CHEMSOLVE

Professional Consultation on Chemical Substances

(Risk Assessment and Regulatory Services/ ESG Consulting)

www.chem-solve.com

CHEMSOLVE

Chemsolve Co., Ltd., since 2017, has been devotedly providing clients the most professional chemical registration and evaluation consultancy services, while having grown into one of Korea's leading customized chemical consultancy firms. Moreover, for years, we have been undertaking chemical/drug/pesticide toxicity/exposure and risk assessments at the Korea Institute of Toxicology (KIT) affiliated with the Korea Research Institute of Chemical Technology (KRICT); the Ministries of Environment, Food and Drug Safety, Science and ICT, with which at the same time frequently implementing environmental and human hazard tasks, notably of industrial chemicals. Chemsolve, in the last five years, has addressed environmental concentration forecasting through emissions prediction and the multimedia fate model development and application. QSAR methods and readacross prediction of physicochemical properties and toxicity values are also major areas of specialization.

Chemsolve upholds its total dedication to client relationships and professionalism, sincerity, and transparency. We are always acutely apprised of K-REACH, K-BPR, and international chemical substance regulation trends and unexpected amendments and revisions vis-a-vis the United States, Europe, Japan, and China, and promptly respond on behalf of our clients in providing a successful outcome. We go the extra mile to maintain open communication with our clients to guarantee that we continuously provide custom-based consultancy services you value. We thank you for entrusting your business to us and considering our consultancy services for the future.

Yong-Ju Lee

President and CEO, Chemsolve Co., Ltd.

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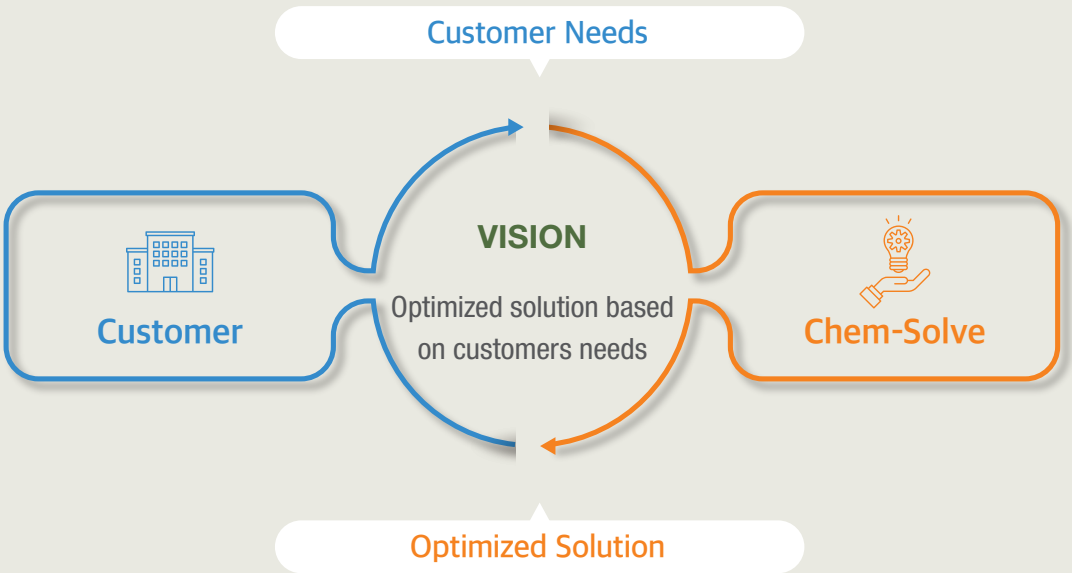
켐솔브

CHEMSOLVE, based on our expertise in chemical substances, mainly provides chemicals risk assessment report preparation and relevant consultation services in relation to the Korean Act on Registration Evaluation, etc. of Chemicals (K-REACH), and relevant consultation service for approval of Active Substances and Biocidal products in relation to Korea Biocidal Products Regulation (K-BPR). In addition, Chemsolve also deals with up to date overseas regulations and ESG consulting especially on the risk assessment for chemicals in production.



