Chemical Hazard Communication

An Online Continuing Education Course for Engineers

Course Number: H-1007

Credit: 1 Hour / 1 PDH / 1 CPD

Chemical Hazard Communication

What is Hazard Communication, and Why Is a Standard Necessary?

Under the provisions of the Hazard Communication Standard, employers are responsible for informing employees of the hazards and the identities of workplace chemicals to which they are exposed.

About 32 million workers work with and are potentially exposed to one or more chemical hazards. There are an estimated 650,000 existing chemical products, and hundreds of new ones being introduced annually. This poses a serious problem for exposed workers and their employers.

Chemical exposure may cause or contribute to many serious health effects such as heart ailments, central nervous system, kidney and lung damage, sterility, cancer, burns, and rashes. Some chemicals may also be safety hazards and have the potential to cause fires and explosions and other serious accidents.

Because of the seriousness of these safety and health problems, and because many employers and employees know little or nothing about them, the Occupational Safety and Health Administration (OSHA) issued the Hazard Communication Standard. The basic goal of the standard is to be sure employers and employees know about work hazards and how to protect themselves; this should help to reduce the incidence of chemical source illness and injuries.

The Hazard Communication Standard establishes uniform requirements to make sure that the hazards of all chemicals imported into, produced, or used in U.S. workplaces are evaluated, and that this hazard information is transmitted to affected employers and exposed employees.

Employers and employees covered by an OSHA-approved state safety and health plan should check with their state agency, which may be enforcing standards and other procedures, “at least as effective as,” but not always identical to, federal requirements.

Basically, the hazard communication standard is different from other OSHA health rules because it covers all hazardous chemicals. The rule also incorporates a “downstream flow of information,” which means that producers of chemicals have the primary responsibility for generating and disseminating information, whereas users of chemicals must obtain the information and transmit it to their own employees. In general, it works like this:

Chemical Manufacturers/ Importers	• Determine the hazards of each product.
Chemical Manufacturers/ Importers/ Distributors	• Communicate the hazard information and associated protective measures downstream to customers through labels and MSDSs.
Employers	• Identify and list hazardous chemicals in their workplaces. • Obtain MSDSs and labels for each hazardous chemical, if not provided by the manufacturer, importer, or distributor. • Develop and implement a written hazard communication program, including labels, MSDSs, and employee training, on the list of chemicals, MSDSs and label information. • Communicate hazard information to their employees through labels, MSDSs, and formal training programs.

Chemical Hazard Communication

OSHA's standard (Title 29, Code of Federal Regulations, Part 1910.1200, 1915.99, 1917.28, 1918.90, and 1926.59) applies to general industry, shipyard, marine terminals, longshoring, and construction employment and covers chemical manufacturers, importers, employers, and employees exposed to chemical hazards.

Who is Covered?

The quality of the hazard communication program depends on the adequacy and accuracy of the assessment of hazards in the workplace. Chemical manufacturers and importers are required to review available scientific evidence concerning the hazards of the chemicals they produce or import, and to report the information they find to their employees and to employers who distribute or use their products. Downstream employers can rely on the evaluations performed by the chemical manufacturers or importers to establish the hazards of the chemicals they use.

The chemical manufacturers, importers, and any employers who choose to evaluate hazards are responsible for the quality of the hazard determinations they perform. Each chemical must be evaluated for its potential to cause adverse health effects and its potential to pose physical hazards such as flammability. (Definitions of hazards covered are included in the standard, see 1910.1200(c).) Chemicals that are listed in one of the following sources are to be considered hazardous in all cases:

- 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), and
- Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment, American Conference of Governmental Industrial Hygienists (ACGIH).

In addition, chemicals that have been evaluated and found to be a suspect or confirmed carcinogen in the following sources must be reported as such:

- National Toxicology Program (NTP), Annual Report on Carcinogens,
- International Agency for Research on Cancer (IARC), Monographs, and
- Regulated by OSHA as a carcinogen.

Chemical Hazard Communication

A written hazard communication program ensures that all employers receive the information they need to inform and train their employees properly and to design and put in place employee protection programs. It also provides necessary hazard information to employees, so they can participate in, and support, the protective measures in place at their workplaces.

