

# Hazard Communication Program

v. 2022-06-01



## 1. Statement of Need

Northeastern University has implemented a Hazard Communication Program:

- A. To assist in achieving our ultimate goal of a safer working environment for employees and students.
- B. To comply with the Federal Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR § 1910.1200).

## 2. Background and Summary

In November of 1983 the Occupational Safety and Health Administration published the Hazard Communication Standard to reduce the incidence of chemical-related occupational illness and injury. The standard was developed to ensure employers provide employees with important safety information regarding hazardous materials used in their workplace. The Hazard Communication standard was updated in March 26, 2012. This program applies to all members of the Northeastern University community. Northeastern University's written program includes provisions for container labeling, accessing Safety Data Sheets (SDS), employee information, training and the NFPA Hazard Assessment Inventory Program.

## 3. Anticipated Benefits

Several benefits are anticipated with the implementation of Northeastern University's Hazard Communication Program. These include:

- A. Overall improvement of Northeastern University's safety program and safety climate.
- B. Prevention of chemical-related injuries and illnesses.

- C. Improvement of employer-employee and faculty-staff-student relations by establishing regular lines of communication about safety hazards through collaborative efforts, training and consultation.
- D. Maintain full compliance with federal law.
- E. Avoidance of OSHA citations and related compliance costs.

#### **4. Purpose**

The purpose of the Northeastern University Hazard Communication Program is to ensure that all potential exposures to hazardous materials on campus are evaluated, and that information concerning physical and health hazards is effectively communicated to the campus community. The Northeastern University Hazard Communication Training course is assigned to personnel who may be exposed to hazardous materials in shops, design labs and studios. It is the dual objective of Northeastern University to fully comply with 29 CFR § 1910.1200 and also to improve the overall safety and health management systems of the University.

#### **5. Authority**

This Hazard Communication Program is required by the Occupational Safety & Health Administration, pursuant to 29 CFR § 1910.1200. Northeastern University's Office of Academic and Research Safety (OARS) shall have the authority and responsibility to assure compliance with all regulations governing hazardous materials and waste management. In the event of noncompliance, immediate corrective action is to be taken while a plan for permanent correction is developed and implemented. OARS will establish hazardous materials policies and procedures. The written procedures can be located on the OARS website and internal Sharepoint Site for internal users.

#### **6. Objectives**

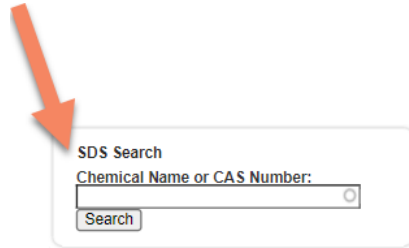
Each objective is specifically defined and discussed in this document. Additionally, this written program shall be referenced during Faculty/Staff/Student Hazard Communication training. Access to this document is available at all times on the OARS web platforms.

#### **7. Safety Data Sheets (SDS)**

Access to Safety Data Sheets (SDS) is the keystone to a successful Hazard Communication Program. Members of the Northeastern University community have full access to SDSs which include instructions for safe use and the potential hazards associated with hazardous materials. In addition, SDSs provide safe handling instructions, storage requirements, personal protective equipment (PPE) recommendations, and emergency information (see list below for full details). SDSs should be reviewed prior to starting work with all hazardous materials

**A. There are two ways that members of the NU community can access SDSs:**

1. The OARS Risk Management Platform (as of March 2021 this platform is hosted by [BioRAFT](#)) includes a SDS search function on the user's home page.



SDS Search  
Chemical Name or CAS Number:  
  
Search

Every member of the NU community with a NU username and password has access to this system.

2. Chemical manufacturers supplying Northeastern University with products are required to make available upon request SDS for each product shipped. If SDS sheets are not sent with your order, a written request should be made to receive one.
3. Departments and Groups must maintain copies of their SDS onsite or online. Records that are accessed online must be available for all departments or office personnel 24/7. If the manufacturer of the chemical is not available on-line then a hard copy of the appropriate SDS must be maintained onsite.

