

For a Green and Clean World, Promise of the Future, Responsible Care

KRCC is an organization established for Responsible Care (RC), by institutions involved in petrochemicals, fine chemicals, fertilizers, and chlor-alkali, as well as the American Chamber of Commerce in Korea, the European Union Chamber of Commerce in Korea, and other chemical institutions. RC incorporates activities to improve the environment, safety, and health in the chemical industry.

Environment



Active and preemptive responses

Safety



Sustainable development

Health



Affluent and abundant human life

Responsible Care

Chemical Industry's
Commitment to Sustainable
Development

46

Issue No



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Responsible Care® is a voluntary program in the chemical industry that not only continues to promote the environment through health and safety improvement activities but also by pledging commitment and implementing the program in management policy. This is achieved to protect the environment, safety, and human health throughout its entire lifecycle—from the development of chemical products to their manufacture, sale, distribution, use, and disposal.

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Responsible Care
means international
voluntary activities
for the chemical industry

promote improvement
of the environment
and the safety and health
of the people

To pass abundance on to
humanity creating a better for
our next generations, the Korea
Responsible Care Council (KRCC)

will bring together forces to
strengthen its activities and roles
for sustainable development



2021 RCLG First Half-Year Leadership Group Meeting Results

The International Council of Chemical Associations (hereinafter, ICCA) RC Leadership Group Conference for the first half of 2021 was held from March 16 to 17 in 2021 as an online video conference. ICCA runs five leadership groups: energy and climate change; chemical policy and; health; responsible care; communication; and plastics. Each leadership group holds a conference once semiannually (twice per year) to discuss major issues and countermeasures in each field. This RC Leadership Group conference was an opportunity to develop RC self-assessment tools and security codes, as well as share the results of collected key performance indicators (KPIs) by the top-25 global chemical companies, and the status of RCs in each country. The main agendas and future plans discussed at the RC Leadership Group conference are as follows:

1 Development of the ICCA Self-Assessment Tool

- (Purpose) Develop the ICCA Responsible Care® Self-Assessment Tool for chemical companies around the world
- (Background) Although the RC program accounts for about 80% of global national and regional production, an average of 70% of chemical companies (mainly small and mid-sized enterprises) in certain countries do not participate.
 - The Cefic RC Rejuvenation Project is an effort to expand the participation of European chemical companies, mainly SMEs, in RC initiatives (Cefic developed its own evaluation tool to assess the company's RC program, monitor fulfillment status, and provide improvement methods)
- * Linked to a wide range of international standards in RC and sustainability, corporate social responsibility, health, safety/environment, and efficiency, introducing four general levels to support corporate improvement.
- (Promotion Plan) The revised tool and global platform construction plan will be presented by the RCLG and ICCA board of directors in the second half of 2021, with a goal to establish the global ICCA Self-Assessment tool by 2022
 - Improvements to tools that can be used globally, to help more SMEs participate in RC initiatives)

2 Security Code Adoption

- (Status) About 50% of ICCA member countries have introduced security codes (or security-related items), while several associations are developing the codes, and South Africa, South Korea, and Japan have also expressed interest (ACC is reviewing and modifying security)
- (Materials) ACC has collected and is reviewing ICCA Security Codes (workshop/webinar agenda and training materials, training content check questionnaire, sample documents)
- (External) India, Indonesia, Malaysia, the Philippines, Pakistan, Kenya, Morocco, Turkey, Egypt, and GPCA countries are using the U.S. CSP (Chemical Security Program), and materials related to chemical security have also been requested by other organizations.

3 Business Case for Safety

- (Background) First formed in Canada in 1985, RC is the world's best-performing initiative in the chemical industry, managed by the International Council of Chemical Associations (ICCA) and currently implemented by 62 chemical associations in 70 countries.
 - Business value increases such as risk reduction by developing a corporate safety management system through the use of performance-based initiatives such as RC.
- (Result) Participation in RC initiatives in the United States is managed through ACC, and RC initiative participants achieved more than five-times better worker safety than the entire U.S. manufacturing industry (incidence rate of process safety accidents decreased by 48% since 2000).
 - European CEFIC manages RC participation in 21 European countries (the loss rate of European participants in the RC initiative has decreased by 20% since 2008)
- (Economic Impact) The global chemical industry contributes more than \$5 trillion to global GDP through the supply chain and income impact (about \$1 trillion is directly attributable to the chemical industry).