20+ cases

Government and Public Institution Cooperation Projects

- Development of intelligent exposure, risk assessment technology and personalized risk information provision platform when using household chemical products
- Advancement of safety evaluation techniques for biocide exposure risk assessment
- Development of green environmental technology for establishing information on chemical-accident-environmental-damage diagnosis
- Project with major companies product stewardship reports and chemical product management systems

20+ cases

Chemical Registration and Exemption

- Entire small and medium-sized businesses Joint Registration process support project
- Consultation service for exemption from registration of substances under K-REACH
- Agency service for Registration and Evaluation of Chemical Substances

200+ cases

Biocidal substances, products

- Whole biocidal substances/products approval process support project
- Consulting service for application for approval of biocidal substances

300+ cases

Prepare Chemical Safety Repost

- Preparation service on the risk of chemical substances report
- Preparation service for Joint Registration data of existing chemical substances subject to registration

Yong-Ju Lee

Ph.D in Environmental Engineering

CEO

Dr. Yong-Ju, Lee as a risk assessment expert, has abundant experience in leading environmental risk assessment research projects for government ministries such as the Ministry of Environment and the Ministry of Industry. She received her M.S. in Environmental Engineering from UCLA, and her Ph.D. in Engineering from Seoul National University Graduate School of Environmental Sciences; she has performed chemical/drug/pesticide/toxic exposure and risk assessments at the Korea Institute of Toxicology (KIT) affiliated with the Korea Research Institute of Chemical Technology (KRICT). Her expertise lies in chemical and biocide exposure assessments, while additionally performing numerous government projects and overseeing risk assessments for K-REACH and Biocidal Act response.

Moo-Deok Park

Ph.D in Chemical Engineering

Advisor

Dr. Moo-deok Park is an expert in process innovation and management system and has academic foundations as a MS in chemistry and a Ph.D in chemical engineering. Over 30 years at SK Innovation, he has been involved in product development, process improvement, technology marketing, and technology commercialization in the fields of petroleum chemistry and fine chemistry within the research and development organization. With successful experiences across the Business Value Chain and ten years of experience in the assessment and consultation of international standards (ISO) management systems, he currently works as a professional management consultant (including ESG management), a member of the evaluation committee for various government projects, and certification auditor for ISO management systems (quality, environment, safety health, anti-corruption, etc.)

Sang-Ho Kim

Ph.D in Chemistry

Advisor

Dr. Sang-Ho Kim is one of Korea's foremost nano materials experts with considerable industrial and academic experience in diverse materials. From 2010 to 2021, he successfully founded and led SG Flexio as CEO, while working as a tenured professor in the Department of Chemistry at Kongju National University. Previously, he worked at LG Chem and Hewlett-Packard Labs, upon which he led and conducted materials commercialization research. Since 2022, he has been Chemsolve's acting senior advisor on the chemical characterization of hazardous substances in chemicals.

Do-Won Kim

PhD in Environmental Sciences

Advisor

Dr. Do-won Kim is a circular economy expert with extensive experience across the energy, chemical, material, and food industries. He holds B.S. and M.S. degrees in Chemical Engineering from Seoul National University and a Ph.D. in Environmental Sciences from the University of East Anglia (UK), specialising in industrial ecology. After 15 years at SK Innovation, he was actively involved in diverse international collaboration works on energy and environmental technologies between Korea and Europe, during his time in the UK. He returned to Korea in 2022 and has since focused on circular economy and ESG consulting.

Steve Cervantes

Vice President, International marketing

Steve Cervantes, Vice President of Chemsolve Korea. Steve received his BA and MA in History and Economy respectively. Upon graduation, he received a Henry Luce Fellowship where he worked in numerous public policy related "think tanks" in Manila, Philippines. Thereafter, he worked in marketing positions with several MNCs throughout South and Northeast for several years. In 2005, Steve joined Konkuk University's (Seoul, Korea) International Trade Department and taught International Marketing and Business for 16 years. While there he worked as a consultant for chemical and nanotechnology associated firms. Steve finally became the Vice President of Marketing at Chemsolve Korea in which he is marketing Chemsolve's services globally.

A. B. V. Kiran Kumar

Principal Consultant

Dr. A.B.V. Kiran Kumar has 15 years of post-Ph. D. experience in nanomaterials and chemistry research and development. He is an innovator and entrepreneur. He has a PhD in synthetic organic chemistry and is an expert in a number of areas, including nanomaterials, biomaterials, polymers, and chemicals. 15 master's and one PhD students under his supervision are all skilled in research. He has national and international collaborates. He filed 4 patents and 40 articles published in peer-reviewed journals.

He received his MBE from the Indian Institute of Management in Kozikode. He is a Fellow Member of the RRMA (Regulatory Representatives and Managers Association).He is knowledgeable about all facets of business and the impact of global chemical regulations on the chemical supply chain and industry.

- Registration and evaluation of chemical substances (K-REACH)
- Approval of active substances and biocidal products (K-BPR)
- Material Safety Data Sheet (SDS)
- Risk Assessment (CSR)
- Correspond to overseas regulations
- ESG and Sustainability Response
- Chemical substances Control Act and Serious Accidents Punishment Act Response

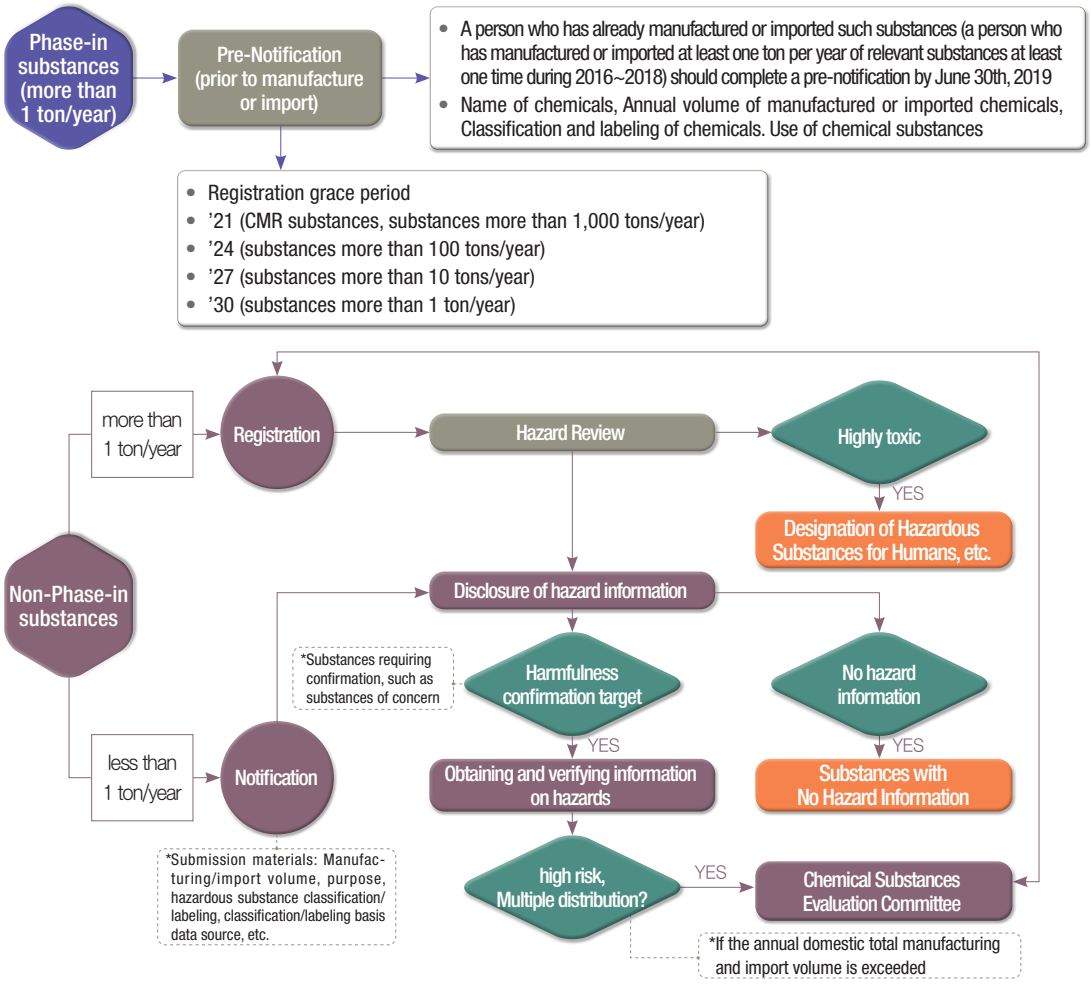
REGISTRATION AND EVALUATION OF CHEMICAL SUBSTANCES (K-REACH)

