

LEAD METAL MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Lead Metal

Manufacturer:

Teck Cominco Metals Ltd.
Trail Operations
Trail, British Columbia
V1R 4L8
Emergency Telephone: 250-364-4214

Supplier:

Teck Cominco Metals Ltd.
1500-120 Adelaide Street, W.
Toronto, Ontario
M5H 1T1

MSDS Preparer:

Teck Cominco Metals Ltd.
600 - 200 Burrard Street
Vancouver, British Columbia
V6C 3L9

Date of Last MSDS Revision/Edit: December 15, 2003.

Product Use: Used as a construction material for tank linings, piping, and equipment used in the manufacture of sulfuric acid and the refining and processing of petroleum; use in x-ray and atomic radiation shielding; use in the manufacture of tetraethyl lead, paint pigments, organic and inorganic lead compounds, lead shot, lead wire for bullets, ballast, and lead solders; use as a bearing metal or alloy; use in the manufacture of storage batteries, ceramics, plastics, and electronic devices; use in the metallurgy of steel and other metals; and use in the form of lead oxide for batteries.

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient	Approximate Percent by Weight	C.A.S. Number	Occupational Exposure Limits (OELs)		LD ₅₀ /LC ₅₀ Species and Route
Lead	99+%	7439-92-1	OSHA PEL	0.05mg/m ³	No Data
			ACGIH TLV	0.05mg/m ³	
			NIOSH REL	<0.10mg/m ³	

NOTE: OELs for individual jurisdictions may differ from OSHA PELs. Check with local authorities for the applicable OELs in your jurisdiction. OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. OEL - Occupational Exposure Limit, PEL - Permissible Exposure Limit, TLV - Threshold Limit Value, REL - Recommended Exposure Limit.

Trade Names and Synonyms: Lead; Pb; Plumbum; Metallic Lead; Inorganic Lead; ASTM B29; TADANAC Lead, Low-Alpha Lead.

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: A bluish-white to silvery-grey heavy, soft metal that does not burn in bulk. Finely-divided lead dust clouds are a moderate fire hazard and moderate explosion hazard, however. When heated in air highly toxic lead oxide fumes can be generated. Inhalation or ingestion of lead may produce both acute and chronic health effects. Possible cancer and reproductive hazard. SCBA and full protective clothing required for fire emergency response personnel.

Potential Health Effects: Inhalation or ingestion of lead dust or fumes may result in headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm, and joint pain. Prolonged exposure may also cause central nervous system damage (e.g., fatigue, headaches, tremors, hypertension), gastrointestinal disturbances, anemia, kidney dysfunction and possible reproductive effects. Pregnant women should be protected from excessive exposure to prevent lead crossing the placental barrier and causing infant neurological disorders. Lead is classified as an A3 Carcinogen by the ACGIH and as a 2B Carcinogen by IARC. (see Toxicological Information, Section 11)

Potential Environmental Effects: Lead metal has low bioavailability but its compounds can be hazardous in the environment at low concentrations. They can be particularly toxic in the aquatic environment. Lead bioaccumulates in plants and animals in both the aquatic and terrestrial environments. (see Ecological Information, Section 12)

could expand explosively and spatter molten metal out of the bath. Always practice good personal hygiene. Refrain from eating, drinking, or smoking in work areas. Thoroughly wash hands before eating, drinking, or smoking in appropriate, designated areas as well as at the end of the workday. No special packaging materials are required.

EU Safety Phrase(s): S53 - Avoid exposure - obtain special instructions before use; S45 - In case of accident, or if you feel unwell, seek medical advice immediately (show label where possible).

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Clothing: Gloves and coveralls or other work clothing are recommended to prevent prolonged or repeated direct skin contact when lead is processed. Appropriate eye protection should be worn where fume or dust is generated. Where hot or molten metal is handled, heat resistant gloves, goggles or face shield, and clothing to protect from hot metal splash should be worn. Safety type boots are recommended.

