

Lead and its compounds

including lead oxides, bromide, nitrate(V), ethanoate (acetate) etc

Substance	Hazard	Comment
Lead (metal) Solid Lead compounds (bromide, carbonates, chloride, chromate, ethanoate (acetate), iodide, nitrate, oxides, sulfate, sulfide) Solid Lead nitrate and Lead ethanoate (acetate) Concentrated solutions (if 1 M or more)	HARMFUL	DANGER: harmful if swallowed or inhaled; may damage organs through repeated or prolonged exposure; may damage the unborn child. Very toxic to aquatic life. Avoid the use of powdered lead metal.
		Includes cerussite, white lead, litharge, massicot, red lead, galena.
		Lead chromate(VI) is used in the yellow lines on roads.
	HEALTH HAZARD	Old paints often contained lead sulfate or other lead pigments. Young children may be at risk if they chew old objects painted with a lead-based paint.
	ENVIRONMENTAL HAZARD	Tetraethyl lead was added to petrol to improve the combustion characteristics. However, combustion produces particles of lead compounds. Leaded petrol has been phased out now.
		Handling lead metal is safe as long as good hand washing is implemented.
		Note that most lead compounds are insoluble or sparingly soluble in water.
		In soft-water areas, (old) lead pipes may very slowly dissolve, exposing people to low levels of lead over very long periods of time.
Lead nitrate and Lead ethanoate (acetate)	&	DANGER: harmful if swallowed or inhaled; may damage organs through repeated or prolonged exposure; may damage the unborn child. Very toxic to aquatic life.
Most solutions (if less than 1 M but 0.015 M or more)	HEALTH HAZARD	
Lead nitrate and	Currently not classified as hazardous	-
Lead ethanoate (acetate)		
Extremely dilute solutions (if less than 0.015 M)		

Typical control measures to reduce risk

- · Wear eye protection.
- Use the lowest possible amounts and concentrations.
- Preferably, heat lead compounds in a fume cupboard; avoid raising dust (eg by dampening powders).
- Less-volatile compounds (eg oxides) may be heated in small amounts in a well-ventilated room (but not if those who are, or who might be, pregnant are present).
- Use lead nitrate rather than lead ethanoate (acetate) when a soluble lead salt is needed.
- Wash hands after using lead or its compounds.

Assessing the risks

- What are the details of the activity to be undertaken? What are the hazards?
- What is the chance of something going wrong? eg solution spurts out of a test tube when heated or dust is breathed in.
- How serious would it be if something did go wrong?

 eg could anybody be exposed to dangerous lead levels for long periods of time?
- How can the risk(s) be controlled for this activity?

 eg can it be done safely? Does the procedure need to be altered? Should goggles or safety spectacles be worn?

Emergency action

In all emergency situations, alert the responsible adult immediately. Be aware that actions may include the following:

- In the eye
 In the mouth/swallowed
 Spilt on the skin or clothing
 Brush solid off contaminated clothing and remove clothing. Irrigate the affected area with gently-running tap water for at least 20 minutes as appropriate. Call 999/111 as appropriate. Rinse clothing
- Spilt on the floor, bench, etc Scoop up any solid. Try to avoid raising dust. Rinse the area with water, diluting greatly. Solutions should be treated with mineral absorbent (eg cat litter).