Chemical Safety Data Sheet MSDS / SDS

Mercury monoxide SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Mercury monoxide

CAS: 21908-53-2

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

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SECTION 2: Hazards identification

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

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Mercury monoxide
Common names and synonyms:	Mercury monoxide
CAS number:	21908-53-2
EC number:	244-654-7
Concentration:	100%

SECTION 4: First aid measures

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 .

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)

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 neat 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: Firefighting measures

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.

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)

Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

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.

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.

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

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.

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

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

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.

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

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.

Chemical stability

Decomposes on exposure to air

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.

Conditions to avoid

no data available

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.

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

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

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

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

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.)

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.)

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.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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.