4 ICCA KPI Working Group Project Guide and Report Introduction

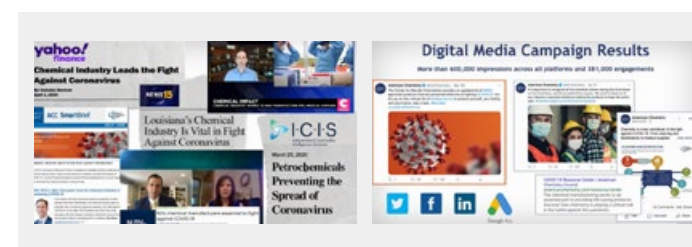
- (Background) The RCLG surveys the RC performance of member countries every year, collects them, and publishes an annual report.
 - * Performance indicators consist of the number of process safety accidents, pollutant emissions, resource usage, and implementation of eight core principles.
- (Proposal) RCLG is collecting KPI data from the top-20 global chemical companies to increase the reliability of KPI data (changed from the 2018-2020 data request plan for all production facilities around the world)
 - The final goal is to report meaningful data related to the environment, safety, and health of the chemical industry in ICCM-5 (July 2021) through this.
- (Promotion plan) Completed data collection (1Q of 2021), additionally verified some corporate data and submitted results to ICCM-5, and to be applied as a model for future reporting process (July 2021)

5 Plastics Leadership Group Update

- (Preparation for the UN Environment Assembly) Most countries expressed high interest in the Global Plastics Treaty Agreement in relation to UNEA-5
- (Guidelines) Preparation of a Business Case for a UN treaty on Plastic Pollution
 - BCG Group is preparing the case by collecting all cases of plastic value chains.
 - The goal is to eliminate plastic leaks into the environment by the target date (2050) by a specific deadline.
 - Sustainable consumption and production for the entire lifecycle of plastics
- (Response Plan) Plan to support the global plastics industry and national consensus for sustainable consumption and production of plastics
 - Support design innovation, infrastructure investment, etc.
 - Cooperate with the private sector, civic groups, and the government

6 2021 RCLG Status Report Update & Budget

- (COVID-19 response) Investigated difficulties of member companies, provided free masks to two million employees, formed a supply chain stabilization TF with the White House, provided safety guidelines for workers returning to work, and shared more than 60 cases of response efforts by over 30 member companies



- (2021 Plan) RCLG meeting for the second half of the year will be held as a conference call in India from September 16 (Mon) to September 17 (Tue).
 - Reinforce RC initiatives (build RC self-assessment tool, mentoring and expert networks; introduce security codes, business cases for safety, etc.)
 - Improve the KPI reporting process (improve the current KPI data collection process and develop complementary strategies)
 - Capacity Building activities (implement the revised Capacity-Building procedure, pilot project in India, and expand RC in Africa and China)

7 KRCC Plans

- Future plans
 - Adopt RC security code and introduce it within 2021
 - Online '2021 Come! Fun World of Chemistry,' Outreach activity 🌱

ESG Corporate Response Plans

ESG is currently the hot topic. An abbreviation of Environment, Social, and Governance, ESG is an important key factor in measuring corporate sustainability and social impact. Although it was mentioned at the Davos Forum and interest grew when BlackRock created an ESG fund, its origins date back to 1987. Amid the growing concerns about the depletion of natural resources such as oil and the threat of the Cold War at the time, the UN suggested an alternative for sustainable development. Even though the situation is similar now, ESG has become so important in investment.

ESG Details and Criteria



Evaluation System of Global ESG Raters

How do global ESG raters evaluate ESG? Let's take a look at the ESG rating system based on data published by MSCI and Goldman Sachs. First of all, MSCI, which created an index that most ESG ETFs follow, is divided into four stages: ① Select key issues appropriate for each industry. ② Determine the weight of each key issue on the industry. ③ Rank the company's ESG score compared to its global peers from the perspective of Risk, Opportunity, and Control. ④ Evaluate all sectors for corporate governance.

Goldman Sachs also evaluates each ESG item and has a scoring system that divides the parts that can be expressed in numbers and policies within the company. The biggest part of the two frameworks is by far the "E" of ESG.

How to Evaluate "E"

Although BlackRock stated that each evaluation factor of ESG is important, it is true that "S" and "G" largely contain qualitative factors. These are not easy to judge from an investor's point of view. However, "E," related to the environment, can still

Stakeholders' Demands for ESG Fulfillment

be evaluated quantitatively to some extent. An example is the Emissions Trading System. Although the system was introduced in Korea in 2015, trading has in fact not been active. It is also true that more companies carry over emission permits rather than trade them. However, the policy to foster green finance is firm. The third Emissions Trading System starts this year. This is unfavorable to industries such as energy, steel, and petrochemicals that traditionally have many carbon gas emissions, but it is favorable to new industries such as software and games. And polarization is highly likely even within the same industry.

ESG Needs by Stakeholders

ESG-related regulation	<ul style="list-style-type: none"> • ESG Information Disclosure Obligation (2030) • Reinforcement of carbon emission regulations (2050)
ESG reflected corporate evaluation	<ul style="list-style-type: none"> • ESG factors reflected in credit evaluation • Issuance of ESG bonds
ESG needs of institutional investors	<ul style="list-style-type: none"> • Reinforcement of stewardship code • Use of investment from pension funds and institutional investors
ESG needs of members of society	<ul style="list-style-type: none"> • Consumers' ESG demands • Demands for supply chain management and suppliers to reflect ESG

From 2019, South Korea has made it mandatory for investors to disclose core information on corporate governance—mainly the KOSPI — listed companies with total assets of 2 trillion won or more. The Financial Services Commission activated the voluntary disclosure of ESG information and announced a phased execution plan in order to arrange the institutional basis for promoting ESG responsible investment. Phase 1 (current~2025) promotes voluntary disclosure, and phase 2 (2025~2030) will make ESG disclosure compulsory for companies of a certain size. Phase 3 (2031~) will make it mandatory for all KOSPI-listed companies to disclose sustainability reports.

