

Lab Chemical MSDS Process

John Zimmerman / 28 November 2005

- Know about hazards before ordering if possible
 - Check MSDS
 - Ask supplier
 - Check MSDS database (Chemwatch)
- Order material
- Obtain MSDS
 - Online
 - Email from supplier
 - Check Chemwatch
 - With shipment

- Review MSDS
 - Look for key words, phrases:
 - Carcinogen (known or suspected) (Human or animal)
 - Mutagen (known or suspected)
 - Reproductive hazard
 - POP (Persistent Organic Pollutant)
 - EDC (Endocrine Disrupting Chemical)
 - EHS (Extremely Hazardous Substance)
 - Persistent
 - Bioaccumulative
 - Subject to Proposition 65 (California)
 - May cause blindness, contacts may not be worn, no warning properties (tasteless, odorless with strong toxicity)

- Forward to Jill if MSDS has phrases (electronic)
- Forward to Wendy (electronic)

- **Section I**

Contains contact information about the chemical manufacturer, which can be important in the event of an emergency.

Section II—Hazardous Ingredients/Identity Information

Both the scientific name and the common name of the chemical are listed here. Also, the following exposure limits are covered:

- OSHA PEL—OSHA's "Permissible Exposure Limit" - The maximum amount of the chemical that an employee can be exposed to without danger over a typical 8 hour day.
- ACGIH TLV—"Threshold Limit Value" - Another safe exposure limit set by the American Conference of Governmental Industrial Hygienists. (Explain how you monitor exposure limits at your worksite)

Section III—Physical/Chemical Characteristics

- • What the chemical normally looks and smells like and possible danger signs
- • Boiling Point—Temperature at which the liquid turns into a gas
- • Vapor Pressure—How easily the chemical evaporates (the higher the number, the faster it evaporates which can cause dangerous vapors in the air)
- • Vapor Density—If the vapor will rise (below 1) or sink (above 1) in the air
- • Evaporation Rate—Another measurement of how quickly a liquid or solid turns into a gas (the higher the number, the faster the rate)
- • Specific Gravity—Whether the chemical will sink in water (above 1—will sink; below 1—will float)
- • Solubility in Water—How much of the chemical will dissolve in water

- **Section IV—Fire and Explosion Hazard Data**

What might cause a fire or explosion and how to put out a fire. Flash Point—The lowest temperature at which the vapors could catch fire if ignited by a spark or some other source Flammable Limits—The minimum and maximum percent of vapor in the air that could catch fire if ignited LEL and UEL—Lower and upper explosive limits - The minimum and maximum percent vapor in the air that could explode if ignited (Review safety procedures for minimizing risk of ignition, such as sparks)

- **Section V—Reactivity Data**

Describes what could happen if the chemical mixes with water, air or other chemicals.

Stable or Unstable—How easily the chemical changes or breaks up

Incompatibility—If the substances listed here are mixed with the chemical, a hazardous reaction will occur.

Hazardous Decomposition or By-products - Dangerous chemicals that can be formed when the substance breaks down or reacts

- **Section VI—Health Hazard Data**

How the chemical enters the body (such as inhaling, swallowing or through the skin) and what health problems it could cause.

Acute—A reaction that shows up right after exposure, such as a rash

Chronic—A reaction that develops over time, such as cancer

Carcinogen—Substance known to cause cancer at certain exposure levels

- **Section VII—Precautions for Safe Handling and Use**
Explains how to properly handle, store and dispose of the chemical. Also, what steps to take if there is an accidental spill or release.
- **Section VIII—Control Measures**
Describes what type of respirator to use and how to maintain proper ventilation. It also recommends appropriate personal protective equipment, such as safety eye gear, gloves, and other protective clothing.

