

**HAZARD COMMUNICATION PROGRAM**

**NOAA ESRL Chemical Sciences Division**

**David Skaggs Research Center**

**Boulder, Colorado**

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## **Introduction**

NOAA ESRL Chemical Sciences Division (CSD) is committed to preventing accidents and ensuring the safety and health of our employees. It is the intent of CSD to comply with the requirements of this Hazard Communication Program in our continuing effort to provide a healthy and safe workplace for our employees.

This program is designed to provide employee information and training on (1) the hazardous chemicals known to be in the workplace, (2) the methods that will be employed to protect workers, (3) the precautionary methods employees must follow to protect themselves from hazardous chemicals, (4) the detection of a release of hazardous chemicals and (5) emergency procedures to follow should there be a release of hazardous chemicals and/or employee exposure to them.

## **Identifying Hazardous Chemicals**

The Safety Data Sheet (SDS; formerly the Material Safety Data Sheet, MSDS) is the primary means we will use to convey the necessary information about the hazards of the substances in the workplace. Detailed information about the physical, health, and other hazards of each chemical is included in a Safety Data Sheet. Inventories for all hazardous chemicals in laboratories are available electronically via the QR code posted at the entrance to each laboratory. Each chemical in the laboratory matches and can be easily cross-referenced with the product identified in the inventory with single-click access to its Safety Data Sheet. The manufacturers or importers of these products are responsible for providing us with the SDS.

Copies of the SDS for all hazardous substances are to be readily accessible during each work shift and in the work area. These are available electronically by scanning the QR code posted at the entrance of every area where hazardous substances are located.

The supervisors will have the responsibility for obtaining and maintaining all SDS for the products we use. If copies of an SDS are not available, contact the suppliers for the necessary copies. Any employee wishing to review a SDS can do so by contacting his/her supervisor or by scanning the QR code posted at the entrance of every area where hazardous substances are located.

Before new substances are introduced into the workplace, the SDS shall be reviewed to determine if the substance will present a new or unique hazard within the workplace. When the potential for a new or unique hazard is deemed present, the supervisor shall hold a safety meeting as soon as possible at which time the employees will be informed of the potential new hazard and the necessary precautions that must be taken.

If an employee is exposed to a hazardous substance, and needs medical attention, the treating physician will be given a copy of the appropriate SDS whenever possible.

Employees and/or their representative may obtain copies of a SDS and/or label during normal working hours. The relevant information on the SDS will be shared with employees during the hazard communication training program. The SDS will be available in the workplace to all employees who are urged to review it whenever they have a question regarding the chemical.

### **Identifying Containers of Hazardous Chemicals**

The labeling system to be used by CSD will follow the requirements in the 2012 revision of the OSHA Hazard Communication Standard to be consistent with the United Nations Globally Harmonized System (GHS) of Classification of Labeling of Chemicals. The label on the chemical is intended to convey information about the hazards posed by the chemical through standardized label elements, including symbols, signal words and hazard statements (see Appendix B).

This Hazard Communication Program provides that precautionary labels be on all containers of hazardous substances. Chemical containers include but are not limited to any jar, bag, barrel, box, can, cylinder, drum, vessel, storage tank or the like which contains a hazardous substance.

Whenever possible hazardous chemicals will be kept in their original containers. Should an original container ever become defective (leak) the chemical will be transferred to a similar type container. The label will be transferred to the replacement container and be securely attached. If the label is non-transferable, a replacement label with all significant information will be prepared and be securely and prominently placed on the new container. This container of a chemical will be used for its intended purpose as soon as possible.

No product will be released to the work area until it has been properly labeled (portable containers containing hazardous chemicals for transfer and intended for immediate use are excluded). Proper container labeling will be the responsibility of the purchaser / user.

These labels contain sufficient information for the safe handling of the product. The labels will contain the identity of the hazardous substance, the nature of the hazard and the manufacturer, importer, or other responsible party of the product. The information may also appear on hand written precautionary labels, and is in four parts:

A signal word such as "**Danger**," "**Warning**," or "**Caution**."

A statement of the hazard such as "**Flammable**."

Precautionary measures such as "**Keep Away From Heat**."

First aid procedures such as "**In Case of Contact, Flush Eyes with Plenty of Water for at Least 15 Minutes**."

Hazardous chemicals in CSD are classified as follows:

Chemical Agents – Examples of such chemical hazards include flammable materials which can cause burns if ignited, reactive materials, toxic materials, and corrosive materials.

#### PHYSICAL HAZARDS

<b>Flammable:</b>	Flammable materials that burn at or below room temperature.
<b>Explosive:</b>	Explosive materials that give off sudden, almost instantaneous volumes of gas when subjected to pressure, shock, or heat.
<b>Pyrophoric:</b>	Pyrophoric materials burn on contact with air.
<b>Oxidizer:</b>	Oxidizers are materials which supply oxygen or otherwise help or cause other materials to burn.

#### HEALTH HAZARDS

<b>Sensitizers:</b>	Sensitizers cause changes in the body's defense system and can cause harmful effects at a later time when the individual is exposed to even trace amounts of the material.
<b>Corrosive or Irritant:</b>	These materials cause injury or irritation when they come in contact with eyes, skin, or the mucous membranes. Acid (in high concentration) eats away skin. At low concentrations, acids may only cause a slight reaction which goes away without treatment.
<b>Target Organ Toxins:</b>	These materials damage one or more particular organ or body systems after exposure. These exposures can also cause cumulative damage over time at low concentrations.