In addition, climate change regulations are becoming stricter worldwide. To achieve climate change-related policies in major countries and 2050 Net Zero in Korea, we need to purchase carbon credits and produce eco — friendly products.

As the level of requirements increase for companies to implement ESG, it is necessary to reflect ESG factors throughout the production process beyond marketing. Apple has established the highest standards of conduct for all suppliers in the supply chain, including design, logistics, and customer support, and evaluates them to induce performance improvement. In addition, BASF manages its partners and suppliers

Korea's Movement

by developing a joint code of conduct for chemical companies and a risk-based matrix. Recently, more consumers are making purchasing decisions with interest in production process, values and beliefs, and whether ESG is implemented. This is a more prominent trend for the MZ generation, which is emerging as a major player in the global consumer market and sensitive to environmental issues. While 'what' was most important to past consumers, now they buy products considering 'why' and 'how' they were made.

Principles of National Pension Investment and Consumers' Goods Consumption

The National Pension Service announced the principle of "no new investment in coal mining" and declared itself 'coal-free.' This is a step closer to ESG (environmental, social, and governance) management. NPS has also announced that it will invest 50% of its total assets in ESG companies by 2022. It has thus become more difficult for companies not participating in ESG management, both in the global market and in Korea, to attract investment, and more consumers have a growing tendency toward 'value consumption,' consuming 'good company' products.

Domestic Corporate Activities

As of April, seven of Korea's top-10 corporate groups (Samsung, Hyundai, SK, Lotte, POSCO, Hanwha, and GS), respectively, installed ESG committees. The presidents oversee ESG in SK, LG, Hanwha, GS, and Hyundai Heavy Industries, while the vice presidents oversee ESG in Samsung Electronics, POSCO, KT, and Naver. The fact that the presidents and vice presidents are in charge of the ESG committees proves that ESG is now essential for corporate management and survival. Companies that do not comply with ESG in the global market may not receive investments and may even be subject to regulations on their products. Meanwhile, nine companies — namely, Hyundai Motor, SK E&S, POSCO Energy, Hanwha Energy, GS Energy, Doosan Heavy Industries & Construction, Hyosung Heavy Industries, E1, and DL Energy — launched energy alliances to participate in the government's carbon-neutral policy. They also leaped into joint research on carbon emissions. By setting up the ESG committee, Hyosung Group elected the first female board chairman in Korea's corporate world.

Government Moves

Feeling the need to prepare a credible ESG evaluation index, the Ministry of Trade, Industry and Energy has been preparing K-ESG guidelines based on the 'Industrial

Development Act' in collaboration with the Korea Productivity Center from April 2020. There are currently 600 domestic and foreign evaluation indicators and several evaluation agencies, which has led to great confusion among companies. Overseas ESG indicators may face reverse discrimination since they do not consider Korea's unique business environment. The draft K-ESG indicator was prepared based on 13 major domestic and foreign indicators, based on the environmental, social, and governance sectors. The Ministry of Trade, Industry, and Energy plans to make a final announcement in the second half of 2021 after collecting opinions and revising the draft ESG indicators.

Main Contents of K-ESG Indicators (draft)

Category		Details
Information Disclosure (5)	Information Disclosure	Details: Method of disclosing sustainability management information, scope of business site, goals
Environment (14)	Environmental Management Policy	Environmental policy and organization, response to climate change, etc.
	Environmental Management Performance	Environmental management performance such as eco-friendly business, waste emission, recycling rate, and communication with stakeholders, etc.
	Environmental Management Verification	Support for environmental management of partner companies, etc.
	Legal Compliance	Violation of environmental laws
Social (22)	Social Responsibility Management Policy	Strategies and goals of social responsibility management
	Executives	Employee diversity, recruitment
	Human Resource Management	Employee training, competency development
	Working Environment	Workplace safety-related matters
	Human Rights	Human rights policy, education
	Partners	Performance related to supply chain and shared growth
	Community	Participation in local community social contribution and activities
	Information Protection	Status of personal information protection
	Legal Compliance	Violation of laws in the social sector
	Governance (20)	Board of Directors
Shareholders		Shareholder rights, dividends
Ownership Structure		Ownership structure
Ethical Management and Anti-Debt		Ethical management, anti-debt, and compliance status
Audit		Related to audit bodies
Legal Compliance		Violation of governance laws

In the past, corporate values were evaluated by quantitative indicators such as financial statements. As companies are now faced with the crises of climate change and COVID-19, the importance of non-financial values such as ESG is increasing. ESG has a long-term effect on a company's value, as seen in 'Sustainability,' which is closely related to ESG. Amid a paradigm shift placing greater importance on environmental and social values, ESG will become a core value directly linked to the survival and development of a company. 🌱

Execution Trend of EU Carbon Border Adjustment Mechanism (CBAM)

