Industrial Health 2021, **59**, 298–307

Review Article

Transition of chemical management in Japan – Shift to self-regulation and measures for small businesses –

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Received March 15, 2021 and accepted May 17, 2021
Published online in J-STAGE August 18, 2021
DOI https://doi.org/10.2486/indhealth.2021-0071

Abstract: Increased variety and use of chemicals and the number of chemical disasters have changed chemical management. Europe and the United States have adopted self-regulation in chemical management; furthermore, countries worldwide must comply with the relevant United Nations recommendations and international standards for chemical management. Japan has experienced numerous pollution incidents and occupational disasters, resulting in the development of laws and regulations on chemical management; however, these policies are inconsistent with international trends. In particular, the shift from a compliance approach to self-regulation and measures for small businesses remain as challenges. This paper discusses the current situation and issues in chemical management in Japan, focusing on international trends.

Key words: Chemical management, Compliance approach, Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Japan, Self-regulation, Small business

History of Chemical Management

Table 1 shows the main conventions, recommendations, and guidelines for chemical management (preventive and/or counter-measures for health impairment) set by the International Labour Organization (ILO)[1)]. The data provide a glimpse of the problems in the times and global trends in occupational health. Countermeasures and compensation for relatively acute and serious intoxication effects were major issues at the beginning of the 20th century. Chronic diseases, such as cancer, were becoming a problem then, as were preventive measures by the end of the 20th century and the sift to self-regulation in the 21st century.

Chemical management has long been carried out in compliance with laws and regulations; however, in 1972, the British committee on Safety and Health at Work submitted the Robens Report on occupational health and safety to the United Kingdom Parliament. This report significantly changed the direction of chemical management. It pointed out the harms of the eight administrative organizations and related laws (eight laws and more than 500 rules) on occupational safety and health at that time, including employers' neglect of their responsibilities and self-regulation efforts due to their reliance on laws and regulations as well as the delay in responding to technological innovations. The

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Table 1. Main ILO conventions, recommendations, and guidelines for chemical management

Year	ILO Conventions and Recommendations
1919	Lead Poisoning (Women and Children) Recommendation (ILO No. 4)
1921	White Lead (Painting) Convention (ILO No. 13)
1925	Workmen's Compensation (Occupational Disease) Convention (ILO No. 18)
1929	Prevention of Industrial Accidents Recommendation (ILO No. 31)
1960	Radiation Protection Convention (ILO No. 115) and Recommendation (ILO No. 114)
1971	Benzene Convention (ILO No. 136) and Recommendation (ILO No. 144)
1974	Occupational Cancer Convention (ILO No. 139) and Recommendations (ILO No. 147)
1986	Asbestos Convention (ILO No. 162) and Recommendations (ILO No. 172)
1990	Chemicals Convention (ILO No. 170) and Recommendations (ILO No. 177)
1993	Prevention of Major Industrial Accidents Convention (ILO No. 174)
2001	Occupational Health and Safety Management System (ILO Guidelines)
2006	Promotional Framework for Occupational Safety and Health Convention (ILO No. 187) and Recommendation (ILO No. 197)

report presented reform proposals, such as establishing independent administrative organizations, the shift to self-regulation, and the simplification of laws (such that only principles are described). In response, the Government of the United Kingdom enacted the Health and Safety at Work, etc. Act[2] in 1974; under the proposed reforms, the law only discusses principles, with regulations, guidelines, and approved implementation rules, among others, provided as supplemental materials. The act advises employers to adopt the "so far as is reasonably practicable" principle in dealing with safety and health, stating "if the employer could not prove that sufficient preventive measures had been taken when lawsuits were filed, the penalty would be applied". This basic principle entitled shift chemical management from a compliance approach to self-regulation. The policy was linked to occupational health and safety measures based on subsequent risk assessment and risk management decisions.

