the world's highest level. A spokesperson said that "Given that demand for ethylene keeps growing, Lotte Chem's completed ECC will provide positive effects on its performance."

Jaeseong Yoon, researcher of Hana Financial Investment analyzed that "Lotte Chem is expected to have continuous external growth by 2019 due to this extension. For the U.S. ECC owned by Lotte Chem with 90% of shares, especially, because 1 trillion KRW of annual sales and around 15~20% of business profit rate can be estimated, it will show much higher possibility of profit increase in 2019."



| DowDuPont

Build Semiconductor Production Facility in Cheonan

DowDuPont, an American global chemical company, is building a semiconductor production facility in Cheonan, ChungNam. According to Sengjo Yang, Chungcheongnam-do governor, and Manseop Goo, deputy mayor of Cheonan-si, they concluded an MOU for special product section with DowDuPont at Massachusetts USA on previous day (local time). DowDuPont is a global company merged between Dow Chemical and DuPont in December 2015, and will soon be split-up into three companies next year. DowDuPont's special product section concluded in this MOU will be taken by DuPont that will be split in April next year.

DuPont plans to extend 22,000m² of plant until 2023 in Cheonan foreign investment zone and Cheonan 3rd industrial complex to produce material required for semiconductor display processes. DuPont's manpower and sales volume are 30,000 employees and US\$21 billion in sales (25 trillion KRW) as of last year.



| Lanxess

Strengthen High Performance Plastic Production Capacity...New Investment in German Factory

Lanxess, a German special chemical company, announced last October 22 that it would expand its new production facility and increase global production capacity for high-performance engineering plastic in its Krefeld-Uerdingen factory. This new facility is to produce high performance plastic polyamide 'Durethan' and PBT 'Pocan' which are mainly used in automobile and electric & electronic industries. This will fully operate from the second half of next year.

Sanghoon Han, director of engineering plastic division in Lanxess Korea, said that "High performance plastic business is the linchpin of Lanxess growth strategy. Lanxess will raise its position higher as a global supplier that can respond actively to demand from automobile, electric, and electronic industries all over the world through this production capacity expansion." The Krefeld-Uerdingen factory in Germany is a core production base equipped with polymerizing and compounding facilities for Lanxess engineering plastic. The factory completed new product facility in March this year and now operates the facility in full-scale. Meanwhile if this extension is completed, it would play a key role in supplying Lanxess's high performance plastic to the global market.

Lanxess's high performance plastic demonstrates such superior rigidity that it can substitute for metal, and its weight can be reduced by up to 50% compared to metal. It is commonly utilized as a solution of reducing vehicle weight, a major issue in the automobile industry.

It is applied to automobile engine room and door structures, frontend, pedals, and driver seat cross members, and contributes to reducing fuel consumption and exhaust gas by reducing the weight of the car body. Recently, high performance plastic is actively applied to hybrid or electric vehicles. The main application parts include electric motor housing and various sensors, such as battery chargers, carrier, and cell holder. Because it is also applicable to charger

housing, switches, and connectors, it can be broadly utilized even in a base facility, like charging stations, for electric motor transportation tools.



LAB • TDM, Selected as a World's First-Class Product

ISU chemical announced on last November 23 that LAB (Linear Alkyl Benzene) and TDM (Tertiary Dodecyl Mercaptan) were selected as 'World-Class Korean Products' by KOTRA in the '2018 Presentation Ceremony for the Certificate of World-Class Korean Products' organized by the Ministry of Trade, Industry and Energy. World-Class Korean Products is a system that has been implemented since 2001 to empower domestic export capability, and its purpose is to discover products that possess technical competitive strength and marketability. Of export products whose world market scale is worth more than US\$50 million (57 billion KRW) or exported more than US\$5 million (5.7 billion KRW), a product whose world market share is 5% or more and ranked no. 5 or higher is selected. LAB and TDM were the ones selected this time. For LAB, a raw material of powdered and liquid laundry detergents, ISU chemical has 6.5% share of the global market and holds the 5th rank in that industry. TDM is used for molecular weight regulator or extreme-pressure additive, and all the supply came from imports until 1997. However, ISU chemical succeeded in self developing for the third time in the world in 1997 and expanded domestic and overseas sales. In result, the company reformed as one of the top three manufacturers in the world with Arkema and CP Chem. Sengho Ryu, CEO of ISU chemical mentioned, "ISU chemical's global competitiveness is proven by its selection as a World-Class Korean Product. Based on production experience for special chemical products, we keep taking quick action to target high value-added markets."