Background of Carbon Border Adjustment Tax

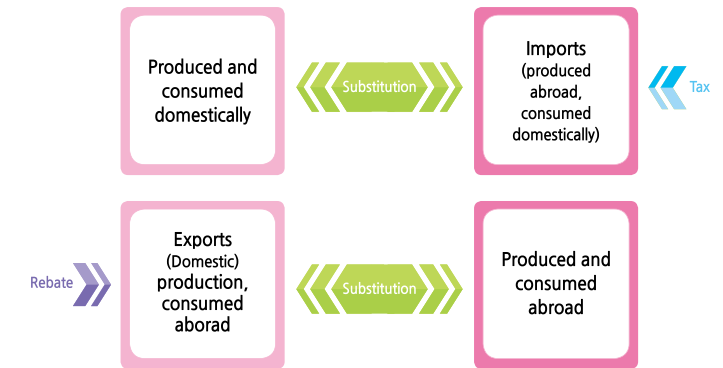
The European Commission has proposed various policies to achieve the goal of Zero Carbon Emissions by 2050, and it is preparing to introduce the Carbon Border Adjustment Mechanism (CBAM) as one of the EU Green Deal strategies. Expected to be introduced from 2023, CBAM is a measure to impose tariffs on goods produced in countries that emit large amounts of CO₂, among goods imported by the EU.

CBAM needs to be continuously monitored as the European Commission has not determined its compliance with the WTO and the method of calculating carbon emissions. Accordingly, this newsletter will review the progress of CBAM thus far, and suggest response measures for the industry.

The EU is implementing several strong carbon-reduction policies, including emissions trading, energy efficiency, and carbon emission standards. This has led to the increase of the production costs of companies in the region, thereby weakening corporate competitiveness and causing carbon leakage due to the relocation of production facilities to countries with weaker regulations. Carbon leakage is a relocation of production facilities to another country with weak emission regulations, due to costs related to climate policy. About 40 countries around the world have adopted the Carbon Price policy, which is gradually spreading globally, but the policy level varies by country. Accordingly, the EU included CBAM in the Green Deal to prevent loss of national competitiveness and carbon leakage and to increase the effectiveness of greenhouse gas reduction policies. CBAM be applied to specific industries at risk of carbon leakage after selection. The exact method of measurement is still under discussion. The EU said it expects CBAM to help realize the EU's ambitious policy goals for greenhouse gas reduction, and that it will take full account of WTO regulations and the EU's other international obligations.

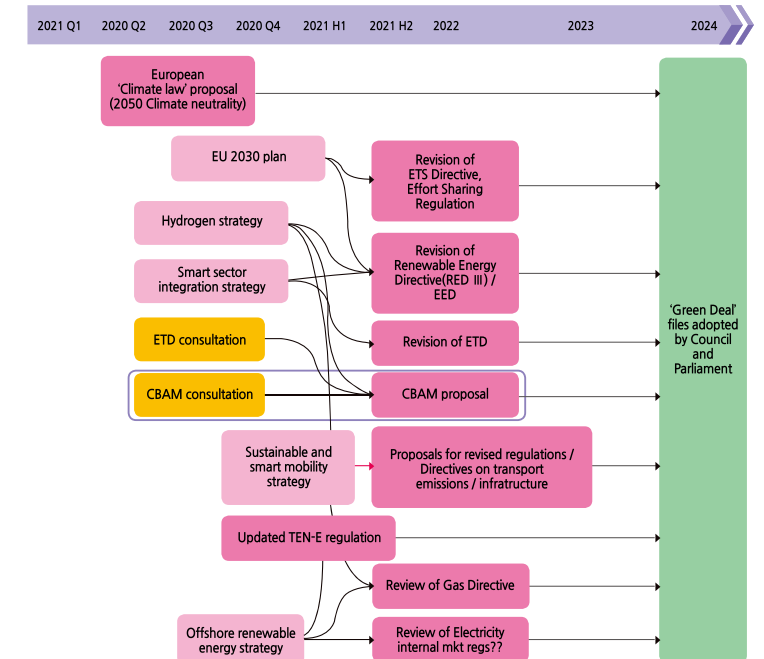
- * Border tax: A tax levied when taxable goods cross political and economic borders.
- ** Border adjustment tax: A tax levied on sales regardless of the location of a corporation's business site. Importers are required to pay tax on the entire sales price, not on profits earned (also called consumer-based cash flow taxation, it is a measure to induce reshoring of overseas relocating companies)

Concept of Carbon Border Adjustment Tax



Source: Frotier Economics

Green deal plans to trigger new EU legislation in months



Source: Frotier Economics
 Note: Consultation on CBAM can be found here: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism>

Main Issues

① Carbon Emission Calculation Method

Fundamentally, it is necessary to calculate inherent carbon emissions, but the method of measuring direct and indirect carbon emissions related to the production process of products is unclear. Since each of the various calculation methods has characteristics and advantages, it is necessary to discuss which method to adopt.

