

MERCURY (II) OXIDE

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1. Product Identification

Synonyms: Mercuric oxide red; mercuric oxide yellow

CAS No.: 21908-53-2

Molecular Weight: 216.59

Chemical Formula: HgO

Product Codes: CHEM-140 and others.

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Mercury Oxide	21908-53-2	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT; MAY CAUSE BURNS. MAY CAUSE ALLERGIC SKIN REACTION. MERCURY COMPOUNDS AFFECT THE KIDNEYS AND CENTRAL NERVOUS SYSTEM. OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

SAF-T-DATA^(tm) Ratings

Health Rating: 4 - Extreme (Poison)

Flammability Rating: 1 - Slight

Reactivity Rating: 3 - Severe (Oxidizer)

Contact Rating: 3 - Severe (Life)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: Yellow (Reactive)

Potential Health Effects

Inhalation:

Causes irritation to the respiratory tract. Symptoms include sore throat, coughing, pain, tightness in chest, breathing difficulties, shortness of breath and headache. Pneumonitis may develop. Can be absorbed through inhalation with symptoms to parallel ingestion.

Ingestion:

Highly Toxic! Average lethal dose for inorganic mercury salts is about 1 gram. May cause burning of the mouth and pharynx, abdominal pain, vomiting, corrosive ulceration, bloody diarrhea. May be followed by a rapid and weak pulse, shallow breathing, paleness, exhaustion, central nervous

system problems, tremors and collapse. Delayed death may occur from renal failure.

Skin Contact:

Causes irritaton. Symptoms include redness and pain. May cause burns. May cause sensitization. Can be absorbed through the skin with symptoms to parallel ingestion.

Eye Contact:

Causes irritation and burns to eyes. Symptoms include redness, pain, blurred vision; may cause serious and permanent eye damage.

Chronic Exposure:

Chronic exposure through any route can produce central nervous system damage. May cause muscle tremors, personality and behavior changes, memory loss, metallic taste, loosening of the teeth, digestive disorders, skin rashes, brain damage and kidney damage. Can cause skin allergies and accumulate in the body. Repeated skin contact can cause the skin to turn gray in color. Not a known reproductive hazard, but related mercury compounds can damage the developing fetus and decrease fertility in males and females.

Aggravation of Pre-existing Conditions:

Persons with nervous disorders, or impaired kidney or respiratory function, or a history of allergies or a known sensitization to mercury may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Upon heating it decomposes to form oxygen, which increases the flammability of combustibles.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire. Do not allow water runoff to enter sewers or waterways.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal in a method that does not generate dust. Do not sweep. Damp mop any residue. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Avoid storage on wood floors. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. Isolate from any source of heat or ignition. Do not use or store on porous work surfaces (wood, unsealed concrete, etc.). Protect from light. Follow strict hygiene practices. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

OSHA Acceptable Ceiling Concentration: mercury and mercury compounds: 0.1 mg/m³ (TWA), skin

ACGIH Threshold Limit Value (TLV): inorganic and metallic mercury, as Hg: 0.025 mg/m³ (TWA) skin, A4 Not classifiable as a human carcinogen.

ACGIH Biological Exposure Indices: total inorganic mercury in urine (preshift): 35 ug/g creatinine; total inorganic mercury in blood (end of shift): 15 ug/l.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece particulate respirator (NIOSH type N100 filters) may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Bright, orange-red or orange-yellow powder.

Odor:

Odorless.

Solubility:

Insoluble in water.

Specific Gravity:

11.14

pH:

No information found.

% Volatiles by volume @ 21°C (70°F):

0

Boiling Point:

Not applicable.

Melting Point:

500°C (932°F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

0.6

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Decomposes on exposure to light into mercury and oxygen. At 400C becomes almost black but red again on cooling.

Hazardous Decomposition Products:

Emits toxic mercury vapors.

Hazardous Polymerization:

This substance does not polymerize.

Incompatibilities:

Reacts with reducing materials. Incompatible with chlorine, hydrazine hydrate, hydrogen peroxide, hydrogen trisulfide, hypophosphorous acid, iodine plus methanol plus ethanol, magnesium, phosphorus, phospham, sodium potassium alloy, sulfur, acetyl nitrate, butadiene, hydrocarbons, sulfur chloride, methanethiol.

Conditions to Avoid:

Light, heat, incompatibles.

11. Toxicological Information

Toxicological Data:

Oral rat LD50: 18 mg/kg. Investigated as a tumorigen and a reproductive effector.

Reproductive Toxicity:

All forms of mercury can cross the placenta to the fetus, but most of what is known has been learned from experimental animals. See Chronic Health Hazards.

Ingredient	Known	Cancer Lists		IARC Category
		NTP Carcinogen	Anticipated	
Mercury Oxide (21908-53-2)	No	No	No	3

12. Ecological Information

Environmental Fate:

For mercury: This material has an experimentally-determined bioconcentration factor (BCF) of greater than 100. This material is expected to significantly bioaccumulate.

Environmental Toxicity:

For mercury: This material is expected to be toxic to aquatic life. The LC₅₀/96-hour values for fish are less than 1 mg/L.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: MERCURY OXIDE

Hazard Class: 6.1

UN/NA: UN1641

Packing Group: II

Information reported for product/size: 2.5KG

International (Water, I.M.O.)

Proper Shipping Name: MERCURY OXIDE

Hazard Class: 6.1

UN/NA: UN1641

Packing Group: II

Information reported for product/size: 2.5KG

International (Air, I.C.A.O.)

Proper Shipping Name: MERCURY OXIDE

Hazard Class: 6.1

UN/NA: UN1641

Packing Group: II

Information reported for product/size: 2.5KG

15. Regulatory Information

Ingredient	Chemical Inventory Status - Part 1			
	TSCA	EC	Japan	Australia
Mercury Oxide (21908-53-2)	Yes	Yes	Yes	Yes

Chemical Inventory Status - Part 2

Canada

Ingredient	Korea DSL	NDSL	Phil.	
Mercury Oxide (21908-53-2)	Yes	Yes	No	Yes

Federal, State & International Regulations - Part 1

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List	Chemical Catg.
Mercury Oxide (21908-53-2)	500	500*	No	Mercury compound

Federal, State & International Regulations - Part 2

	RCRA		TSCA	
	CERCLA	261.33		8(d)
Mercury Oxide (21908-53-2)	1	No		No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Pure / Solid)

WARNING:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Australian Hazchem Code: 2Z

Poison Schedule: S7

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **1** Reactivity: **0** Other: **Oxidizer**

Label Hazard Warning:

DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT; MAY CAUSE BURNS. MAY CAUSE ALLERGIC SKIN REACTION. MERCURY COMPOUNDS AFFECT THE KIDNEYS AND CENTRAL NERVOUS SYSTEM. OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

Label Precautions:

Keep from contact with clothing and other combustible materials.

Do not breathe dust.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Do not get in eyes, on skin, or on clothing.

Store in a tightly closed container.

Do not store near combustible materials.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent and Consumer Hobby.

Revision Information:

None

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