The Registration and Evaluation of Chemical Substances is a system established to systematically assess the impact of chemical substances on human health and the environment, and to ensure their safe use. Management and regulation are implemented under the Act on the Registration and Evaluation of Chemical Substances (hereinafter referred to as "K-REACH"). Under the current amended law, companies manufacturing or importing more than 1 ton of chemical substances per year (including both existing and new substances) are required to register these substances.

Our Services

- Verify applicability under K-REACH
- Review pre-notification and registration exemption requirements, and submit confirmation applications
- Provide support for joint registration of existing chemical substances and for the registration/notification of new chemical substances
- Assist with test commissioning and data evaluation

Registration and Evaluation Process of Chemical Substances



APPROVAL OF ACTIVE SUBSTANCES AND BIOCIDAL PRODUCTS (K-BPR)

The Approval of Active Substances and Biocidal Products system is designed to regulate the distribution and use of biocidal products that may pose risks to humans, animals, and the environment, thereby ensuring safety, efficacy, quality assurance, environmental protection, and consumer safety.

Biocidal substances refer to chemically or biologically active substances—such as ethanol, hydrogen peroxide, and insecticidal ingredients—that primarily function as sterilizing, disinfecting, or pest-controlling agents in biocidal products.

Biocidal products are products that contain biocidal substances and are used to control harmful organisms, such as disinfectants, insect repellents, and preservatives.

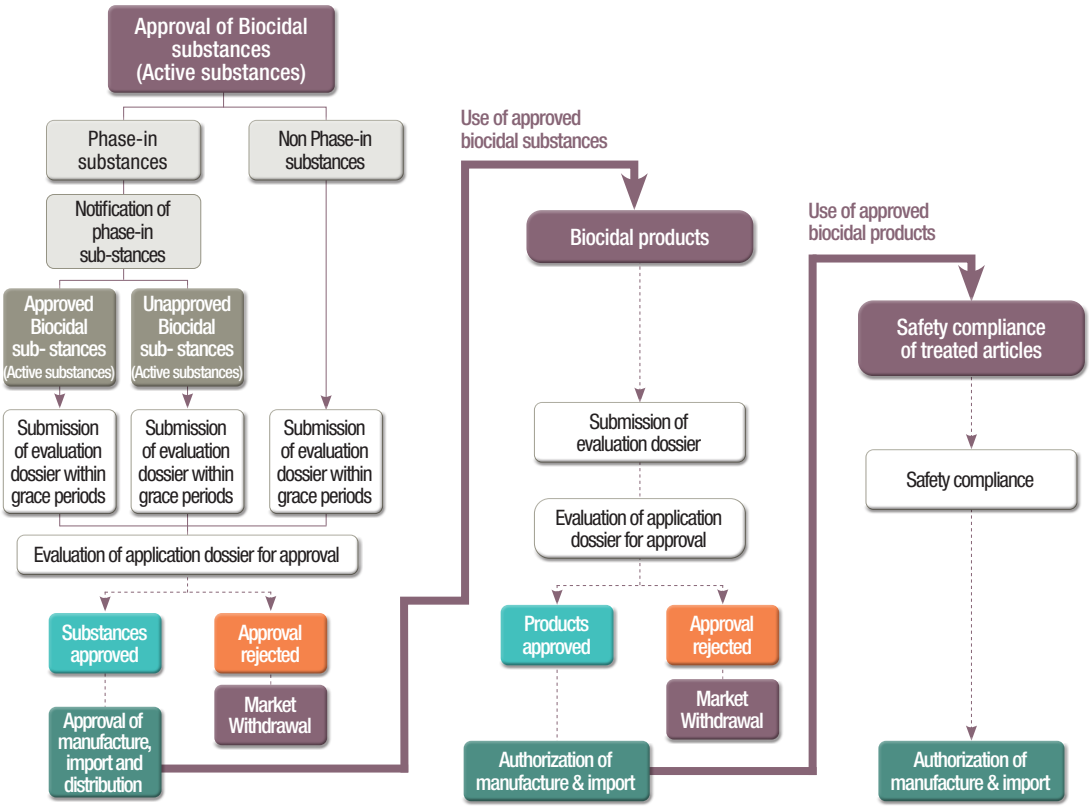
This system is governed by the Household Chemical Products and Biocides Safety Act (Chemical Products Safety Act), and companies are required to obtain regulatory approval before manufacturing, distributing, or using biocidal substances and products.