**B. Employees are required to be familiar with the different sections of the SDS. We achieve this objective through employee training (see below). The 16 sections include:**

1. Section I- Identification
2. Section II- Hazard(s) Identification
3. Section III- Composition/information on ingredients
4. Section IV- First-aid measures
5. Section V- Fire-fighting measures
6. Section VI- Accidental release measures
7. Section VII- Handling and storage
8. Section VIII- Exposure controls/personal protection
9. Section IX- Physical and chemical properties
10. Section X- Stability and reactivity
11. Section XI- Toxicology information
12. Section XII- Ecological information
13. Section XIII- Disposal considerations
14. Section XIV- Transport information
15. Section XV- Regulatory information
16. Section XVI- Other information

**8. National Fire Prevention Association (NFPA) Hazard Assessment Program**

Faculty, Staff and students must understand the information presented in the NFPA signs on all doors where hazards are present. These signs were developed to aid firefighters in recognizing hazards behind a door, but they are also very important for everyone on campus who is entering the room. These signs also provide a hazard assessment inventory for all areas where hazardous materials are stored or used. Additional information about the NFPA program can be found at the following URL: <https://oars.sites.northeastern.edu/home/labsafety/>. The following image displays an example of a NFPA Door sign that can be found at Northeastern University:

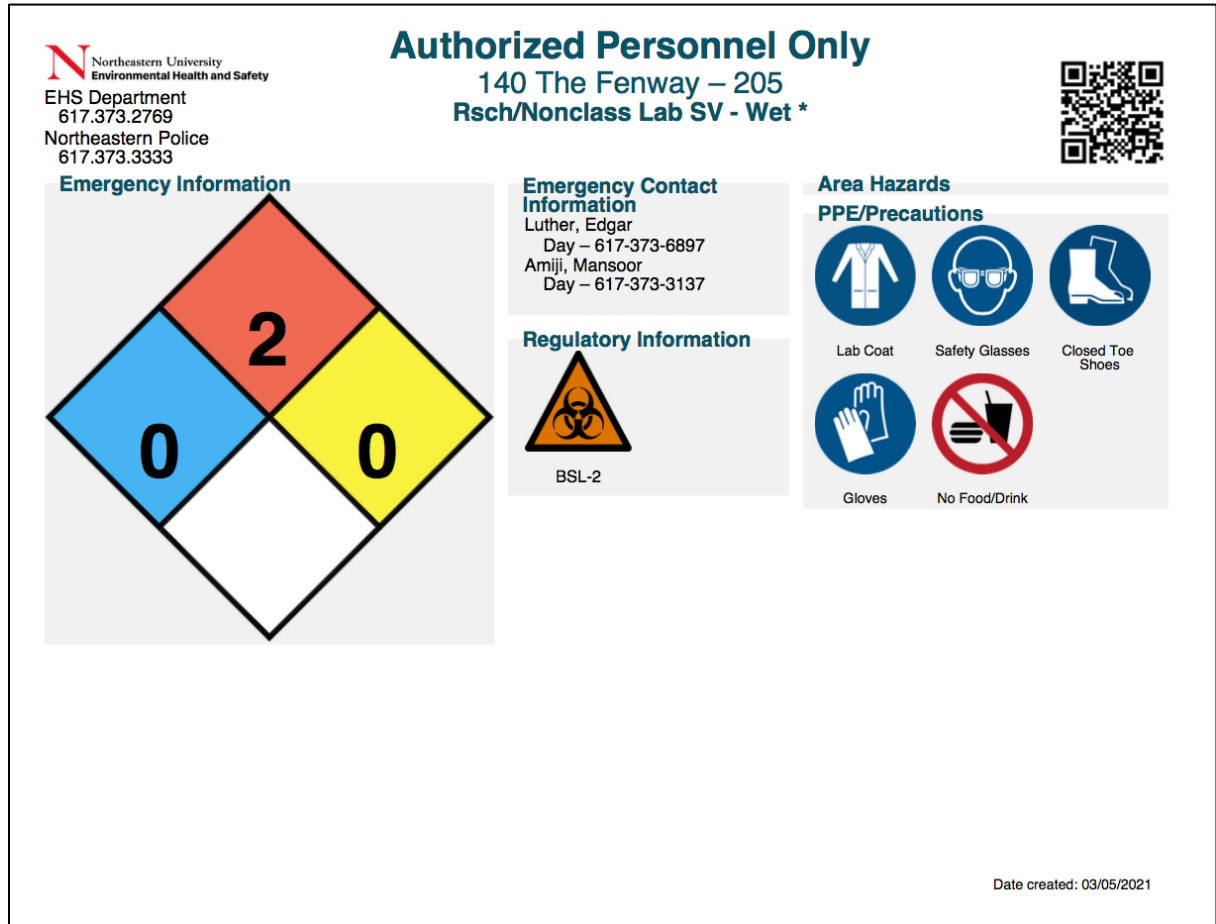


Figure 1: Sample NFPA Door Sign at Northeastern University

**A. NFPA door signs are divided into three groups of represented information:**

1. The NFPA Diamond - This diamond is divided into 4 sections.
  - a. Blue = Health
  - b. Red = Flammability
  - c. Yellow = Reactivity
  - d. White = Special information.

