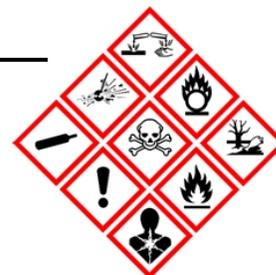


# Safety Circular

## Chemical Safety



### Hazard Communication Standard:

In order to ensure chemical safety in the workplace, information about the identities and hazards of the chemicals must be available and understandable to workers. OSHA's Hazard Communication Standard (HCS) requires the development and dissemination of such information:

- ⇒ Chemical manufacturers and importers are required to evaluate the hazards of the chemicals they produce or import, and prepare labels and safety data sheets to convey the hazard information to their downstream customers;
- ⇒ All employers with hazardous chemicals in their workplaces must have labels and safety data sheets for their exposed workers, and train them to handle the chemicals appropriately

### Definitions:

“Chemical” is any element, chemical compound, or mixture of elements and/or compounds.

“Expose or Exposure” is subjected to a hazardous chemical in the course of employment through any route of entry, including inhalation, ingestion, skin contact, or absorption.

“Handle” is to touch, move, or manipulate hazardous chemicals.

“Hazardous Chemical” is any chemical that is identified by eyes, or mucous membranes.

“Toxic Material” is a substance through which a chemical reaction or mixture can produce possible injury or harm to the body by entry through the skin, digestive tract, or respiratory tract. The toxicity is dependent on the quantity absorbed and the rate, method, site of absorption, and the concentration of the chemical.

“Personal Protective Equipment” (PPE) is the protective clothing (e.g., gloves, safety glasses, safety harness, respirator) or like items intended



**GHS**  
The Global Harmonization System  
of Classification and Labeling



### NOTICE TO EMPLOYEES

The Hazard Communication Standard (HCS) is now aligned with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This provides an international approach to hazard communication. Nine pictograms are used in the labeling system to convey the health, physical and environmental hazards of the chemical itself. It aims at improving safety and health of workers through more effective communication on the chemicals and their hazards. There can be one or more pictograms on a given label. These pictograms can also be found in Safety Data Sheets.

Federal Hazard Communication Standard, Title 29, Part 1910.1200 of the Code of Federal Regulations (29 CFR 1910.1200) mandates that “Workers have the right to know and understand the hazardous chemicals they use and how to work with them safely.” This regulation is designed to make information about hazardous chemicals that are present in work places available to exposed employees. Chemicals cause a wide range of health hazards, such as irritation, and carcinogenicity; physical hazards such as flammability and corrosion; and environmental hazards which are chronic aquatic toxicity and acute aquatic toxicity. Hazard Communication provides information to employees so they can protect themselves against the mentioned chemical hazards in the workplace.

# Safety Data Sheets

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. The HCS requires new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

**Section 1, Identification** includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

**Section 2, Hazard(s) identification** includes all hazards regarding the chemical; required label elements.

**Section 3, Composition/information on ingredients** includes information on chemical ingredients; trade secret claims.

**Section 4, First-aid measures** includes important symptoms/effects, acute, delayed; required treatment.

**Section 5, Fire-fighting measures** lists suitable extinguishing techniques, equipment; chemical hazards from fire.

**Section 6, Accidental release measures** lists emergency procedures; protective equipment; proper methods of containment and cleanup.

**Section 7, Handling and storage** lists precautions for safe handling and storage, including incompatibilities.

**Section 8, Exposure controls/personal protection** lists OSHA's Permissible Exposure Limits (PELs); ACGIH Threshold Limit Values (TLVs); and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the SDS where available as well as appropriate engineering controls; personal protective equipment (PPE).

**Section 9, Physical and chemical properties** lists the chemical's characteristics.

**Section 10, Stability and reactivity** lists chemical stability and possibility of hazardous reactions.

**Section 11, Toxicological information** includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information\*

Section 13, Disposal considerations\*

Section 14, Transport information\*

Section 15, Regulatory information\*

**Section 16, Other information**, includes the date of preparation or last revision.

## Biological Hazards Routes of Entry



Skin Absorption



Inhalation



Ingestion



Injection

## Methods of Exposure

There are four main routes by which hazardous chemicals enter the body:

1. Absorption through the respiratory tract via inhalation.
2. Absorption through the skin via dermal contact.
3. Absorption through the digestive tract via ingestion. (Ingestion can occur through eating or smoking with contaminated hands or in contaminated work areas.)



Understanding how hazardous chemicals enter the body is crucial in the selection of Personal Protective Equipment (PPE). Each department supervisor shall ensure adequate and appropriate PPE is provided to staff and offenders dispensing and using hazardous chemicals in accordance with the manufacturer's specifications identified on the respective SDS.

## Injury Reporting

Employees and offenders shall report all injuries to their supervisor immediately. Supervisors shall report injuries in accordance with agency policy.

If the injury directly or indirectly involves chemical exposure or involves lack of air, and is fatal to one or more employees or results in the hospitalization of five or more employees, the accident shall be reported to the Texas Department of State Health Services (TDSHS), Toxic Substance Control Division, Hazard communication Branch within 48 hours after the occurrence.

## Self Evaluation

Each department should evaluate their areas and identify all chemicals within their department and ask a few simple questions to determine if chemical safety is being followed:

Is the chemical needed? Is there a safe alternative?

Are Material Safety Data Sheets (SDS) available?

Are affected employees and offenders trained on the hazards associated with such chemicals and their use?

Are all containers labeled as to their contents and appropriate hazards as stated on the SDS?

Are chemicals being stored and accounted for in accordance with the requirements based on the information found on the SDS and agency policy?

Is there appropriate personal protective equipment available and is its use being enforced?

## Safe Work Practices

By following safe practices when using chemicals, employees can protect themselves against chemical hazards.

- Always read the labels on the products before you use them.
- Understand the hazards and how to protect yourself.
- Do not mix chemicals! For example, never mix bleach with ammonia.
- Learn emergency procedures in case you or others are exposed to chemical splash or fumes. These procedures can be found on the SDS.
- Keep containers closed when not in use. Store chemicals in original containers in a cool, dry place.
- Only use chemicals in well-ventilated areas.

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Risk Management

The Safety Circular, a publication of the Texas Department of Criminal Justice Risk Management Department, is published monthly in an effort to promote and enhance risk management awareness on issues relating to TDCJ employees. Design and layout of the Safety Circular is performed by Kim Roberson, Risk Management. Comments, suggestions and safety related items are welcome.

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References: ♦ [tdcj.texas.gov](http://tdcj.texas.gov) ♦ [osha.gov/hazcom](http://osha.gov/hazcom) ♦