Laboratory Safety Bulletin

Phone: 519-253-3000 Ext. 3523 • E-mail: ccc@uwindsor.ca • Web: www.uwindsor.ca/ccc
Location: Essex Hall / B-37 • Hours: 8:30 am to 4:30 pm (M-F)

DESIGNATED SUBSTANCE: LEAD

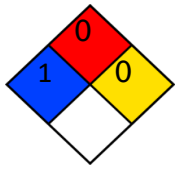
What is so fascinating about Lead?

"Lead" means elemental lead, inorganic compounds of lead and organic compounds of lead. Lead is a bluish-white, silvery soft metal. Have you ever heard the term unleaded gasoline? Lead does not occur naturally in gasoline, it was placed there as tetra-ethyl lead to improve a fuel's power. Due to the health consequences of lead exposure from vehicle's exhaust fumes, many countries have eliminated use of lead additives in gasoline. Leaded gasoline is now only sold in some third world countries. In general populations, lead may be present in hazardous concentrations in food, water, and air. Sources include paint, urban dust, and folk remedies. It was once used in the plumbing materials of older buildings. This allows lead to enter a drinking water system. Lead poisoning is the leading environmentally induced illness in children. At greatest risk are children under the age of six because they are undergoing rapid neurological and physical development. Today's common uses of lead are for batteries, ammunition and for nuclear and X-ray shielding equipment.

Hazard Classification – Lead Metal

WHMIS

NFPA



Health: 1
Flammability: 0
Reactivity: 0
Specific:

How can Lead affect your body?

Solid lead is believed to present a relatively low hazard to health, but it is a cumulative poison, and can cause serious harm if inhaled as a powder, or ingested over a long period. Most lead compounds are very poisonous, as are many organic compounds containing lead, such as lead tetraethyl.

The frequency and severity of medical symptoms increases with the concentration of lead in the blood. Common symptoms of acute lead poisoning are loss of appetite, nausea, vomiting, stomach cramps, constipation, difficulty in sleeping, fatigue, moodiness, headache, joint or muscle aches, anemia, and decreased sexual drive. Acute health poisoning from uncontrolled occupational exposures has resulted in fatalities. Long term (chronic) overexposure to lead may result in severe damage to the blood-forming, nervous, urinary, and reproductive systems.

How do you work safely with Lead?

Laboratory personnel should be properly trained regarding lead hazards and its safe use. Anybody intending to work with lead compounds shall take all necessary measures and procedures to control the exposure to airborne lead by means of engineering controls, work practices and hygiene practices. To protect yourself from lead try to minimize the amount of time you work with lead. Wear gloves (any kind) at all times when handling lead. The primary way that lead enters the body is through inhaling lead dust. Avoid generating any dust. Be sure to use an approved/certified respirator or equivalent when ventilation is inadequate. Lead dust is also an explosion hazard. Upon the release of any dust into your workplace, immediately leave the area. Do not enter the area again until the amount of lead dust can be determined. Contact Campus Police for help.

Mixing lead with some chemicals enhances the ability for lead to explode. Hydrogen peroxide and trioxane mixtures with lead may detonate by heat or shock. Sodium azide and lead create lead azide, an unstable compound. Strong acids such as nitric, hydrochloric and sulfuric acid may react violently with lead. For a more detailed list of chemicals to avoid mixing with lead please refer to the MSDS at www.uwindsor.ca/msds.

First Aid Procedures:

Inhalation: Inhaling lead dust is very toxic to the human body. Take necessary precautions before rescuing a victim. If it is possible remove the source of lead and move the victim to fresh air. Seek medical advice immediately.

Skin Contact: Wear appropriate protective equipment such as gloves and lab coat to avoid any contact with skin. Remove contaminated clothing and wash skin with lukewarm water for five minutes. Seek medical advice. Keep contaminated clothing in closed containers and discard or launder before rewearing.

Eye Contact: DO NOT RUB EYES. Let the eyes naturally water for a few minutes and see if the particle is removed. If the particle is still in eyes use an eye wash station to remove particle. Do not attempt to remove anything manually. If irritation persists, immediately seek medical advice.

Where do you keep Lead and its empty containers?

Always store lead in the original manufactures container in a cool dry place away from any heat sources or direct sunlight. Store away from incompatible materials, such as strong oxidizing agents, strong acids, and strong bases. Empty containers may contain hazardous residues. Keep them closed. They should be stored in a separate storage area or returned to the Chemical Control Centre for disposal.

What happens if Lead is spilled?

If there is a small spill of solid lead, you can clean it up yourself. Place any contaminated material into a properly labeled container and bring to the Chemical Control Centre for disposal. Flush contaminated area with water. If lead dust is spilled, restrict access to the spill site. Only a trained personal is allowed to clean up the spill wearing the proper respiratory equipment. Notify Campus Community Police of the spill by dialing 911.

This lab safety bulletin is not a complete source on the safe handling of lead at the University of Windsor. You should always check the SDS of your lead containing product at www.uwindsor.ca/msds before you work.

For more information on lead please visit the Chemical Control Centre's University of Windsor Designated Substance Program at www.uwindsor.ca/ccc or by phone (ext. 3523).

For more information on spills please see the University of Windsor's Spill Response Manual at www.uwindsor.ca/ccc

References:

1. *Lead, shot, 1-3mm, 99.995% Trace Metals Basis,* Material Safety Data Sheet, Sigma-Aldrich, Aldrich – 695912, Oakville ON 2007.
2. Cheminfo, *Chemical Profile - Lead,* Canadian Centre for Occupational Health and Safety, Retrieved April 20, 2007 from http://ccinfoweb2.ccohs.ca/cheminfo/Action.lasso?...1.html&-op=eq&CHEMINFO+RECORD+NUMBER=608E&-search
3. Kitman, J. *The Secret History of Lead,* The Nation (2000), Retrieved October 14, 2008 from www.thenation.com/doc/20000320/kitman.