Within each of the three colored sections of the diamond there will be numbers representing the hazard rating. The numbers range from 0-4. 0 being minimal, 1 being slight, 2 being moderate, 3 being serious, and 4 being extreme. Within the white section there may be many combinations of the following symbols, or there may be nothing at all:

- OXY- Oxidizer
- W- Water Reactives
- G- Compressed Gas
- LN2- Liquid Nitrogen
- LHe- Liquid Helium

2. Contact Information - This section provides emergency contact information. There must be two contact people listed along with the associated room and phone numbers.

3. Other Information - Various identifiers may represent specific hazards, including the following (see Figure 1 above):

- High Voltage
- Biohazard Rating
- Radiation Hazard
- Magnetic Field
- Radioactive Material

## **9. Container Labeling Requirements**










Containers of hazardous materials must display labels that indicate hazards present. The following rules apply:

- A. Container Labeling - All chemical containers stored within a lab must be properly labeled with the full chemical name. If you need assistance with labeling please contact OARS. Guidance information on container labeling can be found on the OARS website [or internal Sharepoint] (e.g. <https://oars.sites.northeastern.edu/home/labsafety/>). Employees must make sure that labels on incoming containers of hazardous chemicals are not removed or defaced. These containers must be properly disposed of or recycled if applicable, and the labels defaced after use. More information regarding the empty container and chemical recycling programs can be found here: <https://oars.sites.northeastern.edu/home/labsafety/> and here: <https://oars.sites.northeastern.edu/home/hazardous-waste/> .
- B. Hazardous Chemicals - All laboratories must label hazardous materials while such materials are in use or in storage. By law, the chemical container's original

label will indicate if the chemical is hazardous. Users should look for key words like caution, hazardous, toxic, dangerous, corrosive, irritant, carcinogen, etc.

- C. Labels must include the following information:
1. Common full chemical name.
  2. A Global Harmonization System (GHS) pictogram conveying the hazardous materials properties and warning. See Figure 2 below for a full list of GHS pictograms.
  3. A warning word such as "danger", "warning" and "caution".
  4. The name, address and emergency phone number of the company responsible for the product.

## HCS Pictograms and Hazards

<p style="text-align: center;"><b>Health Hazard</b></p>  <ul style="list-style-type: none"> <li>• Carcinogen</li> <li>• Mutagenicity</li> <li>• Reproductive Toxicity</li> <li>• Respiratory Sensitizer</li> <li>• Target Organ Toxicity</li> <li>• Aspiration Toxicity</li> </ul>	<p style="text-align: center;"><b>Flame</b></p>  <ul style="list-style-type: none"> <li>• Flammables</li> <li>• Pyrophorics</li> <li>• Self-Heating</li> <li>• Emits Flammable Gas</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>	<p style="text-align: center;"><b>Exclamation Mark</b></p>  <ul style="list-style-type: none"> <li>• Irritant (skin and eye)</li> <li>• Skin Sensitizer</li> <li>• Acute Toxicity (harmful)</li> <li>• Narcotic Effects</li> <li>• Respiratory Tract Irritant</li> <li>• Hazardous to Ozone Layer (Non-Mandatory)</li> </ul>
<p style="text-align: center;"><b>Gas Cylinder</b></p>  <ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	<p style="text-align: center;"><b>Corrosion</b></p>  <ul style="list-style-type: none"> <li>• Skin Corrosion/ Burns</li> <li>• Eye Damage</li> <li>• Corrosive to Metals</li> </ul>	<p style="text-align: center;"><b>Exploding Bomb</b></p>  <ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactives</li> <li>• Organic Peroxides</li> </ul>
<p style="text-align: center;"><b>Flame Over Circle</b></p>  <ul style="list-style-type: none"> <li>• Oxidizers</li> </ul>	<p style="text-align: center;"><b>Environment (Non-Mandatory)</b></p>  <ul style="list-style-type: none"> <li>• Aquatic Toxicity</li> </ul>	<p style="text-align: center;"><b>Skull and Crossbones</b></p>  <ul style="list-style-type: none"> <li>• Acute Toxicity (fatal or toxic)</li> </ul>



## 10. Employee Training

The Hazard Communication Standard training is required and assigned to every member of the NU community who has the potential of being exposed to hazardous chemicals.

