Chemical Exposure and Health Risk Assessment & Control Banding Management System Consultation and Service
The importance of establishing a chemical exposure and health risk assessment and control banding management system

Due to the narrow coverage of past regulations, requiring only the limited use of chemicals in workplaces for conducting environmental monitoring (EM), the Occupational Safety and Health Administration in Taiwan (Taiwan OSHA) has enacted new regulations, authorized by the recently amended Occupational Safety and Health Act (OSHAct; 2013), to assure good practices are utilized by employers in managing workers’ chemical exposures and resultant health risks, following the five principles of “Covering all chemicals, Multiple exposure assessment tools, Firm scientific basis, Risk classification, and Control banding management.”

To help enterprises of different scale and classification conducting good management practices in terms of chemical exposure and health risk assessment along with control banding issues, TÜV Rheinland has brought together industrial hygienists of various expertise to establish suitable provisions, strategies, data-analysis platforms, and management systems for a whole enterprise. The rich experience of our experts in conducting chemical control banding, exposure assessment, exposure modeling, environmental monitoring, and engineering control measures, together with their strong academic background, not only ensures that enterprises can attain compliance with the laws, but that they can also reach goals for protecting workers from excessive exposures, enhance harmonization between employer and employee, and increase production efficiencies.
What can we do for you?

Based on the current situation for different enterprises in their management of health-related chemicals, and the extent of familiarity with related regulations, TÜV Rheinland provides multiple packages for selection to meet their various requirements:

1. Provision of tailored provisions, documentation, and processing procedures for chemical control banding, exposure assessment, exposure modeling, environmental monitoring, and motherhood protections

To ensure compliance with the newly amended regulations, our experts will conduct preliminary surveys to attain understanding of the current chemical inventory and distribution, related manufacturing processes, and exposure status of workers, along with related provisions. Tailored provisions, documents, and strategies, specifically suited to your enterprise, will then be provided for chemical control banding, exposure assessment, exposure modeling, environmental monitoring, and engineering control measures.

Service items provided:

i. Establishment of chemical control banding as well as exposure and health risk assessment provisions
ii. Establishment of documentation and processing procedures for conducting chemical control banding
iii. Establishment of documentation and processing procedures for conducting chemical exposure modeling to assess exposure to chemicals within permissible exposure levels (PELs)
iv. Establishment of documentation and processing procedures for conducting chemical exposure monitoring
v. Establishment of documentation and processing procedures for chemicals-associated motherhood protections

2. Provision of chemical control banding services for health-related chemicals

Most enterprises are focused on chemical safety risk assessment, and much less is done from the health-risk assessment aspect. However, health impacts and occupational diseases caused by chemical exposure cannot be ignored. In addition, the newly amended OSHAct strongly requests that enterprises conduct chemical health risk assessment and, subsequently, engage in control banding. Therefore, establishing practical, suitable and accurate chemical health risk assessment techniques is critical for good practice in control bandings.

Service items provided:

i. Establishment of databank for chemical control banding
ii. Establishment of written program for conducting chemical control banding using semi-quantitative health risk assessment techniques
iii. Conducting of chemical control banding using semi-quantitative health risk assessment technique, with provision of written report
iv. Establishment and conducting of education program for chemical control banding using semi-quantitative health risk assessment technique
v. Establishment of tools and platforms for conducting chemical control banding using semi-quantitative health risk assessment technique

3. Provision of services for assessing exposure and health risks for chemicals with permissible exposure levels (PELs)

Workplaces usually involve the use of various chemicals with complicated physical-chemical properties and different emission characteristics, which hence might result in different exposure concentrations. Many of these currently do not have feasible sampling and analytical methods in place for assessing exposure concentrations. The accurate prediction of exposure concentrations has therefore become a critical issue for enterprises in Taiwan. Our team has intensive experience in predicting exposures using various exposure-modeling techniques, and will help enterprises to conduct exposure modeling and establish a platform for conducting exposure assessments.

Service items provided:

i. Establishment of databank for conducting exposure assessments for chemicals with permissible exposure levels (PELs)
ii. Establishment of written program for conducting exposure assessments for chemicals with PELs using exposure modeling techniques
iii. Conducting of exposure assessments for chemicals with PELs using exposure modeling techniques
iv. Provision of written reports and recommendation of feasible control strategies
v. Establishment of tools and platforms for conducting exposure assessments for chemicals with PELs using exposure modeling techniques
4. Provision of services for conducting chemical exposure and health risk assessments using environmental monitoring (EM) techniques

Even if a single chemical exposure is well below the designated PEL, workers’ exposure still remains a concern if they were simultaneously exposed to multiple chemicals. In addition, it should be noted that one-time EM data is known to be inadequate for assessing workers’ long-term exposures. Our experts have established techniques for assessing workers’ long-term multiple chemical exposures using EM and many other supplementary techniques (such as exposure modeling). Moreover, our experts can provide the most feasible and least resource-consuming control strategies for enterprises, including the selection of personal protective equipment (PPE), education programs, and engineering controls, to ensure high-quality workplace safety and health based on EM results.

