

Material Safety Data Sheet

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No. 170

MERCURY (II) OXIDE

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SECTION 1. MATERIAL IDENTIFICATION

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MATERIAL NAME: MERCURY (II) OXIDE

OTHER DESIGNATIONS: Mercuric Oxide; Mercuric Oxide, Red; Mercuric Oxide, Yellow; HgO;
 CAS #21908-53-2.

MANUFACTURERS/SUPPLIERS: Available from suppliers, including:
 Aakash Chemicals and Dyestuffs, Inc., 1701 S. First Avenue, #306, Maywood, IL 60153;
 Telephone: (312) 344-4855

HMIS	Not Found
H: 3	R 1
F: 0	I 3
R: 0	S 1
PPE: *	K 0
* See Sect. 8	

SECTION 2. INGREDIENTS AND HAZARDS

% HAZARD DATA

MERCURIC OXIDE	>99	8-hr TWA TLV: 0.1 mg/m ³ , as Hg* ----- Rat, Oral, LD ₅₀ : 18 mg/kg ----- Mouse, Oral, LD ₅₀ : 22 mg/kg
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* Current (1985-86) ACGIH TLV for inorganic mercury compounds.
 The OSHA PEL for "mercury" is 0.1 mg/m³ as a ceiling concentration.

In its 1973 Criteria Document on Inorganic Mercury, NIOSH recommended a PEL of 0.05 mg Hg/m³ as an 8-hr TWA for all inorganic mercury compounds.

SECTION 3. PHYSICAL DATA

Melting Point ... 932°F (500°C) (Decomposes)
 Specific Gravity ... 11.1
 Vapor Pressure @ 20°C ... Negligible
 Solubility in Water, @ 25°C ... 0.053 g/L
 @ 100°C ... 0.395g/L
 Molecular Weight ... 216.59

Appearance and odor: Mercuric oxide exists as either a red or yellow odorless powder. The color depends on the particle size; the finer powders (<5 μm) are yellow.

SECTION 4. FIRE AND EXPLOSION DATA

LOWER UPPER

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air		
NA	NA	NA		

EXTINGUISHING MEDIA: Mercuric oxide is an oxidizer and can promote and accelerate combustion, particularly when heated. Flood fires with water (if water is a suitable extinguisher for the burning material). Prevent runoff to sewers and waterways. Mercury vapors are evolved at high temperature. Fire fighters should wear self-contained breathing apparatus and full protective gear.

SECTION 5. REACTIVITY DATA

This material is stable at room temperature. It does not polymerize. At 500°C it decomposes to mercury and oxygen. It is practically insoluble in water but soluble in most acids. The yellow form is typically more soluble and reactive than red mercuric oxide.

As an oxidizer, mercuric oxide is incompatible with reducing agents and easily oxidizable materials. Specific incompatibles that may result in fire and/or explosions include chlorine, hydrogen peroxide, phosphinic acid, hydrazine hydrate, magnesium, phosphorous, sulphur, potassium, and sodium.

SECTION 6. HEALTH HAZARD INFORMATION TLV

Mercuric oxide is highly toxic. Overexposure due to acute inhalation of mercury compounds can cause irritation of the mucous membranes of the respiratory tract, abdominal pain, vomiting, diarrhea, and inflammation of the gums (gingivitis) and mouth (stomatitis). Symptoms of chronic toxicity include psychic and emotional disturbances (excitability, anxiety, depression, indecision, insomnia), nervous system effects (muscular tremors, incoordination), gingivitis, stomatitis, and kidney damage. Ingestion can cause severe irritation of the G.I. tract, difficult swallowing, nausea, vomiting, abdominal pain, diarrhea, shock, and death. Skin and eye contact may cause irritation.

Mercuric oxide has not been identified as a known or suspected carcinogen by IARC, NTP, or OSHA.

FIRST AID: **EYE CONTACT:** Flush eyes, including under the eyelids, with large amounts of water. Seek medical attention.*
SKIN CONTACT: Remove contaminated clothing. Thoroughly wash contaminated area with soap and water. Seek medical attention if irritation or other symptoms develop. **INHALATION:** Remove from exposure. Restore/aid breathing as required. Get prompt medical attention.* **INGESTION:** If victim is conscious, immediately give a large quantity of water to drink and induce vomiting. Repeat. Keep person warm and at rest. Get medical help immediately.*

* GET MEDICAL ATTENTION = In plant, community, paramedic.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety/environmental personnel of spills. Ventilate spill area. Cleanup personnel should wear respiratory protective equipment, gloves, goggles, and protective clothing. Carefully place spilled material into a suitable container with cover. Use vacuum (with appropriate filters) and/or wet mopping to minimize dusting. Avoid generating dust throughout the cleanup process. DO NOT allow release of mercuric oxide into drains or waterways.

DISPOSAL: Reclaim material when possible. Unsalvageable material requires disposal as a hazardous waste. DO NOT allow release of solution containing mercury without prior treatment (such as precipitation as the sulfide) to remove mercury to allowable levels. Contact supplier or licensed chemical waste disposal contractor for treatment/disposal instruction. Follow Federal, state, and local regulations.

EPA HAZARDOUS Waste Number: D009 (EP Toxic, 40 CFR 261.24)

SECTION 8. SPECIAL PROTECTION INFORMATION

Use general and local exhaust ventilation to meet the TLV requirements. NIOSH-approved respirators should be worn during nonroutine operations and whenever the TLV is exceeded. NIOSH recommends a full-facepiece gas mask with high-efficiency filter and canister containing iodine-impregnated charcoal for concentration up to 5 mg/m³. Above 5 mg/m³ positive-pressure-supplied air respirators or self-contained breathing apparatus are recommended. Respirator usage must be in accordance with OSHA requirements (29 CFR 1910.134).

Wear chemical safety goggles, gloves, and protective clothing (aprons, coveralls, etc.) when handling this material. Launder contaminated clothing before reuse.

Eyewash stations and washing facilities should be readily accessible to workers handling this material.

Contact lenses pose a special hazard; soft lenses may absorb and all lenses concentrate irritants.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Store in tightly closed containers in a cool, dry location away from incompatibles. Protect container from physical damage. Maintain good housekeeping practices to prevent accumulation of dust. Use techniques that minimize dust generation. Clean up spills promptly. Employees should be trained in safe handling procedures for this highly toxic material. Workers should follow good personal hygiene practices: wash thoroughly after handling, before eating, drinking, smoking, and after the workshift. DO NOT eat, drink, or smoke in the work area. Promptly remove contaminated clothing and wash any area that comes in contact with this material. Preplacement and periodic medical exams of exposed workers are recommended, with emphasis on CNS involvement, kidney dysfunction, and other symptoms of mercury toxicity. Determining levels of urinary mercury is often used to measure Hg absorption. Levels of 0.1 to 0.5 mg/L are considered significant.

DOT Classification: Poison B

Label: Poison

I.D. No.: UN1641 (49 CFR 172.101)

Data Source(s) Code: 2, 4, 5, 6, 12, 14, 19, 25, 43, 44, 49, 55, 56, 58, 60, 61, 62, 82. CV

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Approvals *J. Barocco, 6/86.*

Indust. Hygiene/Safety *DW 6/86*

Medical Review *[Signature]*

[Signature] July 86