In recent years, due to the necessity of environmental protection measures, chemical management has been comprehensively carried out according to the life cycle of chemical products and has been progressing toward international unification. This trend was largely due to the adoption of Agenda 21[3] at the United Nations (UN) Conference on Environment and Development in Rio de Janeiro in 1992. Agenda 21 was prepared over two years by approximately 180 countries. It specifically presents 40 chapters on environmental issues that governments and other groups must address in the 21st century. The ongoing global movement toward chemical management has made significant progress since the conference was held. Section 19 of Agenda 21 (Environmentally Sound Management of Toxic Chemicals, Including Prevention of Illegal International Traffic in Toxic and Dangerous Products) consists of six programs including Harmonization of Classification and Labelling of Chemicals, which resulted in the current UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS)[4]. This system has become the driving force for a major shift in chemical management in Japan.

The current trends in chemical management are primarily characterized by self-regulation and implementation of recommendations in an international framework. Examples of the former include the occupational health and safety management system (e.g., International Organization for Standardization 45001), and Control Banding[5] specifically developed for chemical management in small and medium-sized businesses. Example application of the latter facet include the Montreal Protocol on Substances that Deplete the Ozone Layer[6], the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal[7], and the Stockholm Convention[8]. Other examples include action plans, such as the UN Sustainable Development Goals[9] and the GHS.

History and Current Situation of Chemical Management in Japan

Chemical management laws and regulations (preventive

and/or counter-measures for health impairment) in Japan have been relatively well developed. They reflect pollution incidents and occupational diseases caused by chemicals that occurred during the country's high economic growth period, which began in the 1950s. The Chemical Examination and Regulation Law was established as a result of the Kanemi Oil Accident, involved polychlorinated biphenyl. The Ordinance on Prevention of Hazards due to Specified Chemicals was passed after a disaster involving vinyl chloride monomer occurred. Their creation demonstrates how many Japanese chemical management laws and regulations were formulated in response to major accidents and illnesses. These policies have been enacted to reduce the risk of accidents or for the early detection of diseases associated with the use of chemicals through the establishment of a management system in workplaces, assessment of hazards, facility requirements, handling methods, storage methods, installation of local exhaust ventilation, use of personal protective equipment, and medical examinations. By complying with these laws and regulations, employers attempt to prevent accidents and diseases caused by chemicals. Simply put, chemical management in Japan is based on and still widely observes the compliance approach.

For example, workplaces handling organic solvents have undertaken such measures as listing regulated organic solvents and implementing specific interventions, including hazard communication, education at the employment, the establishment of a safety and health committee, appointment of an operation chief, installation of local exhaust ventilation, special medical examinations, working environment measurements, biological monitoring, and protective equipment, among others (Ordinance on Prevention of Organic Solvent Poisoning)[10]. These measures and other distinct and overlapping obligations from other regulations are imposed on a limited number of listed chemicals. However, since the number of hazardous chemicals increased, the current scope of measures prevents the proper resources allocation to other nonregulated chemicals. That is, few specific legal obligations have been imposed on many other chemicals that are not listed as hazardous, such that insufficient action has been taken to fully comply with the relevant acts, laws, and regulations.

Japan also differs from Europe and the United States because it lacks a system for providing workers with chemical hazard information. For example, one provision (a council directive)[11] in Europe states that chemicals should not be placed on the market unless labelled in the 1970s. In the United States, the Hazard Communication Standard[12] was established in the early 1980s to alert workers on hazards. These regulations are based on the *obligation to inform* on the part of the supplier, the *right to know* on the part of the user (workers or consumers), and the recognition that hazard communication cannot occur without any law.

Oddly, although Japan has encountered many pollution incidents and occupational diseases during its high economic growth period, it does not have even the most basic preventive laws and regulations concerning the collection and communication of hazard information in place. Moreover, even though informing users (workers and consumers) of chemical hazards is the first step in chemical management, a system that comprehensively informs users of chemical hazards (physical, health and environmental) easily and understandably is not available. Hazard communication was only incorporated in established laws and regulations as an additional stipulation, not as a system, for risk management concerning the specific hazard of a given chemical, thereby limiting the number of chemicals for which information should be transmitted and at the same time, the available information per se.

