



# **Hazard Communication Program**

## **Office of Environmental Health and Safety**

Revised, June 2018

## **Introduction**

The Hazard Communication Standard (HCS) was promulgated by the Occupational Safety and Health Administration (OSHA), in the Federal Register on November 25, 1983 (29 CFR 1910.1200). It became applicable to instrumentalities of the State of Ohio in March of 1993, by action of the Ohio Legislature. The United Nation's Globally Harmonized System (GHS) of classification and labelling of chemicals was incorporated into the Standard and was effective May 25<sup>th</sup>, 2012. This standard requires chemical manufacturers and transporters to provide information regarding those products which contain hazardous chemicals. Employers are responsible for protecting their employees from chemical hazards in the workplace, including those brought onto campus by outside contractors. The dissemination of this information is accomplished through a comprehensive Hazard Communication Program.

## **Program Scope**

Cleveland State University must make available to its employees all pertinent information concerning chemical hazards to which they may be exposed during routine working conditions, as well as in the event of an emergency. This standard is applicable to all laboratory and physical plant personnel. Affected individuals will be provided with information regarding labeling, chemical hazards, the location and use of Safety Data Sheets (SDS), chemical inventories and training in responsible hazardous materials use.

## **Policy Statement**

In accordance with the Occupational Safety and Health Administration's (OSHA's) Hazard Communication Standard, Cleveland State University will inform its employees of the following:

1. The University has a written Hazard Communication Standard.
2. The provisions of the Standard are located in the Office of Environmental Health & Safety (EHS), Plant Services 234, and (216) 687-9306.
3. The University will inform its employees of operations in their work areas that may involve the use of hazardous materials.
4. Safety Data Sheets are maintained electronically through the EHS website. The link is provided here: <http://www.csuohio.edu/ehs/access-database>.

5. The university will provide training necessary for proper handling and use of hazardous materials.

### **Explanation of Hazardous Materials**

A hazardous material is referred to as any chemical which meets ANY of the following definitions:

1. **Carcinogen** – evaluated by the International Agency for Research on Cancer (IARC) or listed by the National Toxicology Program (NTP).
2. **Corrosive** – having the capacity to cause destruction or alteration of living tissue by chemical action on site after contact
3. **Highly Toxic** – having a median lethal dose of 50 (LD50) or 200 mg/kg when administered to albino rats or a median lethal dose concentration (LC) in air of 200 parts per million (ppm).
4. **Irritant** – causing a reversible inflammatory effect on living tissue upon contact.
5. **Sensitizer** – causing allergy upon repeated exposure
6. **Toxic** – chemical having a LD 50 of 50-150, 200-1000 mg/kg or LC of 200-2000 ppm.
7. **Target Organs** – organs affected by specific chemicals
8. **Etiologic Agent** – biological or infectious material

The characterizations listed above will be established by the manufacturer on the labels of all chemicals received.

### **Determination of Hazards**

The University is not required to evaluate chemicals unless it chooses not to rely on the evaluation performed by the chemical manufacturer. The chemicals from the following sources are considered as hazardous:

1. Any chemical listed in 29 CFR Part 1910 Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).

2. Any chemical listed in Threshold Limit Values for Chemical Substances in the Work Environment, American Conference of Governmental Industrial Hygienists (ACGIH).
3. Any chemical listed in the Annual Report on Carcinogens, National Toxicology Program (NTP).
4. Any chemical listed in Monographs, International Agency for Research on Cancer (IARC).

The Chemical Procurement process has been developed and instated to ensure the EHS staff are aware of the chemicals coming into the University so guidance can be provided when needed.