Carbon Emission Calculation Method and Characteristics

Category	Details	Weaknesses
Total embedded carbon	- Calculation of carbon emissions in the entire production process - International standard and various companies disclose relevant information	- Difficulty in calculation method - High administrative burden
Reduced forms of carbon accounting	- Estimation of carbon emissions based on specific information - Calculated considering specific data such as fossil fuels and electricity	- Weakened motivation for reduction in importing countries (difficulty in short-term conversion to power generation)
Tariff rate differentiation	- Differential taxation based on average carbon content information - Reduce the controversy over conformity with the WTO agreement and facilitate administrative implementation	- Set objectivity and reliability by country - Difficulty inducing reduction in certain industries (products)
Allowances or taxation	- Can manage tax imposition and payment by linking with EU ETS - Little controversy over WTO agreement and can be incorporated into the current system	

② Conformity to WTO Agreement

Since the Carbon Border Adjustment Mechanism (CBAM) tax directly affects international trade, it must observe the WTO agreement but is still controversial. Accordingly, CBAM can be levied as an indirect tax separately from customs duties. If it is not considered as an indirect tax, it will violate the WTO agreement, and the issue is whether or not to consider the CBAM tax as a tax on carbon emissions that are not included in products.

Future Plans

The European Commission plans to prepare a bill in the second quarter of this year based on the opinions and internal evaluation results and implement it in 2023. The bill is expected to be prepared as a directive rather than a regulation applied immediately to member states. Prior to the full-scale implementation, EU plans to apply it first to fields with low industrial impact such as cement, and then expand it to industries with large carbon leakage such as oil refining and steel. Since regulations in the automobile sector are becoming stricter recently, it is necessary to respond preemptively by reorganizing the supply chain of the entire industry and conducting a preliminary survey and analysis on carbon emissions.

Industry Responses

Progress of CBAM Execution



According to OECD data, the EU is the second net carbon importer after the USA in global trade, importing carbon mainly from China, Russia, India, and Turkey. It is expected that countries with strong greenhouse gas reduction regulations, such as the United States, and countries in Europe, which want to protect their own industries will implement similar measures. Export-based countries such as China and Russia have criticized the unfairness of international trade and foreshadowed countermeasures, but global pressure to reduce GHG emissions is expected to intensify. Companies will need to analyze the application method, subject, and standards of the Carbon Border Adjustment Mechanism to be prepared by the EU and reorganize their supply chains to countries with low carbon emissions.

Trends in carbon dioxide emissions in global trade

Country/Year	Net Export			Net Import			수출	수입	순수출	
	2005	2010	2015	Country/Year	2005	2010				2015
USA				USA	-969.6	-693.6	-785.3	130.09	98.37	31.73
China	1,217.50	1,431.80	1,308.80	EU(28)	-669.3	-655.4	-501.8	74.88	330.93	-256.05
Russia	396.9	316.8	320.7	Japan	-279.4	-217.1	-158.2	42.95	19.29	23.65
India	59.3	77.8	124.2	Others	153.8	-221.7	-312.8	26.81	178.72	-151.92
South Africa	74.5	97.7	100.6	Turkey				32.04	44.29	-12.26
ASEAN	121.8	80	97.4	Japan				23.69	21.73	1.96
Taiwan	34.5	53.1	57.2	Norway				16.46	20.27	-3.81
Singapore	22.9	50	52.5	UK	-165.3	-129.5	-142.5	19.69	29.46	-9.77
South Korea	-36.8	34.2	48.2	France	-149.4	-149.6	-131.6	21.38	67.07	-45.7
				Germany	-122.8	-126.6	-84.6	334.15	413.77	-79.62
				Italy	-117.2	-110.6	-75.8	722.12	1,223.91	-501.79
				Total						

Source: Presentation by Korea Institute of Economic Policy (KIEP)
Source: OECD. Stat, "Carbon dioxide (CO2) emissions embodied in international trade (TECO2) database,"

Green protectionism is spreading under the pretext of environmental protection. This includes measures to induce participation in the climate change response system, or the intention to enhance national competitiveness by preempting the development of new technologies such as energy-efficiency improvement, and the development of new and renewable energy. The introduction of CBAM was discussed in the early 2000s but fell through due to U.S. opposition. As CBAM implementation is favored by the Biden administration, it requires continuous monitoring of progress.

2021 Come!

Fun World of Chemistry Online Event Information



'Come! Fun World of Chemistry (hereinafter referred to as FWC) is a chemistry experience program that provides various opportunities for elementary school students (grades 3-6) to understand the principles of chemistry in an easy and fun way. About 21,000 elementary school students participated from 2003 to 2019 in FWC, which became a venue for exchange with the local community, as local teachers' groups and member volunteers teach children the principles of chemistry in everyday life. From this year, it has been reorganized as an online virtual event due to COVID-19. Many elementary school students can participate regardless of region in this online platform, which will provide them with opportunities to fulfill their dreams of chemistry while raising their interest in chemistry. In 2021, FWC will select about 300 children's chemical reporters and build a separate website for them to directly write, discuss chemical articles, and learn about chemistry by using media contents (articles, cartoons) series and by participating in chemistry lectures (www.chemworld.kr). Five children who collect many points and work on most activities as children's chemistry reporters for 100 days from June 1 to September 30 will be selected to win prizes such as field trips to member companies.

