NORTHERN ARIZONA UNIVERSITY

Environmental Health and Safety

Written Hazard Communication and Global Harmonization System (GHS) Program

December 20, 2024

1.0 Introduction to NAU's Hazard Communication Program

Chemical exposure may cause or contribute to many serious health effects such as heart ailments, kidney and lung damage, sterility, cancer, burns, and rashes. Some chemicals can also present potential physical hazards such as fires, explosions and/or other serious accidents.

To ensure that employees know about the hazards of chemicals and how to protect themselves, the Occupational Safety and Health Administration (OSHA) issued the Hazard Communication Standard (29 CFR 1910.1200), also known as "The Right to Know" or "HazCom" standard.

More recently, growth in international trade of chemical products resulted in inconsistencies in chemical labeling and classification. In 2012, the Hazard Communication Standard was revised to address those inconsistencies through the adoption of a "Globally Harmonized System", or GHS, established by the United Nations. This finalized standard is referred to as "HazCom 2012", or "GHS", and includes the new GHS requirements.

The GHS system makes the communication of hazards consistent through pictograms and other means that overcome language barriers, and provides information to chemical handlers through one label, as opposed to the many labels and languages formerly used to label chemical products. The GHS also provides a uniform approach to evaluating and classifying hazards, and to communicating those hazards through Safety Data Sheets or SDSs, formerly referred to as Material Safety Data Sheets, or MSDSs.

OSHA developed a phased-in adoption schedule for the revised standard ranging from December 1, 2013 to June 1, 2016. NAU program components have been revised to meet the new regulatory requirements.

2.0 Scope

Northern Arizona University's (NAU's) Hazard Communication Program is designed to inform all employees who potentially could be exposed to hazardous chemicals on the job, and reduce injuries and illnesses related to chemical exposures. This program applies to all NAU employees/facilities except where exemptions are detailed below. Employees are covered by this standard if they:

- Work in a non-laboratory setting where any known hazardous chemical is stored or used, and
- May be exposed to any hazardous chemical under normal working conditions, or in a foreseeable emergency

2.1 Exemptions

NAU Laboratory employees are covered by a separate workplace-specific standard, Occupational Exposure to Hazardous Chemicals in Laboratories (29 CFR 1910.1450). The requirements of this standard and program components are covered in NAU's Lab Safety Manual and Chemical Hygiene Plan.

Also exempt from the Hazard Communication Standard are chemical products typically found in households, **if** they are not used with more frequency than typically used in a household setting. Examples of these may include dish detergent occasionally used in a break room, or glass cleaner used to occasionally clean work surfaces.

3.0 Required Program Components

The following subsections explain the general components required under OSHA's Hazard Communication Standard.

3.1 Written Program

All NAU employees must be made aware of the NAU Written Hazard Communication Program and its contents through their immediate Supervisor. NAU's EH&S Office is responsible for the development and maintenance of the Written Program. An electronic version of this program is available online. Supervisors are responsible for ensuring that employees have access to an online and/or paper copy of the document.

3.2 Labeling and Other Forms of Warning

Under the Hazard Communication Standard, chemical manufacturers are required to provide labeling on every container of hazardous chemicals they manufacturer.

GHS labels may vary in appearance, but they are required to include the 6 specific elements. A training example is provided in Figure 1.

Figure 1: Training Sample Label Courtesy of Weber Packing Solutions

1 - Product Identifier: the product name provided here (n-Propyl Alcohol) should match the identifier on the product's Safety Data Sheet (SDS).

2 - Signal Word: A signal word is a single word on the label used to indicate the relative level of severity of a hazard and alert the reader to a potential hazard. The signal words used are "Danger" for the more severe hazards, while "Warning" is used for less severe hazards. Here, the manufacturer has used the word "DANGER" to indicate a more severe hazard.

3 - Hazard Statements: Hazard Statements are statements assigned to a hazard class that describes the nature of the products hazard, "may cause dizziness" for example.

4 - Precautionary Statements: Statements which describe recommended measures to minimize or prevent adverse effects resulting from exposure, "keep away from heat" for example.

5 - Supplier Identification: The name, address, and telephone number of the manufacturer or supplier, in case you need to contact them.

6 - Pictograms: Graphical symbol intended to convey specific hazard information visually, in the case of our sample label, the manufacturer has used 3 pictograms to denote hazards. Pictograms are explained in more detail in the following section.

