

Introduction and Scope

Safety Data Sheets are an important method of communication for hazardous products under WHMIS. This document outlines what to look for on an SDS to help you identify, assess, and control your chemical hazards.

Prior to handling a hazardous product, employees should be familiar with the following sections:

- Section 1
- Section 2
- Section 7
- Section 8
- Section 10

Other sections have important information and should be reviewed if applicable to your work.

Section 1: Identification

Employees must look for 3 important items under Section 1:

- Chemical/Product Name
- Recommended Use
- Emergency Contact Information for the Supplier

Section 2: Hazard Identification

Section 2 is the most important section to understand. Here are some key pieces of information for employees to look out for.

1. Pictograms - This will tell you the hazard class the chemical belongs to.
2. Signal Word
 - a. **DANGER** - These are higher-risk, due to flammability, toxicity, or other risks.
 - b. Warning - These are low to moderate risk products
3. Key Words In the Hazard Statements (**High-Risk**) - **Watch for this wording to identify high-risk hazards.**
 - a. **Highly/Extremely Flammable, Catches fire spontaneously**
 - b. **Fatal/Toxic** if inhaled, swallowed, ingested
 - c. May cause **cancer**
 - d. May cause **genetic defects**
 - e. May/Suspect of **damaging fertility or the unborn child (or teratogen)**
 - f. May **damage organs through prolonged or repeated exposure**
4. Key Words in the Hazard Statements (**Low to Moderate Risk**) - **These hazards still need to be controlled but are a lower-risk.**



- a. Irritation (skin, eyes, respiratory)
 - b. Harmful if inhaled, swallowed, ingested
5. Precautionary Statements - This will tell you how to safely handle these products.

Section 3: Composition/Information on Ingredients

Section 3 may be useful for determining the risk of specific ingredients within a mixture. Employees must know the composition of the chemicals you are using.

Section 4: First Aid Measures

This section provides important information on first aid should exposure occur. **This section does not replace an Emergency Response Plan for your work area.** Supervisors should use this information to help plan for emergencies by considering all of the chemicals in your work area.

Section 5: Fire Fighting Measures

This section provides important information should a fire occur. **This section does not replace an Emergency Response Plan for your work area.** Supervisors should use this information to help plan for emergencies by considering all of the chemicals in your work area. **Note the extinguishing media required** to ensure your fire extinguisher is appropriate.

Section 6: Accidental Release Measures

This section provides important information should a spill or other release occur. **This section does not replace an Emergency Response Plan for your work area.** Supervisors should use this information to help plan for emergencies by considering all of the chemicals in your work area.

Section 7: Handling and Storage

This section will help you ensure you are handling and storing the chemicals safely. Key pieces of information for employees to watch out for include:

- light sensitivity
- air sensitivity
- incompatible materials/situations
- ventilation requirements

Section 8: Exposure Control/Personal Protective Equipment

This section will help you ensure you are adequately protected from exposure to the chemical. Some key considerations should be made.

- Ventilation - **Wherever possible local exhaust ventilation such as a fume hood or other device must be used.** A “well-ventilated area” typically means a work area with good airflow. This could be a laboratory, large shop, or outdoors.
- Respiratory Protection - The SDS can help you determine the need for a respirator. **If there is appropriate use of an engineering control (such as fume hood, local exhaust ventilation, or glove box), a respirator may only be required in an emergency.** If engineering and administrative controls cannot limit the potential for inhalation exposure, a respirator must be used when indicated. Be sure to refer to the U of A [Respiratory Protection Program](#) or contact HSE for assistance.
- Hand Protection - These SDS may provide details on the specific gloves required, or just note that gloves should be worn. If you are not sure, check with the manufacturer of your gloves if they are appropriate for the chemicals you are handling.
- Eye Protection - At a minimum, safety glasses must be worn when handling hazardous products. Some may require splash goggles or a full face shield.
- Other measures - Follow all other measures identified on the SDS, such as flame resistance clothing for flammable or reactive substances.

Section 9: Physical and Chemical Properties

This section provides known information about the chemical. Take special note of the following to help assist in your hazard assessment.

- Boiling Point - The boiling point helps to determine at what temperature the substance will evaporate and increase the inhalation hazard.
- Flash Point - The flash point can help identify the risk of fire or explosion at various temperatures.
- Lower Explosive Limit (LEL) - The lower explosive limit is the lowest concentration in an air mixture to be explosive. Below this value, the mixture is too lean to ignite.
- Upper Explosive Limit (UEL) - The upper explosive limit is the highest concentration in an air mixture to be explosive. Above this value, the mixture is too rich to ignite.
- pH - pH helps determine the acidity of the substance. A very low pH is highly acidic, and a very high pH is very basic. A pH of 7 is considered neutral.

Section 10: Stability and Reactivity

This section provides known information about dangerous situations that could arise from the use or storage of this chemical. Watch for:

- Conditions to avoid - These are situations to avoid, such as excess heat or contact with combustible materials.
- Hazardous Reactions - These are reactions it may have with known conditions or substances, such as explosion when heating.
- **Incompatible Materials - These are materials that could cause a hazardous reaction.**
- Hazardous Decomposition Products - These are potentially dangerous contaminants generated when the substance is ignited, such as carbon monoxide. These may have their own hazards separate from the parent material.

Section 11: Toxicological Information

This section provides known information about the toxicity of the product. This can help you identify higher-risk products. The lower the LD50 (lethal dose) or LC50 (lethal concentration) the higher-risk the substances is. Table 1 below outlines categories (Category 1 - High-Risk, Category 5, Low-Risk) based on some of the information you will find in this section.

Table 1: GHS Acute Toxicity Hazard Categories

Exposure Route	Category 1	Category 2	Category 3	Category 4	Category 5
Oral (mg/kg bodyweight)	5	50	300	2000	5000
Dermal (mg/kg bodyweight)	50	200	1000	2000	
Gases (ppmV)	100	500	2500	20000	
Vapors (mg/l)	0.5	2.0	10	20	
Dusts and Mists (mg/l)	0.05	0.5	1.0	5	

Section 12: Ecological Information

This section provides known information about the risk to the environment. In general, no hazardous products should be put down the drain.

Section 13: Disposal Considerations

This section provides information on safely disposing of the chemical. Be sure to check local requirements for the province, territory, or country you are in. On Campus, all hazardous chemicals should be disposed of through Chematix.

Section 14: Transport Information

This section provides information on meeting the Transportation of Dangerous Goods (TDG) requirements. This is only necessary if shipping product.

Section 15: Regulatory Information

This section provides information on various regulations the product may fall under. Wherever possible, request a Canadian specific SDS to ensure that Canadian regulatory requirements are listed.

Section 16: Other Information

This section provides any other information that the supplier would like you to know.

Record Keeping

The following are the recordkeeping requirements under WHMIS:

- SDS do not expire, but the most current version must be available.
- SDS must be accessible (electronic means is acceptable)

Document Review

This WHMIS Program will be reviewed at a minimum every 3 years, or when legislative changes are required.

References and Additional Information

Occupational Health and Safety Act, SA 2017, cO-2.1

<https://work.alberta.ca/occupational-health-safety/ohs-act-regulation-and-code.html>

Health, Safety and Environment - University of Alberta

<https://www.ualberta.ca/environment-health-safety>

CH008 - WHMIS 2015 - Information for Employers. 2018. Government of Alberta.

<https://ohs-pubstore.labour.alberta.ca/ch008>

CH007 - WHMIS 2015 - Information for Workers. 2018. Government of Alberta.

<https://ohs-pubstore.labour.alberta.ca/ch007>