

Lesson 1: Lab Safety & Safety Symbols

HHPS Symbols

- **Hazardous Household Product Symbol (HHPS)**
- This is used to help identify dangerous chemicals, which can be poisonous, flammable, explosive or corrosive.

- The border and the inside symbol each have their own individual meaning.



Product is dangerous



Container is dangerous

- **Border indicates if the container or the product is hazardous**



Contents flammable



Symbol indicates the type of hazard



Flammable



Poisonous



Explosive



Corrosive

Identify these symbols



Identify these symbols



Product is poisonous



Container is corrosive



Container is explosive



Product is corrosive

Workplace Hazardous Materials Information System (WHMIS)

- What is it?

A method or system of identifying hazardous products in the workplace with symbols and information sheets.

● Workplace Hazardous Materials Information System (WHMIS)

- When do we need it?
 - In all workplaces (including schools)
- Where does it apply?
 - Canada
- Which materials does it apply?
 - Any chemical that can be dangerous or has negative effects
- Who should know?
 - Anyone who may come in contact with that chemical

- How many components are there?
What are they?
- 1. Labels
- 2. Material Safety Data Sheets
- 3. Worker education

WHMIS Symbols

Why do we need symbols?

- So hazards/danger is easy to understand

- Symbols Types (Refer to *Chemical Hazards* Handout and textbook)

Symbols



A - Compressed Gases



B - Flammable and Combustible Materials



C - Oxidizing Materials



D1 - Materials Causing Immediate and Serious Toxic Effects



D2 - Materials Causing Other Toxic Effects



D3 - Biohazardous Infectious Materials

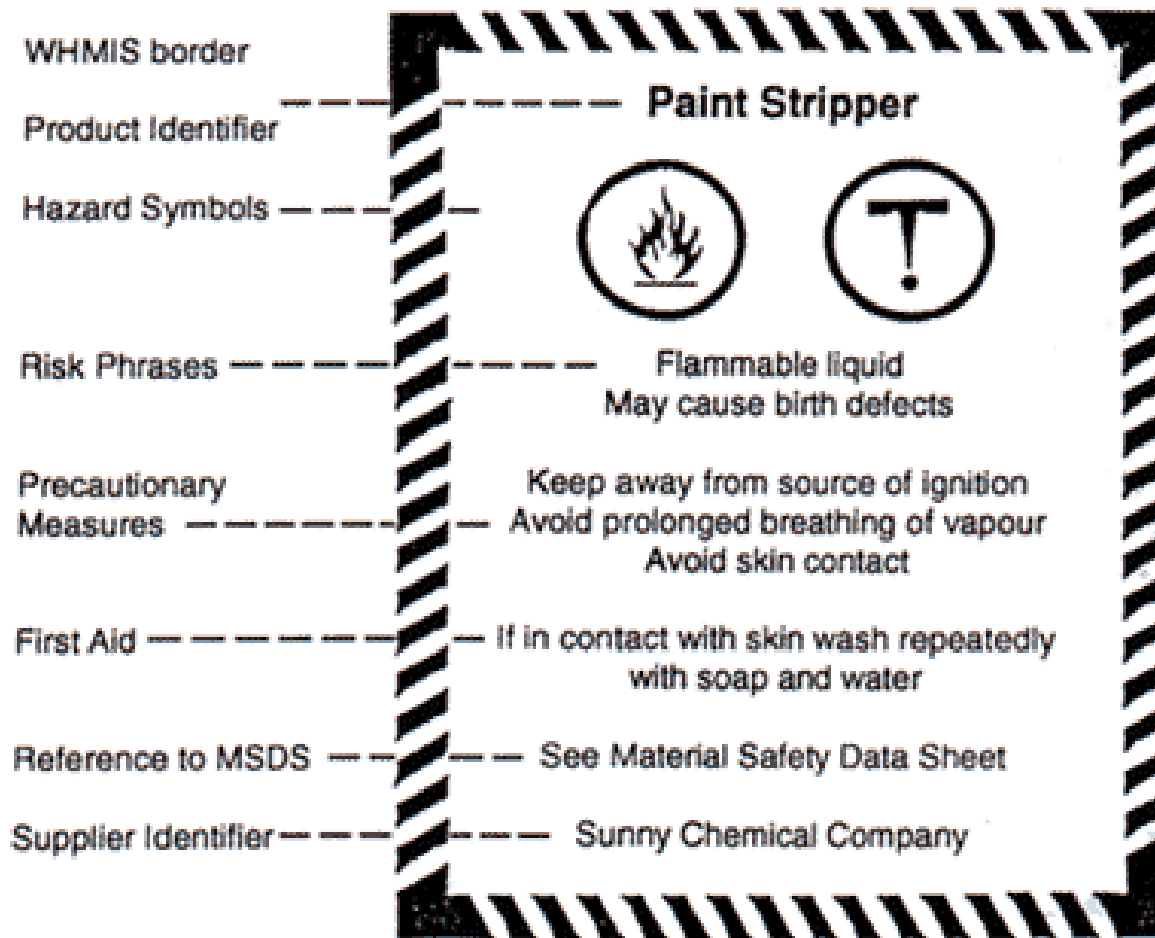


E - Corrosive Materials



F - Dangerously Reactive Materials

Labels



Material Safety Data Sheet (MSDS)

