

Archdiocese of Seattle

Safety Training 2023



Archdiocese of Seattle

**CHEMICAL
SAFETY**



What is a “hazardous chemical”?

A hazardous chemical is any chemical that can do harm to your body.

Most industrial chemicals can harm you at some level.

It depends how much gets into your body.



How do hazardous chemicals affect the body?

It depends on several factors:

How the chemical enters the body

The physical form of the chemical

The amount of chemical that actually enters the body - the dose

How toxic (poisonous) the chemical is



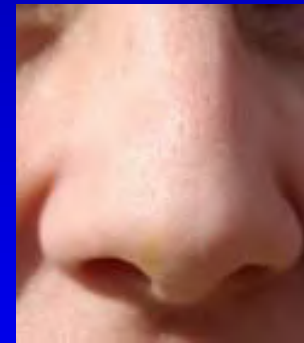
How Chemicals Enter the Body

There Are Three Routes of Entry:

Ingestion – swallowing the chemical



Inhalation – breathing in the chemical



Absorption – the chemical soaks through the skin



Toxicity:

how poisonous are chemicals?

Dose - The effects of any toxic chemical depends on the amount of a chemical that actually enters the body.

Acute Toxicity - the measure of how toxic a chemical is in a single dose over a short period of time.

Chronic Toxicity - the measure of the toxicity of exposure to a chemical over a long period of time.



Chemical Exposure Limits

Many chemicals have exposure limits, or allowable amounts of a chemical in the air.

These limits are often called “Permissible Exposure Limits” or “Threshold Limit Values”.

Levels must be kept below these limits for safety.

PEL
TLV



How to learn about the hazards of a chemical?

- The Globally Harmonized System (GHS) is an international approach to chemical labels and **safety data sheets (SDS)**.
- OSHA's / L&I Hazard Communication standard has adopted & incorporated the GHS to improve safety and health of workers through more effective communications on chemical hazards.



Safety Data Sheets (SDS)

- SDS are multi-page documents that contain more detailed information about a chemical than the container label.
- The revised HazCom standard requires that the information on the SDS is presented using consistent headings in a specific order.



16-Section SDS Format

1. Identification
2. Hazard(s) Identification
3. Composition/Information on Ingredients
4. First-Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Controls/Personal Protection



16-Section SDS Format

9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transport Information
15. Regulatory Information
16. Other Information



Requirements of a chemical labels

- Labels are required to have:
 - Pictograms
 - Signal Words
 - Hazard Statement
 - Precautionary Statements
 - Product Identifier
 - Supplier Identification
 - Supplemental Information (as required)



Requirements of a GHS Label

The Basic Parts of A GHS-Compliant Label

1 → **n-Propyl Alcohol**
UN No. 1274
CAS No. 71-23-8

2 → **DANGER**

3 → Highly flammable liquid and vapor. Causes serious eye damage. May cause drowsiness and dizziness.

4 → Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid breathing fumes/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present. Continue rinsing.

Fill Weight: 18.65 lbs. Lot Number: B56754434
Gross Weight: 20 lbs. Fill Date: 6/21/2013
Expiration Date: 6/21/2020

5 → Acme Chemical Company • 711 Roadrunner St. • Chicago, IL 60601 USA • www.acmechem.com • 123-444-5567

See SDS for further information.

6 → 

1. **Product Identifier** - Should match the product identifier on the Safety Data Sheet.
2. **Signal Word** - Either use "Danger" (severe) or "Warning" (less severe)
3. **Hazard Statements** - A phrase assigned to a hazard class that describes the nature of the product's hazards
4. **Precautionary Statements** - Describes recommended measures to minimize or prevent adverse effects resulting from exposure.
5. **Supplier Identification** - The name, address and telephone number of the manufacturer or supplier.
6. **Pictograms** - Graphical symbols intended to convey specific hazard information visually.



Pictograms



CORROSION

- Skin Corrosion/ Burns
- Eye Damage
- Corrosive to Metals



EXCLAMATION MARK

- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)



EXPLODING BOMB

- Explosives
- Self-Reactives
- Organic Peroxides



SKULLS & CROSSBONES

- Acute Toxicity (fatal or toxic)



FLAME

- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides



GAS CYLINDER

- Gases Under Pressure



ENVIRONMENT

- Aquatic Toxicity



HEALTH HAZARDS

- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity



FLAME OVER CIRCLE

- Oxidizers



Pictograms



- We need to be familiar with the meaning(s) of each pictogram
- Labels and safety data sheets will not always include that information, understanding these is critical