### **Definitions of Common Chemical Terms**

1. Absorption - mode of chemical entry into the body in which the substance passes through unbroken or unbraided skin.
2. Acute – toxic effect that results from a short time exposure to a very high concentration of a toxic substance, the effects of which are usually immediately noticeable
3. Asphyxiation – replacement of or removal of oxygen
4. Boiling Point – temperature at which the vapor pressure of a liquid is equivalent to atmospheric pressure. Also the temperature above which a liquid exists as a gas.
5. Carcinogen – material that has capability of causing cancer
6. Chronic – toxic effect that results from exposure to a toxic material over a long period of time, usually months or years. The amount of exposure is low and effects are not usually immediately noticed.
7. Combustible Liquid – liquid that has a flashpoint of 100 degrees Fahrenheit or higher
8. Concentration – the amount of material in air. Term also may refer to the amount of a substance in a mixture
9. Corrosive – a chemical that causes visible destruction or alteration in living tissue at the chemical contact site
10. Density – mass or weight per unit volume of a substance

11. Dermal – relating to the skin
12. Dose – the amount of substance that enters the body of a period of time.
13. Dose Response Relationship – a larger dose causes a more severe reaction
14. Effect (Local) – effect occurring directly at the site of contact
15. Effect (Remote) – effect occurred at a body part some distance away from the original point of contact
16. Evaporation Rate – rate of change of a substance from a liquid to a vapor
17. Explosive – chemical that causes a sudden, practically instantaneous release of pressure, gas and heat when subjected to sudden shock, pressure or high temperature
18. Exposure – Coming into contact with a hazardous chemical.
19. Extinguishing Media – Material used to put out a fire
20. Flammable Liquid – liquid that has a flash point below 100 degrees Fahrenheit.
21. Flammable Range – the proportion of gas or vapor in air between the upper and lower flammable limits.
22. Upper Flammable Limit (UFL) – the maximum concentration of a vapor or gas in air above which ignition will not occur. The mixture is said to be too rich.
23. Lower Flammable Limit (LFL) – the minimum concentration of a vapor or gas in air below which ignition will not occur. The mixture is said to be too lean.
24. Flashpoint – the minimum temperature of the liquid at which it gives off vapors sufficient to form an ignitable mixture with air near the surface of the liquid or container.
25. Ignitable Mixture – mixture of fuel and air within the flammable range
26. Irritant – chemical other than a corrosive, that causes a reversible inflammatory effect on living tissue by chemical action at the point of contact
27. Fluid – substance that flows

28. Fume – solid particles in air, generated by heating a solid material (example: a welding rod).
29. Hazard (chemical) – any chemical whose presence or use is a physical or health hazard
30. Hazardous Decomposition Products – dangerous materials which result from the chemical breakdown of the original material usually over a period of time, or with high heat or fire.
31. Ignition Temperature – minimum temperature required to initiate combustion
32. Ingestion – swallowing.
33. Inhalation – breathing
34. LD-50 (lethal dose -50%) - single dose of a chemical that will kill 50% or half of a laboratory population.
35. mg/m<sup>3</sup> (milligrams per cubic meter) – measure of concentration.
36. MSDS – acronym for Material Safety Data Sheet
37. Mist – liquid droplets in air
38. Mutagen – a substance capable of altering genetic material in living tissue
39. Oxidizer – chemical other than an explosive that initiates or promotes combustion in other materials, causing fire either by itself or through the release of oxygen or other gases
40. PEL (permissible exposure limits) – concentration in air that has been declared safe to breathe by government regulations
41. PPM (parts per million) – a measure of concentration
42. Respiratory Protection – equipment worn to prevent the inhalation of hazardous substances
43. Solubility – how well one material is dissolved in another
44. Solvent – a substance in which other substances are dissolved
45. Specific Gravity – the weight of a solid or a liquid as compared to an equal volume of water

46. Systemic Poisoning – a toxic effect on the body in which one or more organs are damaged by a substance
47. TLV (threshold limit value) – a measure indicating the concentration of a chemical in air that a worker may breathe for a given period of time without experiencing adverse effects
48. Teratogen – substance that can cause damage to a developing fetus should the mother become exposed to it
49. Toxic – capable of causing damage to the body
50. Toxicology – science which studies harmful effects of chemicals on living things
51. Vapor – gaseous substance in air produced by the evaporation of a liquid
52. Vapor Density – relative density of a vapor or gas without air present as compared to air. The vapor density of air is 1.0
53. Vapor Pressure – pressure exerted by a vapor on all sides of a container
54. Ventilation – air movement which draws away an air contaminant
55. Water Reactive – chemical that reacts with water to release a gas that is either flammable or presents a health hazard