Physical Agents – Physical agents are usually produced by machines and equipment, or when two or more chemical agents are mixed. These hazards include noise, heat, extreme cold, welding arcs, X-rays, microwaves, and ultrasonic noise.

Infectious Agents – Infectious agents are living microbial materials which can cause disease or create toxic wastes or by-products.

## **Training Employees about Chemical Hazards**

All employees will be provided with information and training on hazardous chemicals in their workplace at the time of their initial employment and whenever a new hazardous chemical is brought into their workplace. Periodic refresher training may also be required.

All employees working with or in proximity to hazardous materials (other than household products used for their intended purpose) are required to participate in this training. The training will be provided or arranged by the management. The employees will be provided with the following information:

1. the requirements of the Hazard Communication Program;
2. operations in their work area where hazardous chemicals are present, used or stored; and
3. location and availability of the written Hazard Communication Program and SDS.

Employee training will include:

1. methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
2. the physical and health hazards of the chemicals in the work area;
3. the measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and
4. the details of the hazard communication program developed by the employer, including an explanation of the labeling system and the Safety Data Sheet, and how employees can obtain and use the appropriate hazard information.

Each employee requiring Hazcom training will complete the Web-based Hazcom training at:

<http://www.labtrain.noaa.gov/shemtfa/hazcom/n040100000.htm>

## **Informing contractors and other employers about our hazardous chemicals**

When other employers bring a work crew onto our property they will be supplied with a copy of the Hazard Communication Program and with access to copies of the SDS for hazardous chemicals that could be encountered in their work area. It shall be their responsibility to train their employees, provide personal protective equipment and handle employee emergencies. Any releases or spills of hazardous chemicals shall within minutes, be brought to the immediate attention of the management.

## Appendix A. Definitions

Listed below are some terms commonly used in this program and on MSDS's. Not every term is included; however, the most common ones are defined.

**Absorption** – The movement of a hazardous chemical through the skin and into the bloodstream.

**Acute** – Short-term effect, usually of temporary high-level exposure.

**Ceiling Value (C)** – A maximum level. No exposure should ever exceed this level.

**Chronic** – Long-term effect. Low-level exposure over long periods gives rise to symptoms that develop over time.

**Combustible** – A liquid that becomes flammable when heated above 100 degrees Fahrenheit.

**Concentration: PPM** – Parts per million is a volume-per-volume relation concentration.

**DRO - Designated Responsible Official.** The DRO is the senior NOAA official at a facility who is ultimately responsible for environmental and safety compliance. The DRO may have safety officers, environmental compliance officers, area safety representatives, or other staff personnel who have responsibilities to ensure regulatory compliance.

**Flammable (Explosive) Limits - LEL and UEL** – A flammable material will burn in air when ignited. These materials are referred to as flammable, combustible or explosive. The range of concentration in which these materials will burn is limited by the Lower Explosive Limit (LEL). When the gas or vapor is below this concentration, the mixture is too lean to burn. The Upper Explosive Limit (UEL) above this concentration is too rich for the mixture to burn.

**Flash Point** – The temperature at which a flammable liquid produces enough vapor to burn.

**GHS** - United Nations Globally Harmonized System (GHS) of Classification of Labeling of Chemicals

**mg/m<sup>3</sup>** – Milligrams per meter cubed is a weight-per-volume measure usually applied to dusts, mists, and fumes. A cubic meter is a cube, 39.4 inches on a side. For chemical vapors, PPM and mg/m<sup>3</sup> are interchangeable.










**NFPA** – National Fire Protection Association.

**Oral Dose (LD50)** – (lethal dose-50%) The amount, usually expressed in milligrams per kilogram, which when fed to a group of animals will cause 50 percent of them to die.

**Threshold Limit Value (TLV) and Permissible Exposure Limit (PEL)** – The TLV is a safe exposure level set by the American Conference of Governmental Industrial Hygienists (ACGIH). A PEL is similar to the TLV, but set by OSHA. Both signify a level at which you can be exposed for 8 hours a day, day after day, with no adverse effects.

Appendix B. Globally Harmonized System (GHS) of Classification of Hazards

HCS Pictograms and Hazards

 <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>	 <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>	 <ul style="list-style-type: none"> <li>▪ Irritant (skin and eye)</li> <li>▪ Skin Sensitizer</li> <li>▪ Acute Toxicity</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>



Appendix C

**HAZARD COMMUNICATION PROGRAM –  
EMPLOYEE INFORMATION AND TRAINING RECORD**

DATE \_\_\_\_\_

NAME OF EMPLOYEE \_\_\_\_\_

1. I completed the NOAA web based information and training on the Hazard Communication Program and understand my responsibilities to work safely with hazardous materials.  
Employees initial \_\_\_\_\_

or

2. I completed classroom based information and training on the Hazard Communication Program and understand my responsibilities to work safely with hazardous materials.  
Employees initial \_\_\_\_\_ Instructors initial \_\_\_\_\_

3. I understand that the HAZCOM plan is available on the NOAA CSD website at <http://www.esrl.noaa.gov/csd/safety/>. Employees initial \_\_\_\_\_

\_\_\_\_\_  
(Employee's signature)

\_\_\_\_\_  
(Date)