Course Learning Outcomes for Unit VII

Upon completion of this unit, students should be able to:

1. Apply OSHA safety and health standards to the workplace.
   1.1 Identify compliance requirements of OSHA Subpart Z.

7. Develop internal training based on OSHA regulations.

Reading Assignment

This course does not have a specific textbook. Instead, you will be using actual OSHA standards from the U.S. Department of Labor’s OSHA website as well as other relevant materials. To access the required reading material for this unit, copy and paste the URL into your Internet browser:


Unit Lesson

Subpart Z

Subpart Z is the central repository for Occupational Safety & Health Administration's (OSHA) regulations regarding exposure to toxic and hazardous substances in the workplace, including dusts, paints, fuels, solvents, and by-products of numerous industrial processes. The three “Z” tables and the expanded health standards in 1910.1001 to 1910.1096 address the hazards of some 400 substances. While this may seem like a large number, the Toxic Substance Control Act (TSCA) lists more than 62,000 chemicals or chemical substances (OSHA, n.d.-e). OSHA regulates many of the most common hazardous substances used in workplaces, but they only regulate a fraction of the known substances that could possibly cause harm to workers.

Tables Z-1, Z-2, and Z-3 provide the permissible exposure limit (PEL) and other exposure control parameters for most of the substances regulated in Subpart Z. Determination of compliance with these limits includes air sampling and calculation of an eight-hour time-weighted average. These procedures most often require the services of an industrial hygienist and a certified laboratory.

The original Z tables were incorporated into the OSHA standards from the American Conference of Governmental Industrial Hygienist (ACGIH) tables of threshold limit values (TLV) that existed at the time the Occupational Safety and Health Act (OSH Act) was passed. This wholesale incorporation was allowed by the OSH Act as a means to expedite the initial publishing of a comprehensive set of standards that could then be enforced, similar to the wholesale adopting of National Fire Protection Association (NFPA) standards in other subparts.
One of the problems with these standards is that OSHA has not been able to update them since their original promulgation. A wholesale update was attempted in the late 1980s but was rejected by the courts. OSHA has since been required to update standards one substance at a time. Some of the current ACGIH TLVs are now 100 times less than the OSHA PELs.

Shortly after the first publication of Subpart Z, OSHA began to add expanded standards for substances for which a more significant risk to exposed workers could be documented. These standards went beyond the PELs and included specific requirements for engineering controls, work practice controls, personal protective equipment, hygiene facilities, and worker training. Asbestos was the first to be listed; 30 more substances have been added over the years. While many of the substances in the expanded standards are only found in specialized industries (e.g., plastics manufacturing), there have been several notable additions with broad application such as chromium, cadmium, benzene, lead, and methylene chloride.

Also of particular note is standard 1910.1003, titled 13 Carcinogens. Although it sounds like the title of a Hitchcock movie, it is a list of substances defined as known carcinogens and enumerates the requirements for controlled access areas, isolated and controlled system work processes, and employee protection and training. Somewhat surprisingly, there are only 13 regulated carcinogens in the OSHA standards. It is very difficult to document a substance as cancer-causing. We are more likely to hear “suspect carcinogen” or “may cause cancer.” Some of the substances in the extended standards were added due to their suspected carcinogen status.

Hidden within the extended standards are two sections that are not specific to one substance. Access to employee exposure and medical records, 1910.1020, is really an administrative standard that grants employees and their designated representatives the right of access to relevant workplace exposure and medical records. It ensures that employers do not withhold critical exposure information related to employee health. Upon initial employment, and then annually, employees must be told where and how these records can be accessed. The unusual location of this standard makes it an easy one to overlook.

OSHA’s Z tables provide information about exposure control parameters for hundreds of toxic and hazardous substances in the workplace.

Top-Bottom: (OSHA, n.d. f; OSHA, n.d. g; OSHA, n.d. h)
The 13 carcinogens identified by OSHA (OSHA, n.d.-e)

Also hidden is the bloodborne pathogens standard (1910.1030). It was promulgated in 1991 to protect employees who work with blood or "other potentially infectious materials" (OSHA, n.d.-c, para. 1). Of primary concern at the time was transmission of HIV and hepatitis B. While the standard has wide application in medical facilities, it also addresses protection of employees required to perform first aid in the workplace or clean an accident scene. In 2001, it was updated to include additional requirements to prevent needlesticks in medical settings. The overarching principles remain the same: universal precautions, engineering and work practice controls, personal protective equipment, housekeeping, and training.

The Hazard Communication (HAZCOM) Standard (1910.1200) was promulgated in the mid-1980s to ensure that employees were made aware of the hazards associated with substances they use in the workplace. HAZCOM is sometimes called the right-to-know standard. It was influenced by the larger community right-to-know movement, which forced the industry to provide hazardous substance information to surrounding communities and prepare action plans to protect those communities from the effects of spills or leaks.

Under HAZCOM, employers must assess their workplaces for the presence of hazardous substances, generate a list of these substances, acquire safety data sheets for each of the substances, ensure that hazard warning labels are affixed to containers, and provide employees with training about the standard and hazards. A written hazard communication program is also required. What sets this standard apart from the Z tables is that it is not limited to a specific list of chemicals or hazardous substances. It covers all hazardous substances in the workplace. Do you remember the TSCA list of 63,000 chemicals? Some technical libraries contain safety data sheet information on more than 100,000 substances (OSHA, n.d.-e).

In March of 2012, OSHA updated HAZCOM and aligned it with the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The revised standard improved the quality and consistency of hazard information in the workplace and made labels and safety data sheets easier to understand (OSHA, n.d.-d). Significant changes were made in the classification of health hazards and physical hazards. Full implementation of the revised standard was required by June 1, 2015.

The principles behind HAZCOM have not changed, but safety practitioners with previous HAZCOM experience need to study the changes. For example, there is no longer a combustible liquid hazard classification. Also, it may take a while to stop referring to a material safety data sheet (MSDS). The new term is simply safety data sheet (SDS). OSHA Director David Michaels suggests that the original rule gave employees the right-to-know, and with HAZCOM 2012, they now have the right-to-understand (OSHA, 2012).
References


Suggested Reading

Stay up-to-date, and learn more about the health effects of specific chemicals at these two websites hosted by the National Institute of Occupational Safety and Health (NIOSH).


Learn more about the requirements of the 2012 HAZCOM standard revision and the benefits of aligning it with the international GHS standard on OSHA’s “Hazard Communication” topic page.


Use OSHA’s self-inspection checklist for asbestos to help determine if you may have asbestos hazards in your workplace.

Learning Activities (Non-Graded)

Exposure Control Plan

This is a non-graded assignment, so you do not have to submit it. However, if you have questions, contact your instructor for additional information and discussion.

The bloodborne pathogens standard has widespread application outside of the medical field. Examine the occupations in your workplace. Are there any potential exposures? In your findings, consider who will be required to clean up after an accident. What about if an employee or visitor becomes ill? Who cleans the restrooms? Develop an exposure control plan that addresses these issues.