**Note:** *If you are working in a wet research laboratory setting then you are covered under the OSHA Laboratory Standard (1910.1450) and your training is covered under NU's flagship laboratory safety courses (e.g. Fundamentals of Laboratory Safety, as of 2021).*

NU Faculty/staff/students in engineering labs, design shops and studios are meeting the Hazard Communication training requirement through the 2021 version of their Hazard Communication Training program, which is geared towards shops, studios, design labs and makerspaces. As of 2021, this course is hosted on the OARS Risk Management platform, [BioRAFT](#), which is accessible to everyone on campus. Groups with regular members will need a group profile in BioRAFT which supports the tracking and monitoring of training compliance for that group. The OARS provides direct assistance to create these profiles.

A. Initial and Ongoing Training – New faculty, staff and students with potential exposures to hazardous materials are required to complete the Hazard Communication training course. In addition, department supervisors must provide on-the-job training is to understand standard operating procedures related to newly introduced chemicals as they are introduced.

B. The NU Hazard Communication training program covers the following information:

1. Overview of the Hazard Communication Standard
2. How to interpret SDS and product labels
3. How to access hazard information and SDS
4. The location of the written hazard communication program
5. Interpretation of the NFPA door sign; hazards in their work area
6. How to read and properly label containers
7. Proper chemical storage locations
8. Proper recognition and handling of hazardous chemicals
9. Proper use and location of safety & personal protective equipment
10. Methods and/or observations to detect the presence of hazardous materials
11. Emergency response and evacuation procedures



NU personnel employee by Facilities Administration will obtain their Hazard Communication training through the designated OARS vendor providing services to their group.

### **11. Procedures to assess Hazards of “New” or Non-routine Tasks**

Non-routine tasks are tasks which do not occur on a frequent basis or those tasks which are not identified as a normal. These non-routine tasks will be evaluated on a case-by-case basis by the Department or group to determine if they are considered to be in compliance with this program. The office of OARS can assist.

### **12. Contract work performed at Northeastern University**

- A. Contractors will supply SDS’s for hazardous material they bring in on campus.
- B. Contractors will be notified as to which chemicals are being used in their work area.
- C. Contractors will be required to notify the occupants of an area where they are using hazardous materials. This applies to both storage and usage.
- D. Contractors will be informed of the availability of our Hazard Communication Program our website.
- E. Appropriate Task-specific training will be conducted by the project manager or job supervisor for all persons associated with the project, including contractors, when hazardous materials will be used or disposed of. OARS can assist as needed.
- F. Training will be accomplished prior to starting the job or project and will include the following:
  - 1. A discussion of the information listed on the SDS for each hazardous material used during the job or project.
  - 2. Job specific details for storing, using, and disposing of the hazardous materials used during the job or project.
  - 3. Job specific spill, leak, and uncontrolled reaction procedures.
  - 4. Appropriate evacuation procedures.
  - 5. Job specific safety and personal protective equipment and the proper use of both.
- G. A record of the project training will be retained in the employee file by the contractor.
- H. Contractors will be responsible for handling spills for hazardous materials they bring onto the Northeastern University campus. In an emergency or in the event of a major spill, the contractor must call the Northeastern University Police Department (NUPD) at (617) 373-3333 immediately for triage.
- I. Contractors are responsible for any hazardous waste they generate on campus unless they have made prior arrangements with OARS or Facilities Operations.

### **13. Storage of Hazardous Materials**

Each Northeastern University department or office is responsible for the proper storage of hazardous materials as per the guidelines provided in the corresponding SDS for proper storage of the chemical. Contact OARS for guidance regarding Hazardous Waste Disposal systems, setups and options.

