

# Material Safety Data Sheet

## Mercury (II) Chloride

ACC# 13800

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Mercury (II) Chloride**Catalog Numbers:** S80074, M155I-100, M155I-3, M155I-50, M155I-500, M156I-100, M156I-50, M156I-500**Synonyms:** Calochlor; Corrosive mercury chloride; Corrosive sublimate; Mercury bichloride; Mercury perchloride; Mercury(II) chloride; Mercuric chloride.**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7487-94-7	Mercury(II) chloride	>99.5	231-299-8

**Hazard Symbols:** T+ C N**Risk Phrases:** 28 34 48/24/25

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: white crystals. **Danger!** May cause central nervous system effects. May be fatal if absorbed through the skin. Causes digestive and respiratory tract irritation with possible burns. Causes severe eye and skin irritation with possible burns. May be fatal if swallowed. Light sensitive. Severe marine pollutant. May impair fertility. May cause harm to the unborn child. Harmful if inhaled. May cause kidney damage. May cause allergic skin reaction.

**Target Organs:** Kidneys, central nervous system, reproductive system.**Potential Health Effects****Eye:** Exposure to mercury or mercury compounds can cause discoloration on the front surface of the lens, which does not interfere with vision. Causes severe eye irritation and possible burns.

Contact with mercury or mercury compounds can cause ulceration of the conjunctiva and cornea.

**Skin:** May be fatal if absorbed through the skin. Causes severe skin irritation and possible burns. May cause allergic contact dermatitis.**Ingestion:** May be fatal if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. Causes gastrointestinal tract burns. May cause muscle tremor and impaired motor function. May cause cardiac disturbances. Symptoms of acute mercury salt poisoning include

nausea, vomiting, bloody diarrhea, foul taste, loosened teeth, circulatory collapse, peripheral neurological disease, and kidney damage requiring dialysis.

**Inhalation:** May cause central nervous system effects including vertigo, anxiety, depression, muscle incoordination, and emotional instability. May cause gastrointestinal effects including gum and mouth inflammation, jaw necrosis, and loosening of the teeth. May cause burns to the respiratory tract. Acute exposure to high concentrations of mercury vapors may cause severe respiratory tract irritation.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis. Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause reproductive and fetal effects. Chronic ingestion may cause accumulation of mercury in body tissues. Laboratory experiments have resulted in mutagenic effects. May be rapidly transferred across the placenta and cause adverse fetal effects. Chronic mercury poisoning involves kidney damage, visual defects, tremor, and severe psychological changes. The brain is the critical organ for chronic mercury poisoning. The half-life of mercury in the brain is 10 years. Cumulative toxicity is a major consideration with chronic exposure.

## Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

**Skin:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

**Ingestion:** POISON material. If swallowed, get medical aid immediately. Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** The concentration of mercury in whole blood is a reasonable measure of the body-burden of mercury and thus is used for monitoring purposes. Persons with kidney disease, chronic respiratory disease, liver disease, or skin disease may be at increased risk from exposure to this substance.

**Antidote:** The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel. The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Substance is noncombustible.

**Extinguishing Media:** Use water fog, dry chemical, carbon dioxide or alcohol type foam.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 4; Flammability: 0; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Store protected from light. Use only with adequate ventilation. Extreme care should always be taken to prevent skin and gastrointestinal absorption because these routes of entry can greatly increase the total body burden and are often overlooked in occupational settings.

**Storage:** Store in a tightly closed container. Keep away from food and drinking water. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from light.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Mercury(II) chloride	none listed	none listed	none listed

**OSHA Vacated PELs:** Mercury(II) chloride: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Crystals

**Appearance:** white

**Odor:** odorless

**pH:** 4.7

**Vapor Pressure:** slightly volatile @RT

**Vapor Density:** Not available.  
**Evaporation Rate:** Negligible.  
**Viscosity:** Not applicable.  
**Boiling Point:** 300 deg C  
**Freezing/Melting Point:** 277 deg C  
**Decomposition Temperature:** Not available.  
**Solubility:** Soluble.  
**Specific Gravity/Density:** 5.44 at 25°C  
**Molecular Formula:** HgCl<sub>2</sub>  
**Molecular Weight:** 271.50

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:** Light, dust generation, excess heat.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong bases, ammonia, copper, iron, silver salts, potassium, antimony, sodium, lead, hypophosphites, formates, sulfites, phosphates, albumin, gelatin, alkalies, alkaloid salts, lime water, arsenic, bromides, borax, carbonates, reduced iron, infusions of cinchona, columbo, oak bark or senna, tannic acid, metallic halides, vegetable astringents.

**Hazardous Decomposition Products:** Mercury/mercury oxides, chloride fumes.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 7487-94-7: OV9100000

**LD50/LC50:**

CAS# 7487-94-7:

Draize test, rabbit, eye: 50 ug/24H Severe;

Draize test, rabbit, skin: 500 mg/24H Severe;

Oral, mouse: LD50 = 6 mg/kg;

Oral, rat: LD50 = 1 mg/kg;

Skin, rat: LD50 = 41 mg/kg;

**Carcinogenicity:**

CAS# 7487-94-7:

**IARC:** IARC Group 3 - not classifiable (listed as Mercury inorganic compounds).

**Epidemiology:** See entry in the Documentation of the Threshold Limit Values and Biological Exposure Indices issued by ACGIH.