| Tongsuh Petrochemical

Won Commendation From Minister in '2018 Reward For Company of FTA Utilization Merit and Award Ceremony For Competitive Exhibition'

Tongsuh Petrochemical won a commendation from the minister in recognition of sales increase and new export to Turkey market by targeting India and Turkey markets that concluded free trade agreements (FTAs). On last November 21, the Ministry of Trade, Industry and Energy (Yoonmo Seong, Minister) and Korea International Trade Association held '2018 Reward For Man of FTA Utilization Merit and Award Ceremony For Competitive Exhibition' with over 100 businessmen and university students in attendance at the Seoul Grand Inter-Continental Hotel.

On that day, SMEs and their executives and staff who utilized the FTA and achieved performances such as export increase and export line diversification, and 'FTA utilization related support organization and staff' who supported company FTA utilization and contributed to solving difficulties in companies' agreement utilization and to reinforcing competitiveness in exports won commendations from the Minister of Trade, Industry and Energy.

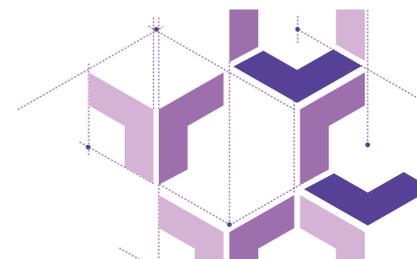
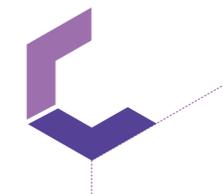
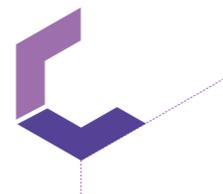
This event rewarded and encouraged SMEs, relevant organizations, and university students who contributed to spreading the utilization of free trade agreements, and shared model cases to raise the awareness of the agreement activities and to vitalize exports through the utilization of free trade agreements.

Of this year winners of commendation from the minister, Tongsuh Petrochemical reduced dependence on exports to China for main products like base chemicals, and targeted India and Turkey, countries with FTA agreements, as a part of export diversification, which led to a 240% increase in exports to India compared to 2015. This company also succeeded in entering the Turkey market in 2017. 🌱



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NEWS



■ Holding the second Implementation Committee of 2018

The Korea RC Council held the second Implementation Committee, attended by 13 members from eight member companies including Implementation Director Park In (Director of LG Chem.) on June 26, 2018 in the conference room of the Council. On that day, in Implementation Committee, RC Secretariat reported the progress of RC checklist preparation review and RC checklist utilization plan. Preparing the RC checklist has been promoted since 2013 for the purpose of third party verification by developing RC code evaluation tools. The completed RC checklist was published in 200 booklets and delivered to 53 RC coordinators via postal mail. Moreover, in order to raise the utilization of the checklist, a bulletin board was added to the checklist section on the RC Council website so that a system was established to enable individual member companies to download files and deliver their feedback.



■ Holding 'Open the Pleasant Chemistry World in 2018!

'Open the Pleasant Chemistry World in 2018!' was held in Seosan (Sept. 1), Ulsan (Sept. 8), and Yeosu (Sept. 15) targeting 4th and 5th grade students in elementary school. This event provides students an opportunity to directly participate in easy and interesting chemical experiments through chemical 'Field Work' and 'Play Yard' programs, and has been held from 2003 to build a network with the local community and chemical industry together. In this year, the event was held successfully drawing great interest and responses with theme of 'Chemical sector's sustainable development, where 908 students from 164 elementary schools in Seosan, Ulsan, and Yeosu regions participated. The opening ceremony drew keen interest from the attending students, introducing surrounding chemical products and expressing sustainable development with sand art for easier understanding about that. Our life would be like primitive times without the chemical sector, and the important role of the chemical sector was emphasised for future sustainable development for the future of humankind. After the event, many students expressed their opinion that it was beneficial to them as they could see for themselves and try various experiences and interesting chemical experiments which they had not had the chance to try before. In particular, 52 persons from



Industries (KRCC 22 member companies)

Platinum. Tongsuh Petrochemical, Lotte Chem, SK Global Chemical, LG Chem, Yeochun NCC, Hanhwa Total