We provide tailored advice to businesses in accordance with the latest laws and regulations and offer expert consulting services to help them minimize legal and financial risks through the assessment and management of chemical hazards.

Our Services

- Notification of existing biocidal substances
- Approval of Active Substances and Biocidal Products
- Compliance with safety and labeling requirements for treated biocidal products

Approval procedures for biocidal substances, products and treated products



MATERIAL SAFETY DATA SHEET (SDS)

A Safety Data Sheet (SDS) is a document that provides essential safety information and handling guidelines for chemical substances and products. It is designed to assist workers and users in ensuring the safe use of chemicals, preventing exposure and accidents, and complying with regulatory requirements.
Under the Chemicals Control Act and the Occupational Safety and Health Act, the preparation and provision of an SDS are mandatory. An SDS must be prepared and supplied to relevant users prior to the manufacture, import, distribution, or use of any chemical substance.

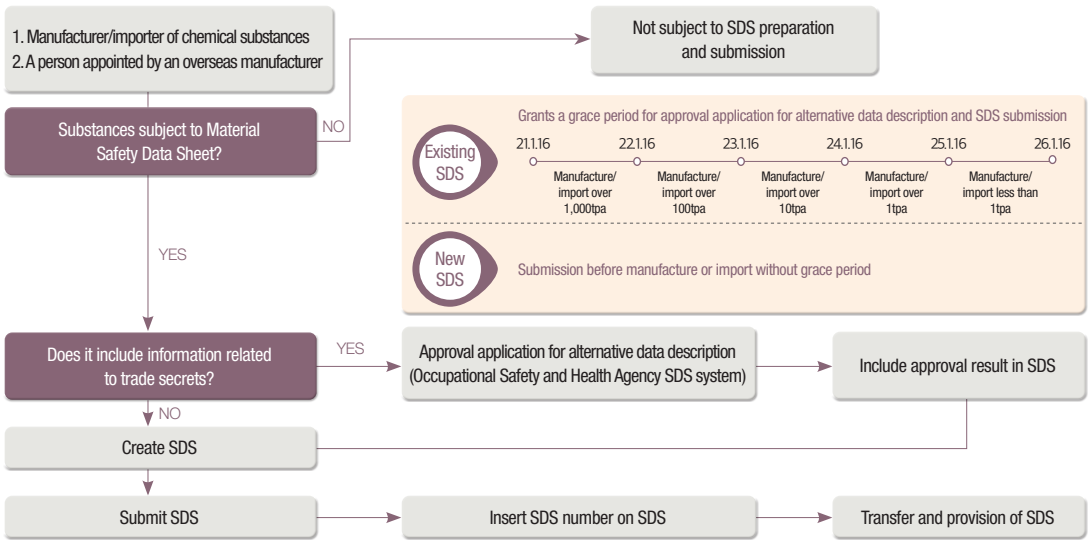
Our Services

- Preparation and review of SDS in compliance with GHS regulations
- Classification of chemical substances in accordance with domestic and international GHS standards