**Teratogenicity:** Mercuric chloride has been embryotoxic, fetotoxic, and teratogenic in experimental animals, and has affected fertility in male mice. Inorganic mercury has been implicated in male impotence, menstrual disorders, and spontaneous abortions in humans.

**Reproductive Effects:** Data clearly indicate that mercury can affect both male & female reproductive outcomes. It has not been possible to unequivocally determine a safe exposure level for protection of reproduction function in either male or female workers, particularly since many studies didn't adequately evaluate dermal exposure. Those planning to have children should keep their exposure to mercury as low as possible by engineering controls, personal protective equipment for skin & respiratory tract, & good personal hygiene.

**Neurotoxicity:** Refer to Patty's Industrial Hygiene and Toxicology for specific nervous system

abnormalities.

**Mutagenicity:** Micronucleus Test: Human, Lymphocyte = 5 umol/L.; Mutation Test Systems - not otherwise specified: Human, Lymphocyte = 2 umol/L.; Cytogenetic Analysis: Human, HeLa cell = 10 mg/L.; Cytogenetic Analysis: Human, Lymphocyte = 2 umol/L.

**Other Studies:** See actual entry in RTECS for complete information.

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50 = 0.903 mg/L; 24 Hr; Unspecified Fish: Fathead Minnow: LC50 = 0.037 mg/L; 48 Hr; Unspecified Fish: Bluegill/Sunfish: LC50 = 0.16 mg/L; 96 Hr; Static at 13.5-16.2°C (pH 7.1-7.3) Water flea Daphnia: LC50 = 0.093 mg/L; 48 Hr; Unspecified No data available.

**Environmental:** Mercury can be accumulated from water by many organisms (up to 10,000 fold).

**Physical:** Compound decomposes to metallic mercury when in contact with organic matter and sunlight.

**Other:** None.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
<b>Shipping Name:</b>	MERCURIC CHLORIDE				MERCURIC CHLORIDE
<b>Hazard Class:</b>	6.1				6.1
<b>UN Number:</b>	UN1624				UN1624
<b>Packing Group:</b>	II				II

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 7487-94-7 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**

None of the chemicals in this material have a SNUR under TSCA.

**SARA**

**CERCLA Hazardous Substances and corresponding RQs**

None of the chemicals in this material have an RQ.

**SARA Section 302 Extremely Hazardous Substances**

CAS# 7487-94-7: 500 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold)

**SARA Codes**

CAS # 7487-94-7: acute, chronic.

**Section 313**

This material contains Mercury(II) chloride (listed as Mercury compounds), 99.5%, (CAS# 7487-94-7) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

**Clean Air Act:**

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 7487-94-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

WARNING: This product contains Mercury(II) chloride, listed as 'Mercury compounds', a chemical known to the state of California to cause birth defects or other reproductive harm. California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

T+ C N

**Risk Phrases:**

R 28 Very toxic if swallowed.

R 34 Causes burns.

R 48/24/25 Toxic : danger of serious damage to health by prolonged exposure in contact with skin and if swallowed.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases:**

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 7487-94-7: 3

**Canada - DSL/NDSL**

CAS# 7487-94-7 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of E, D1A, D2A.

**Canadian Ingredient Disclosure List**

CAS# 7487-94-7 is listed on the Canadian Ingredient Disclosure List.

**Exposure Limits**

CAS# 7487-94-7: OEL-AUSTRALIA:TWA 0.05 mg(Hg)/m<sup>3</sup>;Skin JANUARY 1993  
 OEL-BELGIUM:TWA 0.05 mg(Hg)/m<sup>3</sup>;Skin JANUARY 1993 OEL-CZECHOSLOVAKIA  
 :TWA 0.05 mg(Hg)/m<sup>3</sup>;STEL 0.15 mg(Hg)/m<sup>3</sup> OEL-DENMARK:TWA 0.05 mg(Hg)/m<sup>3</sup>  
 3 JANUARY 1993 OEL-FINLAND:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-FRA  
 NCE:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-GERMANY:TWA 0.01 ppm (0.1 mg  
 (Hg)/m<sup>3</sup>) JANUARY 1993 OEL-HUNGARY:TWA 0.02 mg(Hg)/m<sup>3</sup>;STEL 0.04 mg(Hg)  
 )/m<sup>3</sup> JANUARY 1993 OEL-JAPAN:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-THE  
 NETHERLANDS:TWA 0.05 mg(Hg)/m<sup>3</sup>;STEL 0.15 mg(Hg)/m<sup>3</sup> OEL-THE PHILIPPINE  
 S:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-POLAND:TWA 0.01 mg(Hg)/m<sup>3</sup> JAN  
 UARY 1993 OEL-RUSSIA:TWA 0.05 mg(Hg)/m<sup>3</sup>;STEL 0.01 mg(Hg)/m<sup>3</sup> JANUARY 1  
 993 OEL-SWEDEN:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-THAILAND:STEL 0.  
 05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-UNITED KINGDOM:TWA 0.05 mg(Hg)/m<sup>3</sup>;STEL  
 0.15 mg(Hg)/m<sup>3</sup> OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH  
 TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

<b>Section 16 - Additional Information</b>
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**MSDS Creation Date:** 6/15/1999**Revision #4 Date:** 11/08/2002

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