Chemistry

Purpose

(Cultivating future-oriented talents led by chemical companies)

Program Components

◆ Chemistry Reporters Group

100-day challenge during which children produce various chemistry-related contents online, such as writing, posting, and chemistry discussion forums (6.1.~9.8.)

* Chemi Coins will be collected when a mission is successfully completed and five excellent reporters will receive awards at the end of the program.

◆ Provided Contents

- Experiment videos
- Writing articles on chemistry
- Chemistry discussions
- YouTube live lectures on chemistry
- Cartoon series such as Children's Science Dong-A, etc.



Event Schedule (draft)

- Promote the event and prepare activities (April)
- Accept participation applications and select reporters (May)
- Children's Chemistry Reporters 100Day Challenge (June-September)
- Award and certificate of completion (September)
- One-day internship prize at a chemical company for excellent reporters (Oct.) 🌱

Continuity

- "Accumulation of content and data" such as articles by every cohort of children's chemistry reporters
- "Long-term future talent nurturing project" for the next 5 or 10 years

Expandability

- "Modularized New Platform" that can add various activities
- Offline events can be added in the future (with Dong-A Science CSR Science and Culture Team)
- Online activity projects that "all elementary school students nationwide" can participate in

Self-Directed

- "Children's Chemi Reporter" who finds research tasks on their own with a sense of mission as a reporter
- "The value and motivation of cooperation" attained through a shared mission and donation

Diffusivity

- Formation of a positive image of the chemical industry with "Children's Community+Media Partner"
- One small "media platform" that anyone can watch online

Contents of Children's Chemistry Reporters

게임과 같은 "케미코인 시스템" 통한 활동, 동기 부여

케미코인 시스템

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삼척박사와 함께하는 "실험 영상 & 리포트"

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화학에 대한 Fact 체크 & 의견 공유 "화학 떠들기 토론터"

미션 3. 화학 떠들기 토론터

- ✓ 주요 활동: 개인 말제 or 운영진 말제 "화학 탐구 토론"
- ✓ 미션 부여: 공자선발 및 LMS 발송 + 특별 강연 1회 (한국RC 협회)
- ✓ 제작 및 연동: 동아리원/기자 / 한국RC협회의 운영진 및 회원사 연구원 등

미션 수행에 도움을 주는 "특별 강연"

3가지 특별 강연

- ✓ 주요 활동: 각 3가지 미션 부여, 인포, 도움을 주는 특별 강연 참여
- ✓ 송출 방식: 유튜브 라이브 + 플랫폼 아카이빙

1강: 케미 리포트 & LMS

- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 내용: 영상, 실시간 포커싱, 3차에 대해
- ✓ 운영진/회원사: 100명당 100원 증정
- ✓ 미션 부여: 기사 선정 주제 선정

2강: 케미 리포트 & LMS

- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 내용: 화학 탐구, 화학 실험 + 실험 영상
- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 운영: 한국RC협회 운영진 or 회원사

3강: 케미 리포트 & LMS

- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 내용: 화학 탐구, 화학 실험 + 실험 영상
- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 운영: 한국RC협회 운영진 or 회원사
- ✓ 운영: 한국RC협회 운영진 or 회원사

케미리포트만을 위한 "1일 인턴 체험"

우수리포트 혜택: 1일 인턴 체험

- ✓ 선발된 우수 기사 5명에게 회원사 연구소 '일일 인턴' 현장 취재 기회 제공
- ✓ 1일 인턴 시간을 잘 알면 활동 인증서 발급
- ✓ 기사 출고: 활동 후기 어린이과학동아 현상유래 기사 4p

Website of Come! Fun World of Chemistry World

화학 기사 화학 실험실 화학 토론터 포스팅 소개 로그인

기자단 활동기간 모집 중

당신에게 허락된 시간, 100일!

화학기자단 모집

모집 기간: 5월 3일 - 5월 30일

신발 발표: 5월 31일

100일 챌린지 도전하고, 화학 회사 인턴 가져!

기자

로그인하고 기자단 활동 시작하기

기사 쓰기 + **토론 참여하기** + **포스팅 작성하기**

화학을 주제로 기사쓰기 도전하세요!

화학 기자단의 건전한 토론화를 함께 만들어요.

원소들의 일상 - 궁금한 원소에 대해 남겨주심 올려드립니다. 우수기자는 포인트 순인가요? 나중엔 우수기자는 포인터 순인가요?

원소들의 일상 - 궁금한 원소에 대해 남겨주심 올려드립니다.

찬성 50% 반대 50%

실험하기 + **강연 보기** + **만화로 화학 배우기**

화학 실험 따라 해보기 →

[열려라! 즐거운 화학세상] 강연 보기

닥터 척의 화학 코믹 어드벤처: 2화

Held the 1st Board of Directors and the 22nd Regular General Meeting in 2021

KRCC held the '1st Board of Directors and the 22st Regular General Meeting' in writing. The major agenda items were: ① 2020 project and settlement report; ② 2021 project plan and budget (draft); and ③ Executive improvement opinions, which were deliberated and resolved according to the secretariat's original plan.