Grace Period of SDS submission

Date of SDS Creation			Date of submission
Created before Jan. 16, 2021	Manufacturing and import volume of chemical substance per annum	1,000t≤	Submission by Jan. 16, 2022
		100t ~ 1,000t	Submission by Jan. 16, 2023
		10t ~ 100t	Submission by Jan. 16, 2024
		1t ~ 10t	Submission by Jan. 16, 2025
		<1t	Submission by Jan. 16, 2026
Newly prepared SDS after Jan. 16, 2021			Submission before manufacturing and importing (regardless of annual manufacturing import volume)
Changes made after Jan. 16, 2021			Submission upon such changes without delay

SDS submission and alternative data description review process



* However, as the submission of data is only excluded in the case of materials for research and development, approval application of SDS preparation and alternative data description shall be applied.

CHEMICAL RISK ASSESSMENT (CSR)

Chemical risk assessment refers to the scientific evaluation of the potential effects of hazardous chemical substances on human health and the environment upon exposure.Chemical substances manufactured or imported in quantities of 10 tons or more per year, as well as substances designated as requiring a risk assessment based on the results of a hazard evaluation, are required to submit risk-related data as part of the chemical registration process.

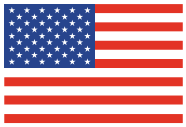
Our Services

- Hazard Assessment (including assessment of physicochemical hazards, environmental hazards, and human health hazards)
- Derivation of PNEC (Predicted No-Effect Concentration) and DNEL (Derived No-Effect Level)
- Risk Characterization, including the derivation of the Risk Characterization Ratio (RCR)
- Development of Risk Management Measures (RMM)

Use of CSR (Chemical Risk Assessment) reports

CORRESPOND TO OVERSEAS REGULATIONS

Toxic Substances Control Act (TSCA)



USA

Substances not listed on the TSCA Inventory are considered as new chemicals, and in the case of manufacturing/ importing new chemicals, a Pre-manufacture Notice (PMN) is issued to the Environmental Protection Agency (EPA). There is an obligation to report Notice Of Commencement (NOC) at the time of commencement of manufacturing/importing.

Premanufacture Notices (PMNs) & Significant New Use Notices (SNUNs):

If your chemical substance is subject to Significant New Use Rules (SNURs) and your intended manufacture, processing, or use of the substance is a significant new use, you would be required to submit an SNUN 90 days prior to the manufacture of that substance.

Our Services

- Application for pre-manufacture exemptions
- Preparation of PMN dossiers
- Reporting beginning of manufacture/import with NOC
- Notice of manufacture/import activities(NOA Form B)
- Review whether chemical is subject to SNUR
- Setting safety test strategies, arranging/monitoring tests

REACH (Registration. Evaluation Authorization and Restriction of Chemicals)

EU

Within the EU, under REACH regulations, all chemical substances which are imported at 1 ton or more annually are obligated to undergo registration(in case of mixtures, each individual constituent substance must be registered).

Businesses outside the EU may register by appointing an OR(Only Representative).

Our Services

- Support for OR appointment process
- Service on registration/notification, permits, performing duties on restrictions
- Providing latest news regarding REACH
- Setting safety test strategies, arranging/monitoring tests

India REACH (CMSR)

India

"India- REACH" (or ICMS Rules or CMS Rules) which will replace existing Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989 and Chemical Accidents (Emergency Planning, Preparedness and Response) (CAEPPR) Rules 1996. India REACH regulatory requirements shall come into force on the date of their publication in the Official Gazette, expected to come into force by the end of 2022.

All Chemical Substances must be Notified, and 750 "Priority substances" must be registered within 18 months.

All industrial sectors of the supply chain must comply with the CMSR, and non-Indian companies/enterprises must appoint an Authorized Representative (AR): an Indian entity, and AR, must comply with the CMSR on behalf of non-Indian companies.

