



## CLIP, Chemical Laboratory Information Profile

"Only when you know the hazards, can you take the necessary precautionary measures."

### Trilead tetroxide



CAS No.: 1314-41-6

Synonyms: red lead, minium, plumbous plumbate, lead tetraoxide

#### Physical Properties

Dense red powder, insoluble in water  
 Vapor pressure at 20 °C: negligible  
 Decomposes at approximately: 500 °C

#### Exposure Limits

OSHA PEL: 0.05 mg/m<sup>3</sup>, as Pb  
 OSHA Action level 0.03 mg/m<sup>3</sup>, as Pb  
 ACGIH TLV: 0.5 mg/m<sup>3</sup>, as Pb

#### Hazardous Characteristics

Overall toxicity	Flammability	Destructive to skin/eye	Absorbed through skin?	Sensitizer?	Self-reactive?	Incompatible with: Reducing agents*
3	0	1	No	No	No	

0: None (or very low); 1: Slight; 2: Moderate; 3: High; 4: Severe.

#### \*Reactivity Hazards

Linseed oil can ignite spontaneously when mixed with trilead tetroxide. When heated, mixtures of trilead tetroxide with aluminum undergo a violent "thermite" reaction. Other readily oxidizable metals, non-metals, and compounds such as sodium, boron, and metal acetylides react with trilead tetroxide, sometimes explosively. See Bretherick's *Handbook of Reactive Chemical Hazards* for details and for other incompatibilities; refer to the CLIPs for PbO and PbO<sub>2</sub>.

Cited as known to be or reasonably anticipated to be carcinogenic in NTP-11?	Yes	Identified as a reproductive toxin in Frazier and Hage, <i>Reproductive Hazards of the Workplace</i> ?	Yes
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#### Typical symptoms of acute exposures:

If particles are inhaled, sore throat, coughing, headache. If swallowed, headache, dizziness, abdominal pain, constipation.

#### Principal target organ(s) or system(s):

Respiratory tract, vascular system, central nervous system, kidneys.

#### Storage Requirements

Store separately, away from reducing agents in a cool, dry, well ventilated, locked location.

#### Additional Remarks

When heated sufficiently to decompose, trilead tetroxide gives off oxygen, which increases the fire hazard. Repeated exposures to lead and to compounds of lead can result in chronic lead poisoning. For further information about the OSHA action level for inorganic lead compounds, see the code of Federal Regulations, 29 CFR 1910.1025.

#### Notes

#### ReadMe

This Chemical Laboratory Information Profile is *not* a Material Safety Data Sheet. It is a brief summary for teachers and their students that describes some of the hazards of this chemical as it is typically used in laboratories. On the basis of your knowledge of these hazards and before using or handling this chemical, *you need to select the precautions and first-aid procedures to be followed*. For that information as well as for other useful information, refer to Material Safety Data Sheets, container labels, and references in the scientific literature that pertain to this chemical.

#### Reproductive Toxins

Some substances that in fact are reproductive toxins are not yet recognized as such. For the best readily available and up-to-date information, refer to "DART/ETIC". See the TOXNET home page at <http://toxnet.nlm.nih.gov/>. Note that some of the data in DART/ETIC have not been peer-reviewed. See also Frazier, Linda M.; Hage, Marvin L. *Reproductive Hazards of the Workplace*; Wiley: New York, 1998; and Shepard, T. H. *Catalog of Teratogenic Agents*, 9th ed.; Johns Hopkins University Press: Baltimore, MD, 1998.

#### Abbreviations

ACGIH TLV—American Conference of Governmental Industrial Hygienists—Threshold Limit Value. C—Ceiling. CAS—Chemical Abstracts Service. mg/m<sup>3</sup>—milligrams per cubic meter. NA—Not applicable. NE—Not established. NI—No information. NTP-11—National Toxicology Program, Eleventh Annual Report on Carcinogens. OSHA PEL—Occupational Safety and Health Administration—Permissible Exposure Limit. ppm—parts per million. STEL/C—Short-term exposure limit and ceiling.

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