

5 - Reading the SDS: Safety Training

EH&S – MGA

Goals: This safety session should teach you to:

- A. Recognize key SDS hazard and protection information.
- B. Read and use SDSs to work safely with chemicals.

OSHA Regulations: 29 CFR 1910.1200

1. OSHA Requires a Safety Data Sheet (SDS) for Every Chemical and Hazardous Substance in the Workplace

- A. Chemical manufacturers must prepare them and provide them to users.
- B. Employers must have an easily available SDS for each workplace chemical.

2. SDS Hazard and Protection Information Is a Guide to Working Safely With the Chemical

- A. Before starting any job with a chemical, read the SDS and follow its precautions.

3. Identification Data Tells What You're Working With

- A. Chemical name, hazardous ingredients and date SDS was prepared
- B. Worker exposure limits, such as OSHA's Permissible Exposure Limit (PEL)
- C. Manufacturer/supplier name, address, emergency phone number

4. Physical and Chemical Changes Can Affect the Type and Degree of Hazard

- A. Normal appearance and odor: Any change could mean greater risk.
- B. Boiling point/melting point: Temperature at which the chemical changes from liquid to breathable gas or from solid to liquid—changing the hazard and needed protections
- C. Vapor pressure/vapor density/evaporation rate: Rate and ease with which the chemical evaporates or rises in air, which can increase the risk of inhaling the chemical
- D. Solubility in water/specific gravity: The chemical's ability to dissolve, sink, or float in water

5. The SDS Identifies Fire and Explosion Risk Factors and Protections

- A. Flash point: Lowest temperature at which an ignition source (e.g., a spark) could make the substance's vapors catch fire
- B. The lower the number, the greater the chance of ignition.
- C. Flammable and explosive limits: Higher and lower concentrations of vapor in the air that will catch fire or explode if they contact an ignition source
- D. Firefighting: What material to use (water, foam, etc.) to put out a fire containing this substance

6. Reactivity Data Tell How the Chemical Reacts With Other Substances

- A. Contact with air, heat, water, or another specific chemical could cause fire or explosion, or release flammable or toxic gases.
- B. Stability/instability: How well the chemical resists change or disintegration and what situations make it less stable
- C. Incompatibility: What substances (including air or water) may cause a dangerous reaction if chemical is exposed to them during use or storage
- D. Hazardous decomposition/byproducts or polymerization: The kind of hazardous products or reactions that could result if the chemical breaks down or reacts

7. Health Hazards Explain the Potential Results of Worker Exposure

- A. How the chemical enters the body: Inhaling, swallowing, skin or eye contact
- B. Type of health effects: Acute (develop right after exposure, like skin burns) or chronic (develop over time, e.g., cancer)
- C. Signs or symptoms of exposure: Headache, rashes, dizziness, etc.
- D. Cancer-causing potential
- E. Health conditions exposure might make worse: Breathing or heart problems, etc.
- F. What to do if exposed: First aid measures to take while waiting for medical help.

8. Control Measures Include Ways to Handle the Substance Safely

- A. Usage precautions: Using ventilation, avoiding heat, practicing good hygiene etc.
- B. Emergency response: What to do if there's a spill, leak, or accidental release
- C. Personal protective equipment (PPE): What to use to prevent exposure (type of respirator, gloves, eye protection, protective clothing)

Summation: Use SDSs to Identify Chemical Hazards and Take Safety Precautions

Always read the SDS before you work with a chemical, so you will understand the substance's hazards, circumstances that increase the risk of hazards, and equipment and procedures you can use to prevent accidents and dangerous exposure.