Material Safety Data Sheet
Mercury (II) Oxide

ACC# 13850

Section 1 - Chemical Product and Company Identification

MSDS Name: Mercury (II) Oxide
Catalog Numbers: AC199990050, AC205730050, S80077-1, M173I 100, M173I-100, M173I100, M174I 100, M174I 50, M174I 500, M174I-100, M174I-50, M174I-500, M174I100, M174I50, M174I500, S80077-2
Synonyms: Mercuric oxide red, mercuric oxide yellow, mercury (II) oxide.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>21908-53-2</td>
<td>Mercury (II) oxide</td>
<td>&gt;99%</td>
<td>244-654-7</td>
</tr>
</tbody>
</table>

Hazard Symbols: T O
Risk Phrases: 21 40 46 8 20 39/28 62

Section 3 - Hazards Identification
EMERGENCY OVERVIEW

Appearance: red or yellow. Danger! Strong oxidizer. Contact with other material may cause a fire. May cause respiratory tract irritation. May be fatal if swallowed. Harmful if inhaled. Harmful if absorbed through the skin. May cause kidney damage. Poison! May cause fetaeffects based upon animal studies. May cause reproductive effects based upon animal studies. May cause eye and skin irritation. Causes severe digestive tract irritation with pain, nausea, vomiting and diarrhea. May corrode the digestive tract with hemorrhaging and possible shock. Target Organs: Kidneys, central nervous system.

Potential Health Effects

Eye: May cause eye irritation. Contact may cause ulceration of the conjunctiva and cornea.
Skin: May cause mild skin irritation. May be absorbed through the skin in harmful amounts.
Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation: May cause respiratory tract irritation. May cause abdominal pain, nausea, vomiting, and inflammation of the gums and mouth.
Chronic: Overexposure may cause delayed kidney injury. Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated exposure can cause psychic abnormalities such as anxiety, depression and excitability. May cause adverse nervous system effects including muscle tremors and incoordination.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid.
Skin: Get medical aid immediately. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Treat symptomatically and supportively.
Antidote: The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel.

Section 5 - Firefighting Measures
General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Oxidizer. Greatly increases the burning rate of combustible materials.

Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam. Use extinguishing media most appropriate for the surrounding fire.

Autoignition Temperature: Not available.
Flash Point: Not available.(estimated) Health: ; Flammability: ; Reactivity: Explosion Limits, Lower: Not available. Upper: Not available.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. If sweeping is necessary, use a dust suppressant agent. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Minimize dust generation and accumulation.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury (II) oxide</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Mercury (II) oxide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR
1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

**Physical State:** Solid  
**Appearance:** red or yellow  
**Odor:** odorless  
**pH:** Not available.  
**Vapor Pressure:** Not available.  
**Vapor Density:** Not available.  
**Evaporation Rate:**  
**Viscosity:** Not available.  
**Boiling Point:** Not available.  
**Freezing/Melting Point:** 932 deg F  
**Decomposition Temperature:** Not available.  
**Solubility:** 0.053 g/L at 25C.  
**Specific Gravity/Density:** 11.1 at 20C.  
**Molecular Formula:** HgO  
**Molecular Weight:**

Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.  
**Conditions to Avoid:** Incompatible materials, dust generation.  
**Incompatibilities with Other Materials:** Chlorine, hydrazine hydrate, hydrogen peroxide, hypophosphorus acid, iodine + methyl and ethyl alcohol, magnesium, phospham, phosphorus, sodium + potassium, sulfur, reducing agents, easily oxidized materials, phosphinic acid.  
**Hazardous Decomposition Products:** Mercury/mercury oxides, oxygen.  
**Hazardous Polymerization:** Has not been reported.

Section 11 - Toxicological Information

**RTECS #:**  
**CAS#: 21908-53-2:** OW8750000  
**LD50/LC50:**  
**CAS#: 21908-53-2:**  
- Oral, mouse: LD50 = 16 mg/kg;  
- Oral, rat: LD50 = 18 mg/kg;  
- Skin, rat: LD50 = 315 mg/kg;  
**Carcinogenicity:**  
**CAS#: 21908-53-2:**  
**ACGIH:** as Hg: A4—not classifiable as a human carcinogen (listed as MERCURY).  
**IARC:** Group 3 carcinogen (listed as MERCURY, ARYL AND INORGANIC COMPOUNDS).  
**Epidemiology:** No information available.
**Teratogenicity:** Mercury vapor traverses the placenta. Specific developmental abnormalities included effects on the eyes and ears orally in rats. Other developmental abnormalities occurred orally in mice, but were not specified.