Do not eat, drink or smoke in work areas. Thoroughly wash hands before eating, drinking, or smoking in appropriate, designated areas as well as at the end of the workday. A double locker-shower system with separate clean and dirty sides is usually required for lead handling operations. Remove contaminated clothing promptly and discard or launder before reuse. Inform laundry personnel of contaminants' hazards.

Ventilation: Use adequate local or general ventilation to maintain the concentration of lead fumes in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system. Local exhaust is recommended for melting, casting, grinding, burning, and use of powders.

Respirators: Where lead dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-100 particulate filter cartridge). When exposure levels are unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Malleable, bluish-white or silvery-grey metal	Odour: None	Physical State: Solid	pH: Not Applicable
Vapour Pressure: 1.3 mm Hg at 970°C (negligible @ 20°C)	Vapour Density: Not Applicable	Boiling Point/Range: 1,740°C	Freezing/Melting Point/Range: 328°C
Specific Gravity: 11.34	Evaporation Rate: Not Applicable	Coefficient of Water/Oil Distribution: Not Applicable	Odour Threshold: None
Solubility: Insoluble in water			

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: Massive metal is stable under normal temperatures and pressures. Fresh cut or cast lead surfaces tarnish rapidly due to the formation of an insoluble protective layer of basic lead carbonate.

Incompatibilities: Lead reacts vigorously with strong oxidizers, such as hydrogen peroxide and chlorine trifluoride, and active metals, such as sodium and potassium. Powdered lead metal in contact with disodium acetylide, chlorine trifluoride, sodium carbide or fused ammonium nitrate poses a risk of explosion. Solutions of sodium azide in contact with lead metal can form lead azide, which is a detonating compound. A lead-zirconium alloy (10-70% Zr) will ignite when struck with a hammer.

Hazardous Decomposition Products: High temperature operations such as oxy-acetylene cutting, electric arc welding or overheating a molten bath will generate highly toxic lead oxide fume. Lead oxide is highly soluble in body fluids and the particle size of the metal fumes is largely within the respirable size range, which increases the likelihood of inhalation and deposition of the fume within the body.

SECTION 11. TOXICOLOGICAL INFORMATION

General: Lead accumulates in bone and body organs once it enters the body. Elimination from the body is slow. Initial and periodic medical examinations are advised for persons repeatedly exposed to levels above the exposure limits of lead dust or

EPCRA Section 311/312 Hazard Categories Delayed (chronic) health hazard - Carcinogen
 Delayed (chronic) health hazard – Reproductive toxin

EPCRA Section 313 Toxic Release Inventory Lead CAS No. 7439-92-1
 Percent by Weight – At least 99

CANADIAN:

Ingredient Listed on Domestic Substances List Yes

WHMIS CLASSIFICATION D2A, Materials Causing Other Toxic Effects – Very Toxic

EUROPEAN UNION:

Ingredients Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS) Yes

EU Classification Category 1 and 3 Reproductive Toxin; Harmful.

SECTION 16. OTHER INFORMATION

- American Conference of Governmental Industrial Hygienists, 1991, Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2003, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- American Conference of Governmental Industrial Hygienists, Guide to Occupational Exposure Values – 2002.
- Canadian Centre for Occupational Health and Safety (CCOHS), Hamilton, Ontario, CHEMINFO Record No. 608 - Lead (Rev. 2003-05-25).
- European Economic Community, Commission Directives 91/155/EEC and 67/548/EEC.
- Industry Canada, SOR/88-66, Controlled Products Regulations, as amended.
- International Chemical Safety Cards (WHO/IPCS/ILO), ICSC:0052 - Lead.
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- National Library of Medicine, National Toxicology Information Program, 2003, Hazardous Substance Data Bank.
- Patty's Toxicology, Fifth Edition, 2001: E. Bingham, B. Cofrissen & C.H. Powell, Ed.
- Sax, N. Irving, 1989, Dangerous Properties of Industrial Materials, Seventh Edition.
- U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health, 1990, NIOSH Pocket Guide to Chemical Hazards. CD ROM Edition DHHS (NIOSH) Publication No. 2001-145, August 2001.
- U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 1999, Toxicological Profile for Lead.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

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