Service items provided:

i. Establishment of databank for chemicals requiring conducting of EM
ii. Establishment of written programs for conducting EM and exposure control bandings (including EM sampling strategy)
iii. Conducting of EM and sample analyses
iv. Conducting of long-term multiple chemical exposure assessment (including the use of Bayesian statistical analysis) and provision of written report (including recommendations)
v. Establishment of tools and platforms for conducting of long-term multiple chemical exposure assessment with PELs using exposure modeling techniques

5. Establishment of assessment and management systems for motherhood protection

Since motherhood protection has been incorporated into the newly amended OSHAct, related measurements, including hazard identification, evaluation and control, are obviously necessary for all enterprises. To ensure compliance with the related regulations, our experts can help enterprises, based on their business scale and characteristics, to enact and conduct assessment and management systems for the implementation of motherhood protection, and recommend suitable control measures.

Service items provided:

i. Establishment of databank for chemicals for which motherhood protection is required
ii. Establishment of written programs for implementation of motherhood protection
iii. Conducting of assessments and data analyses for motherhood protection
iv. Provision of written reports and recommendations
v. Establishment of tools and platforms for implementation of motherhood protection

Enterprises are encouraged to choose all or a number of provided items. Experts from TÜV Rheinland will provide quality service to ensure your company is in compliance with the related regulations and guarantee safety and health in your workplaces.

Annex: Related regulations

1. Relevant provisions of the Occupational Safety and Health Act

Article 10
The employers shall label, make inventories, and display safety data sheets for hazardous chemicals, and adopt necessary hazard communication measures.

Prior to providing the chemicals in the preceding paragraph to business entities or self-employed workers, the manufacturers, importers, or suppliers shall label them and provide safety data sheets; the same shall be applied for any change of information.

The scope, labeling, inventory formats, safety data sheets, and their displays, hazard communication measures and other binding matters regarding the chemicals specified in the preceding two paragraphs are stipulated by the central competent authority.

Article 11
With regard to the chemicals specified in the preceding Article, the employers shall assess the degrees of risks the chemicals pose based on hazards to health, distribution, quantity of use and other conditions, and adopt management measures according to risk ranking.

Article 12
For job sites where the central competent authority has stipulated permissible exposure limits, the employers shall ensure that laborers’ hazard exposure is under the permissible level.

The permissible exposure limits in the preceding paragraph are stipulated by the central competent authority. Employers of job sites designated by the central competent authority shall formulate a job site monitoring plan, and establish organizations or commission a job site monitoring agency approved by the central competent authority to carry out monitoring.

Article 31
Employers shall institute hazard assessments, controls, and hierarchy management measures for work which is potentially hazardous to maternal health in industries designated by the central competent authority; for female laborers who are still within their first postpartum year, work adjustment or reassignment or other protective measures shall be adopted in accordance with the physician’s suitability assessment recommendations, and records of these measures should be kept.

In the event that the laborers in the preceding paragraph experience health abnormalities or adverse reactions due to changes in working conditions or operating processes during the period of protection, where a physician’s assessment confirms that the laborers are unsuitable for her original work, the employers shall rearrange the matter in accordance with the provisions of the preceding paragraph.

Regulations regarding the designation of industries, types of work considered potentially hazardous to maternal health, hazard assessment procedures and controls, hierarchy management methods, suitability assessment principles, work adjustment or reassignment, physician qualifications and report formats, and records keeping in Paragraph 1 and other binding matters to be complied with shall be stipulated by the central competent authority.

Where the employers are not informed by the person involved of the pregnancy or childbirth and breach the regulations stipulated in Paragraph 1 or 2, the employers shall be exempt from penalty; however, this exemption shall not apply if employers are aware or could have known of the fact.

2. Related penalties of the Occupational Safety and Health Act

Article 43
Any of the following violations shall be subject to a fine of no less than NT$30,000 but no more than NT$300,000:

1. Violations of the provisions of Article 10 Paragraph 1, Article 11 Paragraph 1, or Article 23 Paragraph 2, in which notification has been given to make improvements within a limited time period but has failed to do so.
2. Violations of the provisions of Article 6 Paragraph 1 or 3, Article 14 Paragraph 2, Article 16 Paragraph 1, Article 19 paragraph 1, Article 24, Article 31 Paragraph 1 or 2, or Article 37 Paragraph 1 or 2, or a violation of Article 6 Paragraph 2 leading to the occurrence of an occupational disease.
3. Violations of the provisions of Article 15, Paragraph 1 or 2, for which fines may be levied per violation.
4. Evasion, obstruction, or refusal of an inspection, investigation, random examination, market examination, or verification prescribed by this Act.