FIRE AND EXPLOSION HAZARD: Negligible fire hazard when exposed to heat or flame.

FIREFIGHTING MEDIA: Dry chemical, carbon dioxide, water spray or regular foam (1993 Emergency Response Guidebook, RSPA P 5000.6).

For larger fires, use water spray, fog or regular foam (1993 Emergency Response Guidebook, RSPA P 5000.6).

FIREFIGHTING: Move container from fire area if you can do it without risk. Apply cooling water to container until fire is out. Stay away from ends of tanks (1993 Emergency Response Guidebook, RSPA P 5000.6, Guide Page 69).

Use agents suitable for type of fire; use water in flooding amounts as a fog. Avoid breathing corrosive and poisonous vapors, keep upwind.

TRANSPORTATION DATA


TOXICITY

MERCURY: TOXICITY DATA: 150 ug/m3/46 days inhalation-exposed to women TLD: 42000 ug/m3/8 hours inhalation-exposed to men TLD: 29 mg/m3/70 hours inhalation-exposed to rabbit TLD: 1 mg/m3 to 24 hours/5 weeks continuous inhalation-rat TLD: 1.5 mg/m3/24 hours/1 week intermittent inhalation-rat TLD: 1.7 mg/m3/24 hours 30 days continuous inhalation-rat TLD: 1.25 mg/m3/41 hours continuous skin-mouse TLD: 9.7 mg/kg/gal TLD: 254 mg/kg subcutaneous-rat TLD: melatonin data (RTEDS): reproductive effects data (RTEDS): tumorigenic effects data (RTEDS): carcinogenic status: Human inadequate evidence Animal inadequate evidence (IARC Group 3).

LOCAL EFFECTS: Irritant - Inhalation.

ACUTE TOXICITY LEVEL: Insufficient data.

TARGET EFFECTS: Sensitizers - respiratory, dermal - neurotoxic, nephrotoxic, poisoning may also affect the respiratory and gastrointestinal systems.

AT INCREASED RISK FROM EXPOSURE: Persons with chronic respiratory disease, nervous system disorders and kidney disease.

HEALTH EFFECTS AND FIRST AID

INHALATION:

MERCURY: MERCURY: IRRITANT/SENSITIZER/NEUROTOXIN/NPHOTOXIN: 28 ug/m3 immediately dangerous to life or health.

ACUTE EXPOSURE: Inhalation of high levels of mercury vapor may cause almost immediate death. Dizziness, cough, fever, nausea, vomiting, diarrhea, headache, somnolence, satiation, vomiting, metallic taste, and cardiac abnormalities. Respiratory irritation may occur with chest pain and tightness. Symptoms may resolve or may progress to necrotizing bronchitis, pneumonia, pulmonary edema, pneumothorax, interstitial fibrosis, and death. Acidosis and renal damage may also occur.

ACUTE EXPOSURE: Inhalation of freshly formed metal oxides particles sized below 15 microns and usually between 0.02-0.05 microns. Symptoms may be delayed 4-12 hours.
and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a soreness of the mucous membranes, soreness of the throat and a generalized feeling of malaise, fever, chills, and sweats. This is followed by joint pain, muscle, and head soreness, nausea, occasional vomiting, exaggerated activity, prostration, urinary incontinence, diarrhea, and prostration may occur. Tolerance to fumes develops rapidly, but death occurs. Loss symptoms usually subside within 24-36 hours.

CHRONIC EXPOSURE: Inhalation of mercury vapor over a long period may cause anemia, which is characterized by a fine tremor and ataxia. Tremors may affect the hands first, but may also become evident in the face, arms, and legs. Anemia is most likely to be manifested by abnormal shyness, blushing, self-consciousness, depression or despondency, restlessness of the extremities, irritability to excitement, headache, fatigue and insomnia, in severe cases hallucinations, loss of memory, and mental deterioration may occur.

Concentrations as low as 0.03 mg/m³ have induced psychiatric symptoms in humans. Renal involvement may be indicated by proteinuria, albuminuria, enuresis, and anemia. Other effects include salivation, gingivitis, stomatitis, loosening of the teeth, blue lines on the gums, distended abdomen, weight loss, anorexia, speech and sensory disorders, unsteadiness, chronic pneumonia and mild anemia. Repeated exposure to mercury and its compounds may result in sensitization. Women occupationally exposed have reported menstrual disturbances. Reduced coagulation and an increased risk of spontaneous abortion have been reported exposure may result in tremors and involuntary movements in the infants. Mercury is excreted in breast milk. Reproductive effects have been reported in animals.

FIRST AID: Remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Maintain airway, blood pressure and respiration. Keep warm and at rest. Treat symptomatically and supportively. Get medical attention immediately. Qualified medical personnel should consider administering oxygen.

SKIN CONTACT:
MERCURY:
ACUTE EXPOSURE: Direct contact with liquid may cause irritation and redness. Small amounts of mercury may be absorbed through intact skin. Allergic reactions that may occur in previously exposed persons include dermatitis, eczema, and death. Subclinical introduction, from handling broken thermometers, may result in local irritation, granulomatous skin reactions, and sloughing of the skin. Poisoning including digestive disorders, metallic taste in the mouth, and neuropsychiatric disorders.

CHRONIC EXPOSURE: Prolonged or repeated exposure may result in dermal sensitization and systemic effects as detailed in chronic inhalation exposure.

FIRST AID: Remove contaminated clothing and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

EYE CONTACT:
MERCURY:
ACUTE EXPOSURE: Direct contact with liquid may cause irritation and redness. Animal studies indicate diffusion and absorption of mercury into the tissues of the eye may occur. No clinical signs of conjunctivitis or inflammation occurred.