When the GHS was introduced in Japan in 2006, only 99 chemicals were required by the Industrial Safety and Health Act (ISHA)[13] to contain hazard information on labels. Penalties were imposed for failure to provide labels or for false labelling, and imprisonment with work for not more than six months or a fine of not more than 0.5 million yen was imposed for violations (Article 119 No.3 of the ISHA 13). The penalty provision effectively promoted compliance with the law, but it was ineffective in communicating the hazards of as many chemicals as possible. On the contrary, it led to the misunderstanding that nonpunitive chemicals were not hazardous, intentionally or otherwise. In addition, no other law stipulated that labels should include comprehensive hazard information.

In Japan, hazard communication generally refers to safety data sheets (SDSs), not labels, maybe due to the difference of the number of regulated target chemicals for each. Notwithstanding, only approximately 1,500 chemicals must have SDSs under the ISHA, the Act on Confirmation, etc. of Release Amounts of Specified Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Pollution Release and Transfer Register [PRTRL] Law governing the PRTR-SDS System)[14]; and the Poisonous and Deleterious Substances Control Act (PDSCA)[15]. Moreover, SDSs are rarely read by workers or consumers in general and are thus not a useful means of communicating information to them. In contrast to the case with labels, penalties are not imposed for failure to provide SDSs or false contents of SDSs.

Table 2. Summary of chemical-induced health disorders (caused four or more days off) (2018)

	Number of cases (percentage)	Number of cases by type of disorders (percentage)		
		Inhalation/oral poisoning	Eye disorders	Skin disorders
Chemicals subject to specific regulations	77 (19%)	38 (42%)	18 (20%)	34 (38%)
Specified substances	47 (11%)	19	12	24
Organic solvents	28 (7%)	17	6	10
Lead	2 (1%)	2	0	0
Tetra-alkyl lead	0 (0%)	0	0	0
Chemicals subject to SDS provision obligation other than specific regulations	114 (27%)	15 (12%)	40 (31%)	75 (58%)
Chemicals not subject to SDS provision obligations	63 (15%)	5 (8%)	27 (40%)	35 (52%)
Chemicals whose names was not specified	162 (39%)	10 (6%)	46 (27%)	116 (67%)
Total	416	68	131	260

(Due to multiple failures, the total number may not be met. Rate is rounded.)
(Report on worker's death, injuries and diseases in 2018)

Data on occupational accidents in Japan reveal deficiencies in laws and regulations concerning hazard communication. Table 2 presents a summary of chemical-induced health disorders caused four or more days off according to specific regulations and type of disorder as of 2018. Eye and skin disorders accounted 85% of the cases[16]. Moreover, approximately 19%, 27%, 15% and 39% of the cases were caused by chemicals subject to specific regulations, chemicals subject to SDSs provision obligation, chemicals not subject to SDSs, and unidentified chemicals respectively. These figures indicate that unregulated chemicals caused more than half of the accidents. Many cases could have been prevented if hazard information were provided through labels and/or SDSs.

Severe cases of asbestos-related lung cancers and malignant mesotheliomas are increasing in Japan, suggesting that the *obligation to inform* and the *right to know* have not developed as basic social concepts. Although the hazards of asbestos were identified in the 1980s, no organization (e.g., government, companies, trade unions, consumer organizations, media, or academic societies) initiated a major campaign against asbestos disasters. In 2006, the Japan Society for Occupational Health published "Opinion of the Society on Asbestos Problems" on its website: "Although there has been considerable accumulation of scientific knowledge, the activities of the Society that did not function so far as to urge the government and industrial societies to take preventive measures should be reviewed[17]" In 2008, because of the damage caused by asbestos, the government revised Article 16 of the ISHA Enforcement Order[18] and completely prohibited the manufacture, import, supply, and use of materials containing more than 0.1% of asbestos.

