

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.1
Creation Date: July 15, 2024
Revision Date: January 06, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name MERCURIC OXIDE, RED

1.2 Other means of identification

Product number CCNP900194
Other names Mercuric oxide;mercury(II) oxide;mercury oxide

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
Acute toxicity - Category 1, Dermal
Acute toxicity - Category 2, Inhalation
Specific target organ toxicity – repeated exposure, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H300 Fatal if swallowed
H310 Fatal in contact with skin
H330 Fatal if inhaled
H373 May cause 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.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
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. P302+P352 IF ON SKIN: Wash with plenty of water/... P316 Get emergency medical help immediately. P361+P364 Take off immediately all contaminated clothing and wash it before reuse. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P320 Specific treatment is urgent (see ... on this label). P319 Get medical help if you feel unwell. P391 Collect spillage.
Storage	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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
MERCURIC OXIDE, RED	Mercury monoxide	21908-53-2	244-654-7	≈ 99%

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 and then wash skin with water and soap. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

This material is highly toxic by ingestion, inhalation, or skin absorption. Very short exposure to small quantities may cause death or permanent injury. Following ingestion, mercuric oxide is readily converted to mercuric chloride, the most dangerous mercury compound. Mercuric oxide dust has a corrosive effect on eyes, skin, and respiratory tract. People with a history of allergies or known sensitization to mercury, chronic respiratory disease, nervous system disorders, or kidney disorders are at increased risk from exposure. (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 foam, dry chemical, or carbon dioxide.

5.2 Specific hazards arising from the chemical

When heated to decomposition (932F) it decomposes into mercury and oxygen. Fumes from fire may contain poisonous mercury vapor; oxygen may increase intensity of fire. Explosion of mercuric oxide may occur with friction or application of heat. Avoid reducing agents. Avoid light; may decompose into mercury and oxygen. Hazardous polymerization may not occur. (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: chemical protection suit. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

6.2 Environmental precautions

Consult an expert! Personal protection: chemical protection suit. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

6.3 Methods and materials for containment and cleaning up

Cleanup: Mercury removal from wastewater can be accomplished by these processes: BMS process; chlorine is added to the wastewater, oxidizing any mercury present to the ionic state. The BMS adsorbent (an activated carbon concentrated of sulfur compound on its surface) is used to collect ionic mercury. The spent adsorbent is then distilled to recover the mercury, leaving a carbon residue for reuse or disposal. TMRIMAC Process: wastewater is fed into a reaction whereby a slight excess of chlorine is maintained, oxidizing any mercury present to ionic mercury. The liquid is then passed through the TMRIMAC ion exchange resin where mercury ions are adsorbed. The mercury is then stripped from the spent resin with hydrochloric acid solution. Mercury compounds

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO contact with reducing agents. 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, reducing agents, chlorine and reactive substances. See Chemical Dangers. Keep in the dark. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. Well closed. PROTECT FROM LIGHT

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 safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Avoid inhalation of dust. Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Mercuric oxide, [solid] is a red or orange-red odorless, dense crystalline powder or scales, yellow when finely powdered. Used as a chemical intermediate for mercury salts, organic mercury compounds, and chlorine monoxide; antiseptic in pharmaceuticals; component of dry cell batteries; pigment and glass modifier; fungicide; preservative in cosmetics; analytical reagent; formerly used in antifouling paints. (EPA, 1998)
Colour	Yellow mercuric oxide: yellow or orange-yellow, heavy, powder, orthorhombic structure
Odour	Odorless
Melting point/freezing point	500°C (dec.)
Boiling point or initial boiling point and boiling range	no data available
Flammability	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	500°C
pH	no data available
Kinematic viscosity	no data available
Solubility	0.0053 G/100 CC WATER @ 25 DEG C
Partition coefficient n-octanol/water	no data available
Vapour pressure	no data available
Density and/or relative density	11.14
Relative vapour density	no data available
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 above 500°C . This produces highly toxic fumes including mercury and oxygen. This increases fire hazard. The substance is a strong oxidant. Reacts violently with reducing agents. Mixtures with metals and elements such as sulfur and phosphorus are shock-sensitive.

10.2 Chemical stability

Decomposes on exposure to air

10.3 Possibility of hazardous reactions

Flammable by chemical reaction. A powerful oxidizer.MERCURIC OXIDE is light sensitive. When hydrazine hydrate is dropped on mercuric oxide, an explosion occurs [Mellor 8:318. 1946-47]. Hypophosphorous acid reduces mercuric oxide explosively to the metal [Mellor 4:778. 1946-47]. When heated to decomposition (932 F) it decomposes into mercury and oxygen. Fumes from fire may contain poisonous mercury vapor; oxygen may increase intensity of fire. Explosion of mercuric oxide may occur with friction or application of heat. Avoid reducing agents. Avoid light; may decompose into mercury and oxygen. Fire risk in intimate contact with organic matter.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatibilities: by triturating mercuric oxide with reducing agents mercurous cmpd & metallic mercury may be formed. in prepn of ointments, contact with metal must be avoided. salts are formed with many acids.

10.6 Hazardous decomposition products

When heated to decomposition it emits highly toxic fumes of mercury

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

A4: Not classifiable as a human carcinogen. Mercury, elemental and inorganic forms, as Hg

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes, skin and respiratory tract. The substance may cause effects on the kidneys. Medical

observation is indicated.

STOT-repeated exposure

The substance may have effects on the kidneys, central nervous system and peripheral nervous system. This may result in ataxia, sensory and memory disturbances, tremors, muscle weakness and kidney impairment.

Aspiration hazard

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

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

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: UN3012 (For reference only, please check.) IMDG: UN3012 (For reference only, please check.) IATA: UN3012 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: MERCURY BASED PESTICIDE, LIQUID, TOXIC (For reference only, please check.) IMDG: MERCURY BASED PESTICIDE, LIQUID, TOXIC (For reference only, please check.) IATA: MERCURY BASED PESTICIDE, LIQUID, TOXIC (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (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 monoxide	Mercury monoxide	21908-53-2	244-654-7
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, 2024
Revision Date January 06, 2025

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. Red and Yellow mercuric oxide are common names. Mercury is a common ingredient found in some skin lightening soaps and creams. Long-term use of such products may cause kidney damage, skin rashes, scarring, as well as anxiety, depression or psychosis and peripheral neuropathy.

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

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