### **14. Chemical Inventory**

Principal investigators are responsible for keeping track of all chemicals stored in their work space, regardless of whether or not they are currently being used for research. Maintaining active inventories helps to maintain a safer campus, and supports our goal of preventing any hazard-related injuries or accidents.

As of March 2019, Chemical inventories are managed within the BioRAFT Risk management platform in the [ChemTracker module](#). OARS is prepared to assist any group with the creation of their ChemTracker inventory and to troubleshoot any problems that arise.

### **15. Spill cleanup, removal, & hazardous waste disposal**

Departments and offices are responsible for minor spills that may occur as a result of use of hazardous materials. OARS will assist with the proper clean-up of large spills, removal, and disposal of hazardous materials in their area. Follow the guidelines provided by OARS as well as in the corresponding SDS for proper spill and disposal procedures. Information on hazardous waste disposal can be found in the Hazardous Waste section of the OARS website:

<https://oars.sites.northeastern.edu/home/hazardous-waste/> .

### **16. Monitoring and Evaluation of Program**

OARS will monitor and evaluate the effectiveness of the NU Hazard Communication Program, on a yearly basis, through:

- A. Review of incidence reports relating to hazardous material events, with appropriate follow up action if necessary.
- B. Review of Makespace/Studio/Shop Chemical inventories and training compliance. .
- C. Evaluation of employee education programs: Feedback will be obtained from participants regarding the relevance and quality of assigned training programs.

## ***Appendix A: Glossary***

**Article** means a manufactured item:

1. Which is formed to a specific shape or design during manufacture.
2. which has end use function(s) dependent in whole or in part upon its shape or design during end use.
3. which does not release, or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.

**Chemical** means any element, chemical compound or mixture of elements and/or compounds.

**Chemical manufacturer** means an employer with a workplace where chemical(s) are produced for use or distribution.

**Chemical name** means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

**Combustible liquid** means any liquid having a flashpoint at or above 100 F (37.8 C), but below 200 F (93.3 C), except any mixture having components with flashpoints of 200 F (93.3 C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

**Common name** means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

**Compressed gas** means:

1. A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 F (21.1 C); or
2. A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 F (54.4 C) regardless of the pressure at 70 F (21.1 C); or
3. A liquid having a vapor pressure exceeding 40 psi at 100 F (37.8 C) as determined by ASTM D-323-72.

**Designated representative** means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

**Distributor** means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

**Employee** means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

**Employer** means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

**Explosive** means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

**Exposure or exposed** means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g. accidental or possible) exposure.

**Flammable** means a chemical that falls into one of the following categories:

1. **Aerosol**, flammable means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening.
2. **Gas, flammable** means:
  - 2.1 A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less.
  - 2.2 A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit.
  - 2.3 Liquid, flammable means any liquid having a flashpoint below 100 F (37.8 C), except any mixture having components with flashpoints of 100 F (37.8 C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.
  - 2.4 Solid, flammable means a solid, other than a blasting agent or explosive as defined in § 190.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

**Flashpoint** means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

1. *Tagliabue Closed Tester* (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79)) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100 F (37.8 C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or
2. *Pensky-Martens Closed Tester* (See American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79)) for liquids with a viscosity equal to or greater than 45 SUS at 100 F (37.8 C), or that contain suspended solids, or that have a tendency to form a surface film under test; or
3. *Setaflash Closed Tester* (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)). Organic peroxides, which undergo autoaccelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

**Foreseeable emergency** means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

**Hazardous chemical** means any chemical which is a physical hazard or a health hazard.

**Hazard warning** means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).

**Health hazard** means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term health hazard includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A, to 29 CFR 1910.1200 provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B, 29 CFR 1910.1200 describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard practice instruction.

**Identity** means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

**Label** means any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.

**Safety data sheet (SDS)** means written or printed material concerning a hazardous chemical which is prepared in accordance with 29 CFR 1910.1200, paragraph (g).

**Mixture** means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

**Oxidizer** means a chemical other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

**Physical hazard** means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

**Produce** means to manufacture, process, formulate, or repackage.

**Responsible party** means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

**Specific chemical identity** means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

**Unstable (reactive)** means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

**Use** means to package, handle, react, or transfer.

**Water-reactive** means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard. Often when the water is heated it goes into a gaseous state allowing oxygen to be released which can help feed a fire.

**Work area** means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

**Workplace** means an establishment, job site, or project, at one geographical location containing one or more work areas.

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