Implementation of the GHS in Laws and Regulations

When the GHS was issued in 2003, among many laws and regulations concerning chemical management in Japan, only the ISHA (Article 57) required the communication of health hazards in a comprehensive but easy, understandable way on labels. In April 2006, the Ministry of Health, Labor and Welfare (MHLW) enforced a revised version of the ISHA that required labelling 99 chemicals, according to Article 57, and the SDSs of 640 chemicals, according to Article 57 No.2, to be prepared according to the GHS. The revised ISHA also required information on physical hazards to be added to labels and SDSs. Moreover, it recommended that SDSs under the PRTR-SDS system and the PDSCA be prepared according to the GHS.

The implementation of the GHS in the ISHA in Japan, which has not ratified the ILO chemical convention No. 170[1], was an epoch-making issue for occupational safety

Table 3. Enforcement year of the ISHA concerning labelling, SDS provision and risk assessment

Item	Obligation or Endeavor	Laws and regulations and enforcement year
Labelling	**Obligations**	Article 57 of the ISHA 1972 (GHS implementation in 2006)
	Endeavor	Article 24-14 of the OISH 2012 (GHS implementation)
SDS provision	**Obligations**	Article 57-2 of the ISHA 2000 (GHS implementation in 2006)
	Endeavor	Article 24-15 of the OISH 2012 (GHS implementation)
Risk assessment	**Obligations**	Article 57-3 of the ISHA 2016
	Endeavor	Article 28-2 of the ISHA 2006

and health administration. This revision of the ISHA positioned the GHS as the basis for chemical hazard communication, which paved the way for the construction of hazard communication systems and the shift to self-regulation in chemical management. On the other hand, although Japan was one of the first countries that implemented the GHS, the laws and standards in which it was incorporated had limited coverage.

On April 1, 2012, revised version of Article 24 No.14 (Labels) and No.15 (SDSs) of the Ordinance on Industrial Safety and Health (OIHS)[19] were enforced. The revisions required labels and SDSs (not obligatory but with endeavor) for all hazardous chemicals excluding chemicals stipulated in Article 57 of the ISHA. Simply put, the ISHA and the OIHS stipulated that information should be conveyed on labels or SDSs for all hazardous chemicals, avoiding duplication. To accomplish this, the MHLW issued the Guidelines for Promoting Labelling or Notification of the Hazards of Chemicals (Notice No. 133, March 16, 2012)[20]. Furthermore, it provided further explanation of the guidelines in Promotion of Labelling or Notification, etc. of Hazards of Chemicals, etc. (Notice No. 329, No. 11, March 29, 2012)[21]. This document states that classification and labels as well as SDSs should be provided under Japanese Industrial Standards (JISs) Z 7252 and Z 7253, respectively. Essentially, the GHS was implemented in the ISHA and the OIHS with reference to JISs.

On June 1, 2012, the Ministerial Order Specifying Methods for Providing Information on the Properties and Handling of Designated Chemicals[22] and the Guidelines for Measures Related to the Management of Class 1 Designated Chemical Substances, etc. and Class 2 Designated Chemical Substances, etc. that should be taken by businesses handling designated chemical substances, etc.,[23] concerning the PRTR Law, were revised by the Ministry of Economy, Trade, and Industry. According to these provisions, businesses handling designated chemicals must provide labels and SDSs according to JISs Z 7252 and Z 7253. This revision was incredibly significant for the implementation of the GHS in Japan. The PRTR Law encompasses environmental hazards that the ISHA does not cover, such that labels and SDSs included all hazards covered by the GHS in Japan. However, the number of chemicals was limited.

In 2006, Article 28 No.2 of the ISHA was established and enforced, with the recommendation (i.e., not an obligation) that hazardous chemicals based on the GHS be subjected to risk assessment. This provision also applied to chemicals for which labelling and SDS provision are not obligatory (with endeavor) under the OISH. In June 2014, Article 57 No.3 of the ISHA was revised to require a risk assessment of chemicals for those required labelling and SDS in Article 57. This amendment was a step forward in the shift of chemical management toward self-regulation based on risk assessment.