2021 'Come! Fun World of Chemistry' Online Event Information

'FWC' is a social contribution program held since 2003 with the participation of 21,000 elementary school students as of 2019. FWC has become a venue for exchanges with the local community, as local teachers' groups and member volunteers teach children the principles of chemistry in everyday life. From this year, it has been reorganized as an online virtual event due to COVID-19. 2021 FWC will select about 300 children's chemical reporters and build a separate website for them to directly write, discuss chemical articles, and learn about chemistry by using media contents (articles, cartoons) series and by participating in chemistry lectures (www.chemworld.kr). Five children who collect many points and work on most activities as children's chemistry reporters for 100 days from June 1 to September 30 will be selected to win prizes such as field trips to member companies.



Held the 1st Cefic (European Chemical Industry Council) Exchange Meeting

On Wednesday June 16, the first exchange meeting was held online with the European Chemical Industry Council to discuss major issues between South Korea and Europe, as well as industry response plans. The main agenda items discussed were the current status, expected impact, industry responses, and cooperation items, such as: ① 2050 carbon neutral policy trends and industry response plans; ② current status and major issues of the emissions trading system; ③ background and impact of the EU Carbon Border Adjustment Mechanism (CBAM); and ④ status of response to chemical regulations.



Participated in the first half of 2021 APRO Meeting

On Thursday April 1, the Asia-Pacific RC Organizations (APRO) meeting was held as an online videoconference attended by representatives of 12 countries in the Asia-Pacific region, to explore the plan for the 2021 Asia Pacific Responsible Care Conference (APRCC). APRCC is held biennially to revitalize RC in the Asia-Pacific region, and it was held in South Korea in 2019. It was originally scheduled to be held in Taiwan in 2021, but its online conference was reviewed due to the COVID-19 outbreak. As Taiwan requested a one-year postponement to 2022, APRO decided to make a final decision on whether to hold the event online/offline later.



LG Chem

Introduced the industry's first 'Integrated Digital Sales'

1

LG Chem is the first in the petrochemical industry to start integrated digital sales. Starting with a platform to have contactless technical collaboration with customers, it will also enable online ordering and delivery of petrochemical products. LG Chem announced on June 1 that it will operate 'LG Chem On,' a digital CRM (customer relationship management) system for ABS (high added value synthetic resin) customers. The goal is to break away from the existing method of the petrochemical industry that relied on face-to-face sales, and rather provide customers with LG Chem products quickly and easily online. English and Chinese languages are also supported on LG Chem On, which will accelerate the search for new customers and strengthen relationships with the USA, China, and Europe-based customers. LG Chem On plans to expand its service area to order and delivery at the end of this year and expand to all divisions of the petrochemical business such as NCC, PO, PVC/plasticizer, acrylic/SAP, HPM, and CNT in sequence.



Lotte Chemical

To preempt the plastic circular economy and target 'localization'

2

Lotte Chemical is to focus on building a renewable plastics circular economy in Asia, Europe, and North America, while expanding its eco-friendly business portfolio under the group's ESG growth strategy 'Green Promise 2030.' Its advanced materials business currently produces recycled plastics at production bases located in South Korea, Hungary, the USA, China, and Vietnam and plans to expand this to plants in India and Indonesia. Lotte Chemical aims to produce 100% localized eco-friendly plastics based on the global production base by 2025.



Hanwha Solutions

To enter the hydrogen market for vehicle fuel... Will supply to Hyundai Glovis charging stations

3

Hanwha Solutions is to jump into the hydrogen market for vehicle fuels and start building a hydrogen ecosystem for hydrogen production, storage, and transportation. On the 27th, an official from Hanwha Solutions said, "We will supply hydrogen for vehicle fuel to Hyundai Glovis, which is building a hydrogen charging network at highway rest stops and service stations, etc. We plan to supply a total of 48 tons of hydrogen for two years from July and expand the charging infrastructure, thereby increasing supply accordingly." Based on this project, Hanwha Solutions plans to gradually expand the supply of hydrogen for vehicle fuel. The idea is to strengthen the foundation of the hydrogen value chain from production to supply and develop it into a main business.



GS Caltex

To enter the liquid hydrogen business with KOGAS

4

GS Caltex is to officially enter the hydrogen market by partnering with Korea Gas Corporation to produce and supply liquid hydrogen. At GS Tower in Gangnam-gu, Seoul on the 28th, GS Caltex and KOGAS announced that they had signed an MOU for the successful launch and strategic alliance of the liquid hydrogen production and supply business. Through this MOU, the two companies decided to start collaborating on the entire value chain of the liquid hydrogen business, including 1) establishment of a liquid hydrogen plant; 2) establishment of a liquid hydrogen charging station; 3) establishment of a hydrogen extraction facility; and the 4) demonstration and commercialization of CCU (Carbon Capture & Utilization) technology. GS Caltex President Huh Se-hong said, "We will create synergy in the hydrogen business by combining GS Caltex's know-how in gas station and charging station business with KOGA's LNG business know-how. We will lead the future hydrogen market by consolidating the capabilities of both companies."