Gold. Kumho Petrochemical, Daelim Industrial, Korea Petrochemical, Dupont Korea, Dongwoo Fine Chem, Lotte Advanced Materials, BASF Korea

Silver. Lotte MCC, Samnam Petrochemical, AK Petrochemical, Evonik Korea, Air Liquid Korea, SKC, LG MMA, Covestro Korea, Kolon Industries

Government / Organizations

Ministry of Trade, Industry and Energy / Yeosu city hall, Jeonnam / Seosan city hall, Chungnam / Ulsan Metropolitan Office of Education / Jeollanamdo Office of Education / Chungnam Seosan Office of Education / Korea Petrochemical Industry Association

Academy (group of teachers from three regions)

Jeonnam region (Group of Chemistry Lovers)
 Chungnam region (Seosan Science Information Education Substantiality Supporting Group)
 Ulsan region (Ulsan Science Education Research Group)

member companies participated as voluntary guides, guided the children safely by groups, and helped the children and parents a lot to raise interest in chemistry which is closely related to our lives.

■ Participating in 2018 APRO (Asia Pacific RC Organization) Meeting

The 2018 APRO Meeting was held on July 19, 2018 in Dusit Thani Hotel, Philippines. In this meeting, 20 persons including Mr. Sohei Morita, Chairman of APRO (JCIA, Japan Chemical Industry Association) attended from APRO member countries. The agenda of this meeting includes ICCA Board of Directors RCLG (Responsible Care Leadership Group) report and 2018 Joint Capacity Building introduction, decision on the invitation of CPCIF (China Petroleum and Chemical Industry Federation) APRO member countries, and next venue for 2019 APRCC.

In particular, Seoul, Korea was confirmed unanimously by 12 member countries as the venue of the next (16th) APRCC. The year 2019 is the 20th anniversary of the foundation of the Korea RC Council, so hosting the next APRCC will be even more meaningful.



■ Held the Chemical Sector's Sustainable Development Forum

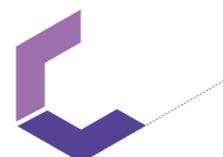
The Korea RC Council and the Korea Chemical Industry Council co-hosted the 'Chemical Sector's Sustainable Development Forum' on November 13, 2018 in the Westin Chosun Hotel, Seoul, with 56 participants. In session 1, Subcommittee meeting for sustainable development, Hakgyun Meang, Section chief (Ministry of Environment) presented "The era of sustainability and the chemical sector's crises and opportunities"; Nokyoung Kim, chief of department (Korea Chamber of Commerce and Industry) - Recent sustainability trends and industrial responses; and Jongpil Kim, Manager (LG Chem) - LG Chem's sustainable development goals application cases; and Prof. Jaehyuk Lee (Korea University), subcommittee chairman advanced discussion with panels. (Panel: Hakgyun Meang, Section chief (Ministry of Environment); Nokyoung Kim, Chief of department (Business Institute for Sustainable Development); Dr. Backsoo Park (Korea Institute of Industrial Technology); Jongpil Kim, Manager (LG Chem); and Eungyeong Lee, Team manager (UN Global Compact, Korea Association))

In session 2, Subcommittee meeting for Bonds of Empathy With Local Communities, Seongjin Kang, Team manager (LG Chem) presented the Chemical sector's efforts to enhance environment safety and cases of malodor improvement; Gangjae Lee, Secretary General (Yeosu Council for Sustainable Development) - Activity status in the region for the bond of sympathy with local communities and coexistence plan for companies occupied in industrial complex; and Prof. Dongil Shin (Myongji University), subcommittee chairman advanced discussion with panels about confidence building measure among interest parties. (Panel: Hyusik Min, Team manager (Hanhwa Total); Gyeongran Jeong, Secretary-general (Seosan Council for Sustainable Development); Seongjin Kang, Team manager (LG Chem); Gangjae Lee, Secretary General (Yeosu Council for Sustainable Development); and Dr. Daeho Han (Korea Environment Institute))





NEWS



■ Holding the third Implementation Committee of 2018

The Korea RC Council held 'the third Implementation Committee of 2018', attended by 13 Implementation Committee members and RC consultants on November 22, 2018 in the Ara hall of Jeju Ramada Hotel. On that day, in the Implementation Committee, Choongsik Kim, deputy manager of Daelim Industrial presented the cases of periodic maintenance safety management and RC checklist utilization plan was reviewed. The secretariat uploaded the prepared checklist file on the RC Council website (www.krcc.or.kr), so member companies can download the checklist file and post feedback reflecting any changes. Subsequently, the Secretariat will discuss collected feedback in the Implementation Committee, and member companies will conduct presentation of cases after they operate the pilot programs.