CHRONIC EXPOSURE: Mercury exposure from inhalation, ingestion, or skin contact may be indicated by mercurial lens subluxation, discoloration of the crystalline lens, or slit lamp examination of the eye.

FIRST AID: Wash eyes immediately with large amounts of water or normal saline solution. Lift upper and lower lids with all washouts until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

INGESTION:
MERCURY:
ACUTE EXPOSURE: May cause burning of the mouth and throat, thirst, nausea, and vomiting. Metallic mercury is not usually absorbed sufficient from the gastrointestinal tract to induce an acute toxic response. Rarely, a large single dose may result in signs and symptoms of chronic inhalation.

CHRONIC EXPOSURE: Repeated ingestion of small amounts of mercury may result in the absorption of sufficient amounts to produce toxic effects as detailed in chronic inhalation exposure.

FIRST AID: Remove by gastric lavage or emesis. Maintain blood pressure and airway. Give oxygen if respiratory depression is depressed. Do not perform gastric lavage or emesis if victim is unconscious. Get medical attention immediately. (DiBalsch, Handbook of Poisoning, 12th Ed.) Administration of gastric lavage or oxygen should be performed by qualified medical personnel.

ANTIDOTE: The following antidote has been recommended. However, the decision as to whether the severity of poisonings requires administration of any antidote and actual dose required should be made by qualified medical personnel.

REACTIVITY:
Stable under normal temperatures and pressures.

INCOMPATIBILITIES:
May be attacked by strong bases and strong oxidizing agents.

ACETYLENE: Formation of explosive compound.
ACETALdehyDES: Formation of explosive compound.
ALUMINIUM: Corrodies. 
AMMONIUM: Moisture: Forms explosive compound.
BROMIDE: Violent reaction.
BROMINE: Violent reaction.
CALCIUM: Amalgam formation @ 390 C is violent.
CHLORINE: Ignites @ 200-220 C.
CHLORIDE: DIOXIDE: Explosives.
CO/CO ALLOYS: May be attacked.
ETHEREN: OXIDE: Traces of ACETYLENE. May form explosive acetylenes.
LITHIUM: Amalgam formation is violently exothermic and may be explosive.
METHYL AZIDE: Produces shock sensitive mixture.
METHYLAMINE: Oxygen: Produces shock sensitive mixture.
NITRIC ACID: ALCOHOLS: Forms fulminates capable of detonation.
OXALIC ACID: Explosive compound.
OXIDANTS: Violent reaction.
PERTHIOCARBONIC ACID: Explosive reaction.
POTASSIUM: Amalgam formation is vigorously exothermic and may be explosive.
RUBIDIUM: Violent exothermic reaction.
SILVER perchlorate: 3-HEXYNE: Explosives.
SILVER perchlorate: 2-PENTYNE: Explosives.
SODIUM: Amalgam formation is violently exothermic.
SODIUM CARBONATE: Vapors reaction.
SULFURIC ACID (HOT): Reacts.
TETRACARBONYLCOPPER: OXYGEN: Produces shock sensitive mixture.

DECOMPOSITION:
Thermal decomposition products may include highly toxic vapors of mercury and mercury oxides.

POLYMERIZATION: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

STORAGE AND DISPOSAL:
Observe all federal, state and local regulations when storing or disposing of this substance.

*Storage*

Store away from incompatible substances.

**Disposal**

Disposal must be in accordance with standards applicable to generators of hazardous waste. EPA Hazardous Waste Number U151.

Mercury - Regulatory Level: 0.2 mg/l (TCLP-40 CFR 261 Appendix B).

May burn but does not ignite readily. Flammable, poisonous gases may accumulate in tanks and hopper cars. May ignite combustibles (wood, paper, oil, etc.).

**SPILL AND LEAK PROCEDURES**
WATER SPILL:
The California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) prohibits contaminating any known source of drinking water with substances known to cause cancer and/or reproductive toxicity.

OCCUPATIONAL SPILL:
Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. A mercury spill kit may also be used for small spills in the workplace. For larger spills, dikes for ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

Reportable Quantity (RQ): 1 pound
The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA, Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2075 in the metropolitan Washington, D.C. area (40 CFR 302.8).

VENTILATION:
Provide local exhaust ventilation system to meet published exposure limits.

RESPIRATOR:
The following respirators and maximum use concentrations are recommendations by the U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards, NIOSH criteria documents or by the U.S. Department of Labor, 29 CFR 1910 Subpart Z.
The specific respirator selected must be based on concentration levels found in the workplace, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

MERCURY, ELEMENTAL:

- 0.5 mg/m³ - Any chemical cartridge respirator with cartridge(s) providing protection against mercury.
- Any supplied-air respirator, any self-contained breathing apparatus.

- 1.25 mg/m³ - Any supplied-air respirator operated in a continuous-flow mode.
- Any powered, air-purifying respirator with a canister providing protection against mercury.

- 2.5 mg/m³ - Any self-contained breathing apparatus with a full facepiece.
- Any supplied-air respirator with a full facepiece.
- Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode.
- Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against mercury.
- Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against mercury.
- Any powered, air-purifying respirator with a tight-fitting facepiece and a canister providing protection against mercury.

28 mg/m³ - Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Escape - Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against mercury.
Any appropriate escape type, self-contained breathing apparatus.

* End of service life indicator (ESLI) required

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

- Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
- Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

CLOTHING:
Employee must wear appropriate protective (impervious) clothing and equipment to prevent any possibility of skin contact with this substance.

GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

EYE PROTECTION:
Employee must wear splash-proof or dust-resistant safety goggles and a face shield to prevent contact with this substance.

Emergency wash facility:
Where there is any possibility that an employee's eyes and/or skin may be exposed to this substance, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

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