Employers therefore must develop, implement, and maintain at the workplace a written, comprehensive hazard communication program that includes provisions for container labeling, collection and availability of material safety data sheets, and an employee training program. It also must contain a list of the hazardous chemicals, the means the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals in unlabeled pipes. If the workplace has multiple employers onsite (for example, a construction site), the rule requires these employ- ers to ensure that information regarding hazards and protective measures be made available to the other employers onsite, where appropriate. In addition, all covered employers must have a written hazard communication program to get hazard information to their employees through labels on containers, MSDSs, and training.

The written program does not have to be lengthy or complicated, and some employers may be able to rely on existing hazard communication programs to comply with the above requirements. The written program must be available to employees, their designated representatives, the Assistant Secretary of Labor for Occupational Safety and Health, and the Director of the National Institute for Occupational Safety and Health (NIOSH).

Why Is a Written Hazard Communication Program Necessary?

Chemical manufacturers and importers must convey the hazard information they learn from their evaluations to downstream employers by means of labels on containers and material safety data sheets (MSDSs).

Also, chemical manufacturers, importers, and distributors must be sure that containers of hazardous chemicals leaving the work-place are labeled, tagged, or marked with the identity of the chemical, appropriate hazard warnings, and the name and address of the manufacturer or other responsible party.

In the workplace, each container must be labeled, tagged, or marked with the identity of hazardous chemicals contained therein, and must show hazard warnings appropriate for employee protection. The hazard warning can be any type of message, words, pictures, or symbols that provide at least general information regarding the hazards of the chemical(s) in the container and the targeted organs affected, if applicable. Labels must be legible, in English (plus other languages, if desired), and prominently displayed.

Exemptions to the requirement for in-plant individual container labels are as follows:

- Employers can post signs or placards that convey the hazard information if there are a number of stationary containers within a work area that have similar contents and hazards.
- Employers can substitute various types of standard operating procedures, process sheets, batch tickets, blend tickets, and similar written materials for container labels on stationary process equipment if they contain the same information and the written materials are readily accessible to employees in the work area.
- Employers are not required to label portable containers into which hazardous chemicals are transferred from labeled containers and that are intended only for the immediate use of the employee who makes the transfer.
- Employers are not required to label pipes or piping systems.

Chemical Hazard Communication

The MSDS is a detailed information bulletin prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, physical and health hazards, routes of exposure, precautions for safe handling and use, emergency and first-aid procedures, and control measures.

Chemical manufacturers and importers must develop an MSDS for each hazardous chemical they produce or import, and must provide the MSDS automatically at the time of the initial shipment of a hazardous chemical to a downstream distributor or user. Distributors also must ensure that downstream employers are similarly provided an MSDS.

Each MSDS must be in English and include information regarding the specific chemical identity of the hazardous chemical(s) involved and the common names. In addition, infor- mation must be provided on the physical and chemical characteris- tics of the hazardous chemical; known acute and chronic health effects and related health information; exposure limits; whether the chemical is considered to be a carcinogen by NTP, IARC, or OSHA; precautionary measures; emergency and first-aid procedures; and the identification (name, address, and telephone number) of the organization responsible for preparing the sheet.

Copies of the MSDS for hazardous chemicals in a given worksite are to be readily accessible to employees in that area. As a source of detailed information on h[illegible]s, they must be readily available to workers during each workshift. MSD[illegible]ed format. ANSI standard no. Z400.1—Material Safety D[illegible]

Employers must prep[illegible]lace. When the list is complete, it should b[illegible]mployer has been sent. If there are hazardous[illegible]eived, the employer must contact the supplier, r[illegible]SDS. A record of the contact must be maint[illegible]

What Are Material S[illegible]

Employers must establi[illegible]es who are exposed to hazardous chemicals in [illegible]d whenever a new hazard is introduced int[illegible]

At a minimum, the discu[illegible]

- The hazard comn[illegible]
- The components [illegible] in the employees' workplaces.
- Operations in wor[illegible]ous chemicals are present.
- Where the employer will keep the written hazard evaluation procedures, communications program, lists of hazardous chemicals, and the required MSDS forms.

The employee training plan must consist of the following elements:

- How the hazard communication program is implemented in that workplace, how to read and interpret information on labels and the MSDS, and how employees can obtain and use the available hazard information.
- The hazards of the chemicals in the work area. (The hazards may be discussed by individual chemical or by hazard categories such as flammability.)
- Measures employees can take to protect themselves from the hazards.