**Reproductive Effects:** Death and fetotoxicity were noted in mice and rats respectively. Effects on fertility included post-implantation mortality orally in rats.

**Neurotoxicity:** No information available.

**Mutagenicity:** No information available.

**Other Studies:** None.

### Section 12 - Ecological Information

**Ecotoxicity:** Marine fish TLm = 0.29 ppm/48H

**Environmental Fate:** Mercury can be accumulated from water by many organisms (up to 10,000 fold).

**Physical/Chemical:** No information available.

**Other:** None.

### Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

**RCRA D-Series Maximum Concentration of Contaminants:** None listed.

**RCRA D-Series Chronic Toxicity Reference Levels:** None listed.

**RCRA F-Series:** None listed.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

### Section 14 - Transport Information

<table>
<thead>
<tr>
<th>Shipping Name:</th>
<th>US DOT</th>
<th>IATA</th>
<th>RID/ADR</th>
<th>IMO</th>
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<tbody>
<tr>
<td>MERCURY OXIDE</td>
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<td>MERCURY OXIDE MURCU OXIDE</td>
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<tr>
<td>Packing Group:</td>
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<td>II</td>
<td></td>
<td>III</td>
</tr>
</tbody>
</table>

### Section 15 - Regulatory Information

**US FEDERAL**
TSCA
CAS# 21908-53-2 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)
None of the chemicals in this material have an RQ.

Section 302 (TPQ)
CAS# 21908-53-2: TPQ = 500/10,000 pounds; RQ = 500 pounds

SARA Codes
CAS # 21908-53-2: acute, chronic.

Section 313
This material contains Mercury (II) oxide (listed as MERCURY), 99%, (CAS# 21908-53-2) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:
This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 21908-53-2 can be found on the following state right to know lists:
WARNING: This product contains Mercury (II) oxide, listed as MERCURY, a chemical known to the state of California to cause birth defects or other reproductive harm. California No Significant Risk Level:
None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:
T O

Risk Phrases:

Safety Phrases:
S 22 Do not inhale dust. S 24/25 Avoid contact with skin and eyes. S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 45 In case of accident of if you feel unwell, seek medical advice immediately (show the label where possible). S 28B After contact with skin, wash immediately with plenty of water and soap.
WGK (Water Danger/Protection)  
CAS# 21908-53-2: 3  

Canada  
CAS# 21908-53-2 is listed on Canada’s DSL/NDSL List.  
This product has a WHMIS classification of D1A, D2A.  
CAS# 21908-53-2 is not listed on Canada's Ingredient Disclosure List.  

Exposure Limits  
CAS# 21908-53-2: OEL-AUSTRALIA: TWA 0.05 mg(Hg)/m3; Skin  
JANUARY 1993  
OEL-BELGIUM: TWA 0.05 mg(Hg)/m3; Skin JANUARY 1993  
OEL-CZECHOSLOVAKI  
A: TWA 0.05 mg(Hg)/m3; STEL 0.15 mg(Hg)/m3  
OEL-DENMARK: TWA 0.05 mg(Hg)/m3  
JANUARY 1993  
OEL-FINLAND: TWA 0.05 mg(Hg)/m3 JANUARY 1993  
OEL-FRANCE: TWA 0.05 mg(Hg)/m3 JANUARY 1993  
OEL-GERMANY: TWA 0.01 ppm (0.1 m  
g(Hg)/m3) JANUARY 1993  
OEL-HUNGARY: TWA 0.02 mg(Hg)/m3; STEL 0.04 mg(Hg)/m3 JANUARY 1993  
OEL-JAPAN: TWA 0.05 mg(Hg)/m3 JANUARY 1993  
OEL-THE NETHERLANDS: TWA 0.05 mg(Hg)/m3; STEL 0.15 mg(Hg)/m3  
OEL-THE PHILIPPINES  
ES: TWA 0.05 mg(Hg)/m3 JANUARY 1993  
OEL-POLAND: TWA 0.01 mg(Hg)/m3 JANUARY 1993  
OEL-RUSSIA: TWA 0.05 mg(Hg)/m3; STEL 0.01 mg(Hg)/m3 JANUARY 1993  
OEL-SWEDEN: TWA 0.05 mg(Hg)/m3 JANUARY 1993  
OEL-TAIWAN: STEL 0.05 mg(Hg)/m3 JANUARY 1993  
OEL-UNITED KINGDOM: TWA 0.05 mg(Hg)/m3; STEL 0.15 mg(Hg)/m3  
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH  
TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV  

Section 16 - Additional Information  

MSDS Creation Date: 12/28/1994  
Revision #4 Date: 9/02/1997  
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.  

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