Table 3 summarizes enforcement year for labelling, SDS provision and risk assessment under the ISHA and the OISH. Table 4 provides the updated list of chemicals covered by these regulations. The chemicals that would be considered in the short and long terms are cited from the work of the Investigative Committee on Management of Chemicals in the Workplace (see also Table 8)[24].

Issues for Small Businesses

The previous section discussed the characteristics and deficiencies of the chemical management laws and regulations in Japan. This section further examines the issues as they relate to small businesses with less than 50 workers.

Several diseases caused by serious chemical disasters have occurred in Japan in recent years, including 1,2-dichloropropane and dichloromethane induced bile duct can-

Table 4. Changes of the number of chemicals subject to labelling, SDS provision and risk assessment

Item	Obligation or Endeavor	In the past (2006)	At present (March 2021)	Near future (2023)	Long-term future
Labelling	**Obligations**	99	674	3,100	All hazardous chemicals
	Endeavor	–	All hazardous chemicals	All hazardous chemicals	–
SDS provision	**Obligations**	640	674	3,100	All hazardous chemicals
	Endeavor	–	All hazardous chemicals	All hazardous chemicals	–
Risk assessment	**Obligations**	–	674	3,100	All hazardous chemicals
	Endeavor	All hazardous chemicals	All hazardous chemicals	All hazardous chemicals	–

All hazardous chemicals classified according to the GHS

cer, indium induced lung disease, ortho-toluidine induced bladder cancer, suspected bladder cancer due to 4,4'-methylenebis-(2-chloroaniline), respiratory disease due to inhalable acrylic acid-based polymers, and acute toxicity due to a benzyl alcohol containing paint remover. Some of these chemicals were not covered by the measures stipulated under ISHA – that is, they were not listed as hazardous, and their hazard information was probably not relayed to most affected workers in effect. Notably, the disasters occurred mostly in small businesses.

Table 5 presents data on the fatalities and disorders (caused four or more days off) in Japan as of 2017, by business size. Approximately 90% and 60% of the disasters occurred in businesses with less than 300 workers and in those with less than 50 workers respectively. Thirty percent of the accidents occurred in small businesses and due to unidentified chemicals[25].

The smaller the size of the business, the lower the per-

Table 5. Number of fatalities and disorders resulting from contact with hazardous chemicals by business size (caused four or more days off) (2017)

Business size, number of workers	Number of cases	Causative chemicals			
		Under specific regulations	SDS provision obligation	Not regulated	Unidentified
5,000 or more	3	0	0	2	1
1,000 – 4,999	9	5	1	0	3
300 – 999	25	8	3	8	6
100 – 299	65	10	16	22	17
50 – 99	54	12	19	8	15
30 – 49	65	11	17	14	23
10 – 29	79	18	15	23	23
1 – 9	64	10	19	17	18
Total	364	74	90	94	106

(Rate is rounded.)

(Report on worker's death, injuries, and diseases in 2017)

Table 6. Rate of workers with awareness, education and knowledge on chemical hazards by business size (2014)

Business size, number of workers	Percentage of workers who are aware of being engaged hazardous work	Percentage of workers who have received education or explanations on hazardous work	Percentage of workers who know what SDSs are	Percentage of workers who know what labels are
5,000 or more	73.4%	66.2%	76.7%	61.7%
1,000 – 4,999	72.1%	59.7%	74.2%	58.3%
300 – 999	74.4%	48.4%	65.7%	51.2%
100 – 299	71.3%	55.9%	48.9%	41.1%
50 – 99	56.4%	50.1%	39.8%	34.1%
30 – 49	59.7%	40.5%	32.8%	28.3%
10 – 29	52.5%	37.7%	35.6%	26.5%

(Labor environment survey in 2014 (n=9,982))

centage of workers with awareness, education and knowledge on chemical hazards (Table 6). Workers' awareness of labels and SDSs, which serve as modes of direct communication of hazards, decreases with decreasing business size. The proportion of workers with an adequate level of awareness in small businesses is less than half of that in businesses with more than 1,000 workers[26]. In addition, the implementation rate of special medical examinations and working environment measurements, which are obligatory for workplaces handling specified chemicals, also decreases with decreasing business size. In particular, the risk assessment rate of businesses with less than 30 workers is approximately half that of large businesses (Table 7)[27].