Our Services

- Support for AR appointment process
- Service on registration/notification, permits, performing duties on restrictions
- Providing latest news regarding REACH
- Setting safety test strategies, arranging/monitoring tests

China REACH

China

It is a system in which a person (or manufacturer) who imports new chemical substances in China applies for registration of new chemical substances to China's Ministry of Ecology Protection (MEE) prior to the date of import (or manufacture) and receives registration certification. China's MEE was amended on April 29, 2020 [Environmental Management System for New Chemical Substances] MEE Order. 12 was announced, and it came into effect on January 1, 2021.

Currently, there are 46,856 substances listed in China's Inventory of Existing Chemical Substances (IECSC). Substances not listed on this list are considered as new chemicals.

Our Services

- Support for OR appointment process
- Submit to Chinese authorities
- Production of GLP test data required in China

ESG AND SUSTAINABILITY COMPLIANCE

ESG Management System

The ESG score of a company plays a critical role in attracting investment, securing financing, and gaining access to global supply chains. At present, a variety of indicators are applied depending on the industry sector and the evaluating agency. Accordingly, companies should prepare their ESG assessments using evaluation criteria that are aligned with their industry sector and ESG objectives. By contrast, ESG disclosure reports must comply with standardized frameworks and reporting guidelines.

Our Services

- ESG assessments, due diligence, and vulnerability analyses tailored to industries and evaluating agencies
- Designing tailored ESG management frameworks with standardized template
- Securing ESG data for assessment
- Formulating ESG risk mitigation strategies focused on environmental and safety factors
- Preparation of corporate sustainability disclosure reports

Compliance with ESPR

From July 2024, the EU's Eco-design for Sustainable Products Regulation (ESPR) will require all products sold in Europe to support the circular economy. The regulation restricts hazardous substances, sets circularity performance standards, and mandates a Digital Product Passport (DPP) for each product. Every company in the supply chain must also comply with ESPR, and securing accurate raw material data is becoming increasingly critical for issuing the DPP.

Our Services

- Developing company-specific ESPR compliance strategies
- Data collection frameworks required for DPP implementation

Product Stewardship Report

Product Stewardship is a management approach where manufacturers take responsibility for a product's entire lifecycle—from raw material sourcing to final disposal—to minimize impacts on safety, health, and the environment. The most effective way to prevent risks from chemical products is by disclosing relevant information, as manufacturers hold the most complete knowledge of product composition and processes. Publishing a Product Stewardship Report (PSR) supports this effort by reducing risks, promoting sustainability, and strengthening a company's ESG performance.

Our Services

- Developing the Product Stewardship Report (PSR)
- Consulting on key improvement of product stewardship

CHEMICAL SUBSTANCES CONTROL ACT AND SERIOUS ACCIDENTS PUNISHMENT ACT COMPLIANCE

Compliance with the Chemical Substances Control Act

The Chemical Substances Control Act (CSCA) is designed to ensure the safe management of chemical substances and to prevent chemical accidents. It strengthens safety standards, enhances preventive measures for hazardous chemicals, and reinforces preparedness and response systems for incidents.

Companies that manufacture or import chemical substances (or products containing them) must verify regulatory requirements in advance and comply with obligations related to import notifications and approvals for hazardous chemicals, including toxic substances, substances subject to authorization, restricted substances, and prohibited substances

Our Services

- Consultation on business licenses for handling hazardous chemicals
- Guidance on facility improvements to meet compliance standards
- Consultation on chemical substance inventories and legal requirements
- Support with installation and regular inspections of hazardous chemical facilities
- Preparation and submission of chemical substance confirmation reports
- Development of chemical accident prevention and management plans

Compliance with the Serious Accidents Punishment Act (SAPA)

The Serious Accidents Punishment Act (SAPA) holds business owners and executives legally liable if they fail to implement effective safety and health management systems in the event of a serious industrial accident. Since January 27, 2024, the Act has also applied to small businesses with 50 or fewer employees.

ChemSolve Co., Ltd. is an accredited service provider under the SME Innovation Voucher Program for serious accident prevention and occupational safety compliance. We help companies meet SAPA requirements through expert consulting and practical implementation support.

Our Services

- Implementation of occupational safety and health management systems
- Development of compliance-focused safety and health measures
- On-site risk assessments with corrective and preventive action consulting

DIRECTIONS

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