■ Holding the 2018 KRCC Annual Workshop

The Korea RC Council held the '2018 KRCC Annual Workshop' on November 22~23, 2018 at Jeju Ramada Plaza Hotel. In this annual workshop, 54 persons attended from 28 member companies including Jonggyeong Choi, chairman of Korea RC Council. In this workshop, successful cases of advanced SHE culture construction (Prof. Hyeoncheol Park, Ulsan University (RC consultant)) were presented as a special lecture. Followed by "How to communicate between different job levels in accordance with the changes of the era" (Minho Lee, representative of J Life School) and Model cases of environmental safety (① Byeongwoon Yoon, Manager (Dupont Korea)—DuPont's core value and safety culture, ② Jaegoo Kang, sectional chief (BASF Korea)—Chemical Health Risk Assessment, and ③ Myeongsoo Yeom, CEO (I&X) - Understanding and utilization cases of safety design) were introduced as invited lecturer.



■ Attending the second half of 2018 CP&H and RC Leadership Group Meeting

The International Council of Chemical Association (ICCA) CP&H and RC Leadership Group Meeting (simultaneous holding) were held on November 27 ~30, 2018 in Rotorua, New Zealand for the purpose of discussing the World Chemical Policy & Health and RC related main issues. This meeting was attended by 46 persons including Mr. Baudouin Kelecom, RCLG Chairmain (ExxonMobil), from member countries In CP&H (Chemical Policy & Health) Leadership Group Meeting, Sustainability TF performing main tasks, End Plastics Waste plan introduction, ICCA-UN environment MOU and activity status, SAICM (Strategic Approach to International Chemicals Management) after 2020, and ICCA social and economical analysis were discussed; whereas in the RC Leadership Group Meeting, RC global charter (declaration) implementation status by countries, KPI index report, Europe Chemical Industry Council's (Cefic) Rejuvenation project cases, Joint Capacity Building and sustainable program introduction were discussed.



KRCC's Major Events in 2019

- The first Board of Directors 'Meeting and the 20th Regular General Meeting of 2019'
Date : 11:00 February 14, 2019 (Thu.)
Venue : The Westin Chosun Hotel
- 2019 RCLG (Responsible Care Leadership Group) Meeting
Date : May 7 (Tue.) ~8 (Wed.), 2019
Venue : Buenos Aires, Argentina
- 2019 the second Board of Directors (Sports Meeting)
Date : June 1, 2019 (Sat)
Venue : TBD
- Open the Pleasant Chemistry World in 2019!
Date : August 31 (Sat.), September 8 (Sat.),
September 21 (Sat.), 2019
Venue : Seosan, Ulsan, Yeosu
- Hold the 2019 APRCC (Asia-Pacific RC Conference)
Date: November 7 (Thu.) ~8 (Fri.), 2019
Venue: Grand Ballroom in the Westin Chosun Hotel



Members



Regular Members

- Air Liquid 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
- Dow Corning Korea
- Dupont Korea
- Eastman Fiber Korea
- Evonik Korea
- GS Caltex
- Hanhwa Chemical
- Hanhwa Total
- Hanju
- Hansu
- Hyosung
- Ineos Styrolution 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 MCC
- Merck
- OCI
- Polymirae
- Samnam Petrochemical
- SH Energy Chemicals
- SK Global Chemical
- SKC
- Taekwang

- Tongsuh Petrochemical
- TRINSEO KOREA
- Yeochun NCC
- Yongsan Chemical

Associate Members

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

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.

Information on 'The First Board of Directors' Meeting and the 20th Regular General Meeting of 2019'

The Korea RC Council will hold the 'the first Board of Directors' Meeting and the 20th Regular General Meeting of 2019' as follows to report on and discuss Korea RC Council's performance for business promotion in 2018 and 2019 business plan and budget (draft) together. Please accept our invitation and extend open advice for the promotion of Responsible Care to be developed by the chemical industry.

Date. 11:00~13:00 February 14, 2019 (Thu.)
 Venue. The Westin Chosun Hotel
 Attendees. CEOs, executives and employees and coordinators of member companies