A recent online survey targeting small businesses handling chemicals conducted by National Institute of Occupational Safety and Health Japan revealed interesting findings. The survey covered 500 businesses (with employers or safety and health officers as respondents) and 1,000 workers with different profiles and backgrounds, respectively. Approximately 10% of the businesses reported that workers complained of symptoms caused by chemicals, whereas approximately 30% of the workers experienced symptoms thought to be caused by chemicals at work. Approximately 50% of the businesses were aware of the need

Table 7. Implementation rate of special medical examinations, working environment measurement, and risk assessment by business size

Business size, number of workers	Special medical examinations		Working environment measurement		Risk assessment
	Organic solvents	Specified chemicals	Organic solvents	Specified chemicals	
5,000 or more	92.3%	93.7%	97.7%	97.3%	61.6%
1,000 – 4,999	96.5%	84.6%	95.8%	96.9%	65.7%
300 – 999	94.2%	91.6%	95.6%	96.5%	59.5%
100 – 299	84.7%	90.0%	90.4%	94.6%	59.6%
50 – 99	87.9%	86.6%	84.3%	96.2%	53.8%
30 – 49	74.5%	96.5%	74.7%	70.1%	39.6%
10 – 29	74.4%	77.1%	63.3%	75.7%	30.4%

(Occupational health and safety survey in 2017 (n=8,674) and Occupational environment survey in 2014 (n=9,145))

to adhere to laws and regulations. Approximately 80% of the workers were aware of the hazards of the chemicals they handled; among them, approximately 80% and 45% obtained hazard information from labels and through workplace education, respectively. However only 7% of the workers knew what all nine GHS pictograms meant, and approximately 75% were familiar with only four or fewer pictograms. Approximately 20% of the workers did not know the hazards of the chemicals they handled, and approximately half of them wanted to know the hazards. These findings indicate that the hazards of the chemicals handled are not well recognized in the workplace, and employers do not sufficiently communicate that hazard information to their workers.

In the United States, after the GHS was implemented in the Hazard Communication Standard, the *right to know* and the *right to understand* were set as the slogans for hazard information. It is said that this will change the conventional inspector's question to employers as "Is SDS provided?" into the new question to workers as "What is the meaning of this pictogram?". This shift has substantial implications for how hazard information should be transmitted to workers in Japan.

The laws and regulations concerning industrial health in Japan seem relatively well developed. However, the obligation to establish a safety and health committee, appoint industrial physicians, and notify the relevant labor standard office of a health officer and the results of periodic health checkups is not stipulated for small businesses, as opposed to businesses with more than 50 workers. Measures that would make these systems more effective are necessary to raise health awareness among small business owners and workers.

Although small business may employ occupational health consultants and working environment measurement experts as occupational health professionals, doing so may not be economically easy or sound.

Outlook of Measures

At present, the MHLW is considering updating chemical management protocols based on the work of the Investigative Committee on the Chemical Management in the Workplace. The main proposition of this committee is to adopt self-regulation in chemical management. This section introduces the results of the ministry's deliberation on the committee's interim[24] on the risk assessment and small business countermeasures, which are indispensable elements for carrying out self-regulation. These results are expected to be reflected in the relevant acts and/or the ordinances eventually.