Material Safety Data Sheet

Section 1: Company and Product Identification



Manufactured by
California Chemical Industries, Inc.
18255 Tenth St.
Chico, CA 95926
TEL: (916) 332-2188

(866) 260-0501

Product Name Lead Nitrate

Product No. 9805104

CAS 10099-74-8

24 HOUR EMERGENCY ASSISTANCE CHEMTREC 800-424-9300 HAZARD RATING		
4- EXTREME	HEALTH	3
3- SEVERE		
2- MODERATE	FLAMMABILITY	0
1- SLIGHT		
0- MINIMAL	REACTIVITY	2

Material Uses Not available.

Synonyms Not available.

Formula $Pb(NO_3)_2$

Section 2: Hazardous Ingredients

Product Name	CAS	Conc (%)	PIN
Lead Nitrate*	10099-74-8	100	UN1489

For Exposure Limits (TLV, PEL), LD50 and LC50 see section 5 of this document.

* Chemical subject to the reporting of SARA Title III.

Section 3: Physical Data

Appearance	Solid. (Crystals.)	Odor Threshold	Not available.
Color	White.	Vapor Pressure	Not available.
Odor	Odorless.	Evaporation Rate (Reference solvent)	Not available.
Specific Gravity (Water = 1)	4.53 (Water = 1)	Vapor Density (Air = 1)	Not available.
Melting Point	Decomposition temperature: 470°C (878°F)	Percent Volatile by Volume	Not available.
Boiling Point	Not available.	pH (1% water soln)	Not available.
Water/Oil Dist. Coeff.	Not available.	Solubility	Miscible in water.

Section 4: Fire and Explosion Hazard Data

Flash Point (Methods)	Not applicable.	Autoignition Temp.	Not applicable.
Flammable Limits in Air by Volume	Not applicable.		
Flammability	Not applicable.		

Explosion Hazard Not available.

Haz. Comb. Prod. Not applicable.

Means of Extinction Use extinguishing media suitable for surrounding materials.

Special Fire Fighting Procedures

Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Unusual Fire and Explosion Hazards

Not combustible but is hazardous oxidizing material. In contact with easily oxidizable substances may cause ignition, violent combustion or explosion.

Section 5: Health Hazard Data

Exposure Limits (P.E.L., TLV, etc.) Not available.

Acute Effects

Hazardous in case of skin contact (irritant), eye contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of skin contact (severe). Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Severe over-exposure can result in death.

Routes of Entry Eye contact. **LD50/LC50** LD50: Not available. LC50: Not available.

Effects of Overexposure

Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. California Prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead (II) Nitrate.

Emergency and First Aid Procedures

SKIN: Remove contaminated clothing and shoes. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, creases, creases and gran. If irritation persists, get medical attention. **EYES:** Flush with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Seek immediate medical attention. **INHALATION:** Move exposed person to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Seek medical attention. **INGESTION:** If affected person is conscious, give plenty of water to drink. Induce vomiting by touching the back of throat with fingers. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

Section 6: Reactivity Data

Stability	The product is stable.	Instability Temp.	Not available.
Incompatibility	Not available.		
Degradation Prod.	These products are nitrogen oxides (NO, NO ₂ , ...). Some metallic oxides.	Hazardous polymerization?	Will not occur.
Materials to Avoid	Not available.		

Section 7: Spill or Leak Procedures

Spill Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Disposal Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 8: Protection Equipment Information

Equipment Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Engineering Controls Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Section 9: Other Information

Special Precautions Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Follow all fire fighting procedures (Section 4). Do not touch or walk through spilled material.

Read label on container before using. Do not wear contact lenses when working with chemicals.

Verified by S. Quandt **Effective Date** Printed 9/27/2002

For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to the other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees.

Material Safety Data Sheet (MSDS)

- The MSDS summarizes technical specifications about a chemical to help people handle chemicals safely. It contains:
 - Product information
 - Hazardous ingredients
 - Physical data
 - Fire & Explosive Hazard data
 - Health hazard data
 - Reactivity data
 - Spill or Leak Procedure
 - Protection Equipment Information

Safety Rules and Procedures

- Why should you not bring food or drink into a science classroom?
- What should you do if you spill some chemicals on your skins?
- What should you do if some chemical accidentally gets into your eyes?
- How should you dispose of chemicals?
- Why is it not safe to flush some substances down the drain?
- Where should broken glass be placed?

- <http://www.mykawartha.com/news-story/5818833-lindsay-waste-collector-recovering-after-receiving-first-and-second-degree-chemical-burns/>
- http://articles.latimes.com/1986-02-04/news/vw-4307_1_household-cleaner