For further information, go to OSHA's website under the Hazard Communication Standard: <https://www.osha.gov/dsg/hazcom/>

### **Departments on Campus that Utilize Chemicals**

Major Chemical Users are those areas on campus that utilize or possess a wide range of chemicals or chemical products that are utilized on a regular basis:

Biology Department  
Chemistry Department  
Engineering Department

Minor Chemical Users are those areas on campus where a limited amount of chemicals or chemical products related to a specific process are utilized on a regular basis:

Art/Sculpture Department  
Advanced Manufacturing Center (AMC)  
Duplicating Services  
Facilities Department  
Grounds Department  
Physics Department

It is understood that chemical or chemical product use may not be limited to the above-mentioned areas. Any campus office or shop may at some point acquire chemicals on a non-routine basis. Any employee having questions regarding chemical usage in their job area should contact the Office of Environmental Health and Safety.

### **List of Chemicals on Campus**

A list of chemicals on campus can be found in the Office of Environmental Health and Safety.

### **Training**

University Employees (including student employees) whose jobs fall under the scope of this standard are required to attend a Hazard Communication Training.

Employees (including student employees) will receive initial training upon employment, and additional training if there is a change in an employee's job. Retraining sessions will be offered when needed.

Students who are enrolled in courses or involved in research which utilizes chemicals will be provided with appropriate training in laboratory safety and chemical use by the instructor of the class or research project.

### **Training Objectives**

Upon completion of the University's Hazard Communication Training Program, employees will be able to:

- Understand the procedures to identify hazardous chemicals in their workplace.



- Determine the physical and health effects of the chemicals they are working with and how to protect themselves from chemical exposure or injury.
- Become aware of the use of personal protective equipment to eliminate the risk of chemical exposure
- Understand and interpret labeling requirements and be able to label containers properly.
- Read and understand SDS and be able to use this information to protect themselves and others.

### **Additional Training Materials**

The Office of Environmental Health & Safety maintains an extensive collection of training videos and computer modules dealing with a variety of topics pertaining to safety and health. Any member of the CSU community may enroll in online safety training at the following link:

<https://www.csuohio.edu/ehs/online-safety-training-sign>

### **Labeling**

Manufacturers are required to ensure that their products have accurate identification and labels. All chemicals received onto campus will be inspected to ensure that proper labels are affixed and that they are legible. In the event a chemical is transferred from its original container into another container for storage or use, the new container must be labeled with the chemical name, hazard warning and contact information of the chemical manufacturer. Chemicals placed into buckets or beakers for use by one employee only during a specified time period (class period, one employee shift) are exempted from this requirement.

### **Safety Data Sheet**

A Safety Data Sheet is a document prepared by the manufacturer that provides comprehensive information about a particular chemical. GHS now requires a standard, 16-section format which allows users to easily find information.

### **Employee Responsibilities**

Employees share responsibility for a safe and healthy work environment with their employers. Workers should act responsibly to prevent incidents from occurring. This can be accomplished by:

- a) Obey all warning signs and labels
- b) Assess and identify potential hazards PRIOR to beginning work and reporting

- issues to their supervisors immediately.
- c) Obtain a copy of and read the SDS for chemicals PRIOR to use
  - d) Use proper personal protective equipment when specified

### **Emergencies**

For all emergencies on campus (fire, explosion, medical, hazardous materials):

DIAL 9-1-1

Cell phone users are to also DIAL 9-1-1 and tell the operator to transfer you to CSU Police.

### **Contractors**

Contractors shall inform Cleveland State University of all chemicals containing hazardous components they intend to use on campus. The contractors themselves can contact EHS to obtain information regarding any chemicals present in areas they will be working.