3.2.1 Pictograms

Under GHS, graphical symbols called “pictograms” are used to convey specific hazards. Product specific pictograms will be found on both GHS labels and within Safety Data Sheets (SDSs). The nine established pictograms, and their conveyed hazards, are illustrated in Figure 2.

Figure 2: GHS Pictograms

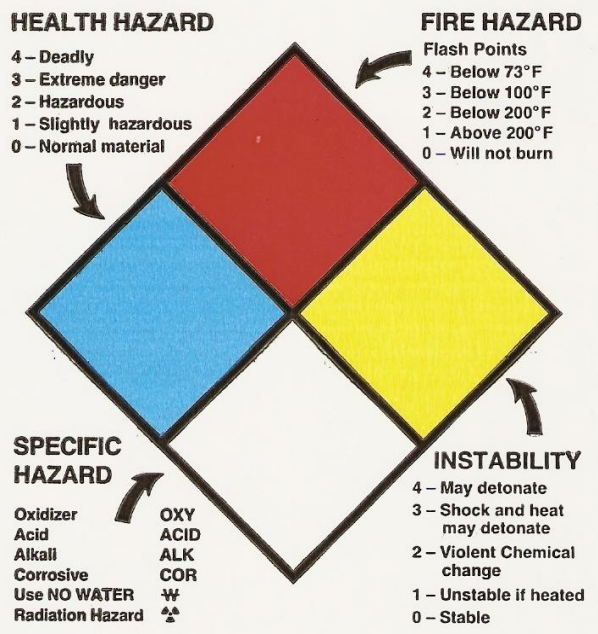
3.2.2 Secondary Labeling System

When transferring a chemical from one container to another, or replacing a damaged label, NAU employees are required to label the new container properly to include:

- identity of the chemical
- appropriate hazard warnings (using the GHS format described in Section 3.2)

If you have questions, ask your supervisor or consult with EH&S Staff. Empty containers that may be reused for other purposes must have their original labels removed or obliterated and relabeled as detailed in Section 3.2.

Prior to GHS adoption, NAU promoted the NFPA (National Fire Protection Association) Hazard Warning Diamond labeling system. The NFPA Hazard Warning Diamond is based on the NFPA standard 704 rating system. This standard provides a readily recognized, easily understood system for identifying hazards and their severity using spatial, visual, and numerical methods to describe the relative hazards of a material. While this system is still used in the United States, it does not meet the GHS requirements. Therefore, the NFPA system can be used **in addition to, but not in place of** GHS labeling. Figure 3 provides a comparison between GHS hazard category and the NFPA 704 hazard ranking systems. Although referring to the different systems can be confusing, keep in mind that the GHS hazard category systems are unlikely to be found on product labels. Both ranking systems may appear in SDSs, but the rankings are identified as either GHS or NFPA rankings.



Classification of the substance or mixture

According to Regulation (EC) No1272/2008
Flammable liquids (Category 2)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 4)
Acute toxicity, Oral (Category 4)
Serious eye damage/eye irritation (Category 2)

NFPA Hazard Ranking	GHS Hazard Categorization
0-4 Hazard Range	1-4 Hazard Range
0 = Least Hazardous	1 = Most Severe Hazard
4= Most Hazardous	4 = Least Severe Hazard

Figure 3: NFPA Hazard Rankings v. GHS Hazard Categories

3.3 List of Hazardous Chemicals

Under GHS, each department that uses hazardous chemical products is required to keep a written inventory, or "List of Hazardous Chemicals" at their location. This list must identify which chemicals are on-site, and should be kept current as new products are added to or removed from your inventory.

3.4 Safety Data Sheets (SDS)

Safety Data Sheets (SDSs), previously called Material Safety Data Sheets (MSDSs), are standardized documents prepared by a product's manufacturer. SDSs provide in-depth information regarding the chemical's potential hazards and information on how one should protect themselves from these hazards. Federal law requires that they be produced by chemical manufacturers, distributors, importers or other responsible parties, and supplied to their chemical users.

SDSs are required to include the following sixteen sections of information:

- Product and company identification
- Hazards identification
- Information on ingredients
- First aid measures
- Firefighting measures
- Accidental release measures
- Handling and storage
- Exposure control/personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information

SDSs can be requested from the manufacturer or distributor by phone, FAX or on the Internet. Many websites also have available collections of MSDSs. Contact EH&S if you have trouble obtaining an SDS for a product.

SDS's are usually considerably more informative than labels and they are a valuable source of hazard information. Hazards indicated on the label and the SDS for the same product will be consistent. Employees are responsible for reading the SDS before using a chemical substance.

