

## Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

### Product Identifier:

**Identification as on the label/Trade name:** Mercury Oxide, Enriched Mercury Oxide.

**Molecular weight:** 216.59

**Chemical formula:** HgO

**Synonyms:** Mercury (II) oxide, mercuric oxide red, mercuric oxide yellow.

### Details of the supplier of the Safety Data Sheet:

Neonest AB  
Storgatan 70C, Solna  
SE-17152  
Sweden

### Contact details:

+46-76-219-9731

### 24-hour Emergency Contact:

Swedish Poisons Centre  
Phone: 112 - Ask for Poisons Information, 112 – begär Giftinformation.

### Other International Contacts:

CHEMTREC 24-hour: +1-703-741-5500 (US + Worldwide)  
NHS: 111 (UK)  
Charite: +49 30 450 531 000 (Netherlands)  
INTCF: +34 917689800 (Spain)  
CapTv: +33 1 40 05 48 48 (France)

## Section 2: Hazards Identification

### Classification of the substances or mixture:

**The mixture is classified according to:** Regulation EC 1272/2008 [EU-GHS/CLP]

#### **Hazard classes/Hazard categories:**

Acute Toxicity, Oral (Category 2)  
Acute Toxicity, Dermal (Category 1)  
Acute Toxicity, Inhalation (Category 2)  
STOT RE (Category 2)  
Aquatic Acute (Category 1)  
Aquatic Chronic (Category 1)

#### **Hazard statement:**

H300  
H310  
H330  
H373  
H400  
H410

### Label elements:

**Hazard pictograms:**



**Signal Words:** Danger.

**Hazard Statements:**

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.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary Statements:**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P302 + P352 IF ON SKIN: Wash with plenty of water.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

P310 Immediately call a POISON CENTER/doctor.

P391 Collect spillage.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

### Section 3: Composition/Information on Ingredients

**Substance/Mixture:** Substance.

**Ingredients:**

Substance name (IUPAC/EC)	CAS-No.	Concentration % by weight	Classification EC1272/2008	
	EC-No.			
Mercury monoxide	21908-53-2	>99.9%	Acute Tox. 2	H300
			Acute Tox. 1	H310
			Acute Tox. 2	H330
			STOT RE 2	H373
	244-654-7		Aquatic Acute 1	H400
			Aquatic Chronic 1	H410

For explanation of abbreviations see Section 16.

### Section 4: First-Aid Measures

**Description of first aid measures:**

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

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

**Skin Exposure:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing and shoes thoroughly 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.

#### **Most important symptoms and effects, both acute and delayed:**

**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 diarrhoea. 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 irritation. Symptoms include redness and pain. May cause burns. May cause sensitization. Can be absorbed through the skin with symptoms to parallel those of 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 behaviour changes, memory loss, metallic taste, loosening of the teeth, digestive disorders, skin rashes, brain damage and kidney damage. Can cause skin allergies and can accumulate in the body. Repeated skin contact can cause the skin to turn grey in colour. Not a known reproductive hazard, but related mercury compounds can damage the developing foetus and can 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.

## **Section 5: Fire-Fighting Measures**

#### **Extinguisher media:**

**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 an explosion hazard.

**Suitable 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 face piece operated in the pressure-demand or other positive-pressure mode.

## **Section 6: Accidental Release Measures**

#### **Personal precautions, protective equipment and emergency procedures:**

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Avoid dust formation. Avoid breathing vapours, mist or gas.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up:**

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.

**Section 7: Handling and Storage****Precautions for safe handling:**

**Handling:** 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. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage, including any incompatibilities:**

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.

**Section 8: Exposure Controls/Personal Protection****Control parameters:****Occupational exposure limits:**

OSHA Acceptable Ceiling Concentration	Mercury and mercury compounds: 0.1 mg/m <sup>3</sup> (TWA), skin.
ACGIH Threshold Limit Value (TLV)	Inorganic and metallic mercury, as Hg: 0.025 mg/m <sup>3</sup> (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.

**Exposure controls:**

**Appropriate engineering controls:** 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.

**Individual protection measures, such as personal protective equipment:**

**Personal Respirators:** If the exposure limit is exceeded and engineering controls are not feasible, a NIOSH-approved 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.

## Section 9: Physical and Chemical Properties

### Information on basic physical and chemical properties

**Appearance (form):** Solid (powder).

**Colour:** Orange-red / orange-yellow.

**Odour:** Odourless.

**Odour threshold:** No data available.

**pH (concentration):** Not applicable.

**Melting point/range (°C):** 500 °C

**Boiling point/range (°C):** Not applicable.

**Flash point (°C):** No data available.

**Evaporation rate:** 0.6

**Flammability (solid, gas):** Non-flammable.

**Ignition temperature (°C):** No data available.

**Upper/lower flammability/explosive limits:** No data available.

**Vapour pressure (20 °C):** No data available.

**Vapour density:** No data available.

**Relative density (25 °C):** 11.14

**Water solubility (g/L) at 20 °C:** Insoluble.

**n-Octanol/Water partition coefficient:** No data available.

**Auto-ignition temperature:** No data available.

**Decomposition temperature:** No data available.

**Viscosity, dynamic (mPa s):** No data available.

**Explosive properties:** The substance or mixture is not classified as explosive.

**Oxidising properties:** The substance or mixture is not classified as oxidizing.

## Section 10: Stability and Reactivity

**Reactivity & Chemical stability:** Stable under ordinary conditions of use and storage. Decomposes on exposure to light into mercury and oxygen.

**Conditions to avoid:** Light, heat, incompatibles.

**Incompatible materials to avoid:** 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, sulphur, acetyl nitrate, butadiene, hydrocarbons, sulphur chloride, methanethiol.

**Hazardous Decomposition Products:** Emits toxic mercury vapours.

**Hazardous Polymerization:** This substance does not polymerize.

## Section 11: Toxicological Information

### Information on toxicological effects:

Fatal if swallowed, in contact with skin, or inhaled.

### Classification according to GHS (1272/2008/EG, CLP)

#### **Skin corrosion/irritation:**

Not classified based on available information.

#### **Serious eye damage/eye irritation:**

Not classified based on available information.

**Respiratory or skin sensitisation:**

Not classified based on available information.

**Germ cell mutagenicity:**

Not classified based on available information.

**Carcinogenicity:**

Not classified based on available information.

**Reproductive toxicity:**

Not classified based on available information.

**Specific target organ toxicity – single exposure (STOT):**

Not classified based on available information.

**Specific target organ toxicity (STOT) – repeated exposure:**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration toxicity:**

Not classified based on available information.

## Section 12: Ecological Information

**Toxicity:** Very toxic to aquatic life with long lasting effects. The LC50/96-hour values for fish are less than 1 mg/l.

**Persistence and degradability:** No data available.

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

**Mobility in soil:** No data available.

**Results of PBT& vPvB assessment:** No data available.

**Other adverse effects:** No data available.

## Section 13: Disposal Considerations

**Product:** Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an 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 unused contents in accordance with federal, state and local requirements.

**Contaminated Packaging:** Dispose of container in accordance with federal, state and local requirements.

## Section 14: Transport Information

**UN number:** 1641

**UN proper shipping name:** MERCURY OXIDE

**Transport hazard class:** Class 6.1

**Transport hazard labels:**



**Packing group:** II

**Marine pollutant:** Yes.

## Section 15: Regulatory Information

### EU regulations:

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

### Authorisations:

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

### