

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 15, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name Mercury chloride

1.2 Other means of identification

Product number LINS001342

Other names mercury(2+) chloride;Mercury dichloride;Mercury bichloride

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral

Skin corrosion, Sub-category 1B

Germ cell mutagenicity, Category 2

Specific target organ toxicity – repeated exposure, Category 1

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Reproductive toxicity, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H300 Fatal if swallowed

H314 Causes severe skin burns and eye damage

H341 Suspected of causing genetic defects

H372 Causes damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P203 Obtain, read and follow all safety instructions before use.

P273 Avoid release to the environment.

Response	P301+P316 IF SWALLOWED: Get emergency medical help immediately. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P363 Wash contaminated clothing before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P316 Get emergency medical help immediately. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P318 IF exposed or concerned, get medical advice. P319 Get medical help if you feel unwell. P391 Collect spillage.
Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Mercury chloride	Mercury dichloride	7487-94-7	231-299-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower for at least 15 minutes. Refer for medical attention .

Following eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Do NOT induce vomiting. Refer immediately for medical attention.

4.2 Most important symptoms/effects, acute and delayed

It is classified as extremely toxic. All forms of mercury are poisonous if absorbed. Probable oral lethal dose is 5-50 mg/kg; between 7 drops and 1 teaspoonful for a 150 lb. person. Mercuric chloride is one of the most toxic salts of mercury. Material attacks the gastrointestinal tract and renal systems. (EPA, 1998)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic Treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with available water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Mercury and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire (Material itself does not burn or burns with difficulty). Use water in flooding quantities as fog. Use "alcohol" foam, dry chemical, or carbon dioxide.

5.2 Specific hazards arising from the chemical

Material may explode on heating, with friction, or contact with alkali metals, sulfides, acetylene, ammonia, and oxalic acid. Upon decomposition highly toxic chloride and mercury fumes are emitted. Avoid formates, sulfites, hypophosphites, phosphates, sulfides, albumin, gelatin, alkalies, alkaloid salts, ammonia, lime water, antimony, arsenic, bromides, borax, carbonates, reduced iron, copper, iron, lead, silver salts, infusions of cinchona, columbo, oak bark or senna, and tannic acid. Mercuric chloride may explode with friction or application of heat. Mixtures of mercuric chloride and sodium or potassium are shock sensitive and will explode on impact. Avoid contact with acids or acid fumes. (EPA, 1998)

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Consult an expert! Personal protection: complete protective clothing. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Consult an expert! Personal protection: complete protective clothing. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Mercury spills should be cleaned up immediately by use of a special vacuum cleaner. Then the area should be washed with a dilute calcium sulfide solution. Small quantities of mercury can be picked up by mixing with copper metal granules. ... Mercury

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs, aluminium, copper, iron and zinc. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. Well closed. Keep in the dark. Store only in original container.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: (as Hg): 0.025 mg/m³, as TWA; (skin); A4 (not classifiable as a human carcinogen); BEI issued.EU-OEL: (as Hg): 0,02 mg/m³ as TWA.MAK: (as Hg, inhalable fraction): 0.02 mg/m³; peak limitation category: II(8); skin absorption (H); sensitization of skin (SH); carcinogen category: 3B; pregnancy risk group: D

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state

Mercuric chloride is an odorless white crystalline solid. Density 5.4 g / cm³. Melting point 277°C. Slightly volatile at ordinary temperatures. Can be sublimed unchanged. Corrosive to the mucous membranes. Toxic by inhalation (dusts, etc.), ingestion, and skin absorption. Used in photography, disinfectants, wood preservatives, fungicides.

Colour

Colorless rhombic crystals or white powder

Odour

Odorless

Melting point/freezing point

277°C

Boiling point or initial boiling point and boiling range

302°C

Flammability

Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit/flammability limit

no data available

Flash point

302°C

Auto-ignition temperature

no data available

Decomposition temperature	no data available
pH	About 4.7 also reported as 3.2 for 0.2 molar aq soln
Kinematic viscosity	no data available
Solubility	5 to 10 mg/mL at 72° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow= 0.22
Vapour pressure	1 mm Hg at 277.16° F (EPA, 1998)
Density and/or relative density	5.44
Relative vapour density	9.8 g/cu cm
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

10 mg/cu m (as Hg) Mercury cmpd (except (organo) alkyl compounds (as Hg)

Decomposes on heating and under the influence of light. This produces toxic fumes of mercury and chlorine. Reacts with metals such as aluminium, copper, iron and zinc.

10.2 Chemical stability

Slightly volatile at ordinary temp; appreciably so at 100 deg c; volatilizes unchanged @ about 300 deg c

10.3 Possibility of hazardous reactions

MERCURIC CHLORIDE is decomposed by sunlight. Incompatible with formates, sulfites, hypophosphites, phosphates, sulfides, albumin, gelatin, alkalis, alkaloid salts, ammonia, lime water, antimony, arsenic, bromides, borax, carbonates, reduced iron, iron, copper, lead and silver salts, infusions of cinchona, oak bark or senna, tannic acids and vegetable astringents. (NTP, 1992).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Mixture of potassium & any of following metallic halides produces strong explosion on impact: ... mercuric chloride ...

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

CLASSIFICATION: C; possible human carcinogen. BASIS FOR CLASSIFICATION: Based on the absence of data in humans and limited evidence of carcinogenicity in rats and mice. Focal papillary hyperplasia and squamous cell papillomas in the forestomach as well as thyroid follicular cell adenomas and carcinomas were observed in male rats gavaged with mercuric chloride for 2 years. The relevance of the forestomach papillomas to assessment of cancer in humans is questionable because no evidence indicated that the papillomas progressed to malignancy. The relevance of the increase in thyroid tumors has also been questioned because these tumors are generally considered to be secondary to hyperplasia; this effect was not observed in the high-dose males. It should also be noted that the authors considered the doses used in the study to exceed the MTD for male rats. In the same study, evidence for increases in squamous cell papillomas in the forestomach of female rats was equivocal. In a second study, equivocal evidence for renal adenomas and adenocarcinomas was observed in male mice; there was a significant positive trend. This tumor type is rare in mice, and the increase in incidence was statistically significant when compared with historic controls. Two other nonpositive lifetime rodent studies were considered inadequate. Mercuric chloride showed mixed results in a number of genotoxicity assays. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Limited.

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes and skin. The substance is irritating to the respiratory tract. The substance may cause effects on the gastrointestinal tract and kidneys. This may result in tissue lesions, kidney failure, collapse and death. Medical observation is indicated.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization. The substance may have effects on the central nervous system, peripheral nervous system and kidneys. This may result in ataxia, sensory and memory disturbances, tremors, muscle weakness and kidney impairment. The substance may have effects on male fertility. May cause heritable genetic damage to human germ cells.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: EC50 *Lepomis macrochirus* (bluegill, embryo, larva) 88.7 ug/l/7-8 days toxic effect: death and deformity /Conditions of bioassay not specified
- Toxicity to daphnia and other aquatic invertebrates: EC50 *Daphnia magna* (cladoceran) 30 ug/l/48 hr /Conditions of bioassay not specified
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

Bioconcentration factors of 10,000 and 40,000 have been obtained for mercuric chloride and methylmercury with oyster.

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN2778 (For reference only, please check.) IMDG: UN2778 (For reference only, please check.) IATA: UN2778 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)
IMDG: MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)
IATA: MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Mercury dichloride	Mercury dichloride	7487-94-7	231-299-8
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date April 15, 2024

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.