3.5 Training

Supervisors must provide or facilitate Hazard Communication training for their employees before they are assigned to work in areas where the possibility of exposure to hazardous chemicals exists, and whenever a new hazardous material is introduced into their workplace. EH&S Staff is available to assist supervisors with this task. NAU's Online HazCom Training is available to all NAU Employees. Under the Hazard Communication Standard, affected employees must receive training on the following:

- Location of the written Hazard Communication Program, list of hazardous materials and location of material safety data sheets

- Description of the jobs where these hazards are present and special instruction for non-routine tasks (see Section 3.5.1).

- The physical and health hazards of chemicals they are exposed to in the workplace.

- Personal protection requirements for chemicals in the workplace.

- Ways to observe and detect the presence of hazardous chemicals in the workplace.

- Labeling requirements and explanation of the NFPA labeling system.

Training must be easy to understand and communicated orally, either in person or through audio or audiovisual means.

Additional employee training concerning workplace hazards when:

- Chemicals with new hazards are introduced into the workplace.
- Equipment changes are made which could cause new or increased employee exposure.
- Procedures and work practices are introduced or changed which could cause new or increased employee exposure.
- Employees are transferred from one work area to another where different hazards may be present.

3.5.1 Hazardous, Non-Routine Tasks

Supervisors planning to do non-routine tasks involving the use of hazardous chemicals (jobs that are not routine for an employee because of infrequency, location, or type, for example, the cleaning of tanks) must consult with EH&S prior to initiating work to discuss the hazards associated with the performance of these tasks. **Supervisors** must ensure that employees are informed of the hazards and required control measures, including safe work practices and proper personal protective equipment.

3.5.2 Documentation

Supervisors must keep adequate documentation to show that Hazard Communication information and training has been provided. Meeting minutes, training evaluations, certification sheets, memoranda, training sign-in sheets all constitute training documentation. Those employees who take the NAU Online HazCom Training will receive and email confirmation of completion. That completion is also recorded electronically through NAU ITS.

4.0 Roles and Responsibilities

The responsibility for an effective Hazard Communication Program requires compliance through product manufacturers and the cooperation of multiple departments at NAU. The following subsections outline the responsibilities of the respective parties.

4.1 Chemical Manufacturers

Chemical manufacturers and importers are required to determine the hazards of each chemical they produce or sell and communicate this hazard information to the user through labels and safety data sheets (SDS's). They are required to provide hazard communication documentation to any user upon request. OSHA's GHS adoption allows for phased-in compliance for manufacturers through June 1, 2016. During that transition period, manufacturers will be transitioning from MSDSs to SDSs and GHS labeling, so your department will likely see both types of hazard communication up to that deadline.

4.2 NAU

As an employer, NAU must:

- Provide a written Hazard Communication Program.
- Inform employees about the Hazard Communication Standard.
- Explain how it is being put into effect in their workplace.
- Provide information and training on hazardous chemicals in the workplace

These requirements are met by the assignments of responsibility detailed in the following subsections.

4.3 Supervisors

Supervisors are most familiar with the tasks performed and products used within their departments. Therefore, they are responsible for:

- providing employees with hazard communication training, or facilitating their receipt of training
- assuring that the training occurs at hiring, and then as needed
- assuring that the training is documented
- working with the EH&S during periodic departmental compliance reviews
- maintaining a list of hazardous chemicals used by their employees
- maintaining an SDS collection for every hazardous chemical on their departmental list

EH&S Staff is available to served as a resource for Supervisors.

4.4 Employees

NAU Employees who work with hazardous chemicals are responsible for:

- Attending required training
- Reading SDSs and labels prior to using hazardous chemicals
- Following safety instructions contained in SDSs and labels
- Following NAU chemical labeling procedures
- Informing their Supervisor when adequate labeling or MSDSs are missing

4.5 Office of Environmental Health & Safety (EH&S)

The EH&S is responsible for:

- Development and revision of the Hazard Communication Program
- Compliance review of NAU Departments
- Consultation as needed in matters of Hazard Communication Training, SDS interpretation, labeling, and non-routine tasks.

5.0 Contractors

All contractor coordination with respect to health and safety programs is conducted through NAU Facility Services. Contractors bringing hazardous chemicals on site are responsible for providing SDSs with appropriate hazard information. NAU employees working in the vicinity of the contractor's work site may review the contractor's SDSs. In turn, SDS's of NAU's chemicals used at the work site may be reviewed by the contractor's employees.