Hyosung Chemical

Completed Vietnam's largest PP plant expansion

5

Hyosung Chemical is preparing to enter the global market ahead of the completion of the second PP plant in Vietnam this month. Combined with the first plant completed last February, the plant will have an annual production capacity of 600,000 tons. This is the largest in Vietnam. With the completion of the Vietnamese plant, Hyosung Chemical plans to more actively target the global market. Among the PPs currently produced by Hyosung Chemical, the PP-R product used to manufacture industrial pipes took the first place with a global market share of 26% last year. Since 1998, Hyosung has set the PP-R product brand as 'TOPILENE R200P' for the first time in Asia and has been supplying it to domestic and foreign pipe manufacturers.



Isu Chemical

Selected as a partnering institution for developing hydrogen storage technology arranged by the Ulsan City-Chemical Research Institute

6

Isu Chemical announced on the 8th that it was selected as an organization to participate in the fine chemical technology partnership project arranged by Ulsan Metropolitan City and the Korea Research Institute of Chemical Technology (KRICT), to develop Liquid Organic Hydrogen Carrier (LOHC) technology. Selected as the technology development cooperation organization, Isu Chemical plans to carry out the synthesis and process development of LOHC, a hydrogen storage technology, for two years from this year. Since hydrogen has a low energy-density per unit volume, which causes high liquefaction costs during transportation, a high-efficiency storage system is essential. Recently, to promote the hydrogen economy, the government has declared its goal to achieve carbon neutrality by 2050 and announced a private investment plan for the hydrogen economy, which is expected to make hydrogen businesses more active in the future.



LG Chem-Taekwang Industry

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7

LG Chem and Taekwang Industry announced on the 2nd that they had signed a joint investment contract to expand acrylonitrile (AN) facilities. The two companies will establish an AN joint venture, TL Chemical (draft name). Taekwang Industry holds a 60% stake, and LG Chem a 40% stake. The official name and establishment date will be finalized in the second half of the year. It is the first time that Taekwang Industry will establish a joint venture. LG Chem and Taekwang Industrial announced that they would create a joint venture to improve the stability of AN supply and demand due to the growing demand for petrochemical products for home appliances, automobiles, and eco-friendly sanitation — in line with the economic recovery after the outbreak of the novel coronavirus (COVID-19).



Ulsan Oil Industry

Active Green Factory Construction


8

Active moves are underway to build green factories in the local petrochemical industry, after Lotte Ineos Chemical (formerly Lotte BP Chemicals) invested 150 billion won in its Ulsan plant to replace eco-friendly fuel on a large scale. SK Energy Ulsan CLX, an oil refinery, as well as petrochemical companies are swarming in to speed up the operation of eco-friendly factories. In line with its name change, Lotte Ineos Chemical is promoting the so-called C Project, which will invest 150 billion won in the Ulsan plant. The main goal of this project is to convert the fuel currently used for plant operation from Bunker C to LNG. The company plans to start construction this month and complete it next October.




2021


Major schedule of KRCC for second half of 2021



2021 Chemical Industry Sustainable Development Forum (Plan)
Date September 2021
Location Undecided



Second half 2021 RCLG (RC Leadership Group) Meeting
Date (draft) October 2021
Location (draft) Conference call



2021 Come! Fund World of Chemistry Online Event Information
Date June 1 - September 8
Purpose To promote the chemical industry
Target 3rd-6th graders in elementary school
Details Children's Chemistry Reporters Group activities and online contents (articles, cartoons, lectures) to be provided



RESERVATION



Regular Members

- | | |
|------------------------------|--------------------------------|
| Aekyung Petrochemical | Korea Petrochemical |
| Air Liquid Korea | KPX Chemical |
| ARKEMA | Kumho P&B Chemicals |
| Axalta Coating Systems Korea | Kumho Petrochemical |
| BASF Korea | Lanxess Korea |
| Covestro Korea | LG Chem |
| DIG AIRGAS | LG MMA |
| DL Chemical | Lotte Chemical |
| Dongwoo Fine Chem | Lotte Fine Chemical |
| Dow Chemical Korea | LOTTE Ineos Chemical Co., Ltd. |
| Dupont Korea | Lotte MCC |
| Eastman Fiber Korea | Merck |
| Evonik Korea | OCI |
| GS Caltex | Polymirae |
| Hanhwa Solutions | Samnam Petrochemical |
| Hanhwa Total | SH Energy Chemicals |
| Hansu | SK Global Chemical |
| Hyosung Chemical | SK Materials |
| Ineos Styrolution Korea | SKC |
| Infineum Korea | Taekwang |
| ISU chemical | Tongsuh Petrochemical |
| Kolon Industries | TRINSEO KOREA |
| Korea Alcohol Industrial | Yeochun NCC |
| Korea ASK Chemical | Yongsan Chemical |

Associate Members

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



How to join to KRCC Membership

Please scan the QR code to see the application process for membership of the Korea Responsible Care Council.

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