Revision of regulations (shift to self-regulation)

Based on the recognition of the current situation regarding chemical management in the workplace, it is appropriate to review the existing system, wherein the government conducts risk assessment of chemicals with high hazards (particularly carcinogenicity), adds them to the list of the Ordinance on Prevention of Hazards due to Specified Substances[28] and stipulates specific measures to be undertaken according to the regulations. From now employers should select and implement measures to prevent exposure based on the available hazard information; in addition, the government should create a system based on the principle of setting achievable targets.

Obligation to provide hazard communication and undertake risk assessment of GHS-classified chemicals

The government will collect hazard information on chemicals and continuously perform GHS-based classification and updating. Building on this classification, all chemicals classified shall be subject to labelling, SDS provision, and risk assessment, and applicable measures based on the results will be implemented.

To this end, the government will not only revise the enforcement order to include all GHS-classified chemicals in the scope of labelling under Article 57 and SDS provision under Article 57 No.2 of the ISHA but also continue to prepare and update model labels and SDSs according to the GHS. The following chemicals shall be prioritized for the expansion of labelling and SDS provision.

(1) Chemicals with high hazards (prioritized according to IARC groups 1, 2A and 2B)[29]
(2) Chemicals that have caused occupational disasters
(3) Chemicals that are imported and manufactured in large quantities in Japan
(4) Chemicals with high exposure risk (e.g., those with high vapor pressure).

The prospective chemicals to be added as subject to labelling, SDS provision, and risk assessment are shown in Table 8[30]. The chemicals classified before 2021 will be added between 2021 and 2023, those to be classified between 2021 and 2023 (150 – 300 chemicals in total) will be added in 2024, and those to be classified in 2004 (50 – 100 chemicals per year) will be added in 2025. Chemicals that will be classified after 2025 will be added in a manner and time frame similar to those just described.

Table 8. Plan for the number of chemicals subject to labelling, SDS provision and risk assessment

	2021	2022	2023	2024	2025	2026
Chemicals to be classified	**50 – 100 chemicals**	**50 – 100 chemicals**	**50 – 100 chemicals**	**50 – 100 chemicals**	**50 – 100 chemicals**	**50 – 100 chemicals**
Chemicals subject to labelling, SDS provision and risk assessment	**700 chemicals (classified before 2021)**	**700 chemicals (classified before 2021)**	**700 chemicals (classified before 2021)**	**150 – 300 chemicals**	**50 – 100 chemicals**	**50 – 100 chemicals**

(The chemicals classified before 2021 will be added between 2021 and 2023, those to be classified between 2021 and 2023 (150 – 300 chemicals in total) will be added in 2024, and those to be classified in 2004 (50 – 100 chemicals per year) will be added in 2025. Chemicals that will be classified after 2025 will be added in a manner and time frame similar to those described.)

Support for small businesses

The measures listed below will enable small and medium-sized businesses with insufficient knowledge of and human resources on chemical management to handle chemicals properly.

(1) Establishment of guidelines for chemical management

For chemicals that are particularly difficult to manage and chemicals that have high hazards, the government will cooperate with research institutes and industry associations to provide guidelines on standard management methods and related constructs.

(2) Establishment of a support system by experts

With the cooperation of industry associations, the government will develop and deploy human resources with high expertise and abundant experience in chemical management and explore the establishment of a system that provides free consultation services and advice to small and medium-sized businesses in each regional area of Japan.

(3) Development of infrastructure to support chemical management

The government will develop a simple management support system that can be easily implemented without specialized knowledge using smartphones and tablets. It will also consider the establishment of a web portal that aggregates information on chemical management. Furthermore, the government will develop tools that enable small and medium-sized businesses to prepare SDSs for mixtures easily.

Conclusion

The compliance approach has been the mainstream of chemical management in Japan for many years. This is very different from self-regulation which is a basic principle in Europe and the United States. Currently, Japan is trying to overcome the delay of several decades compared to Europe and the United States. In the near future, it would be sure for all workers to be informed of chemical hazards based on the GHS and for businesses to do chemical management according to their responsible priorities.

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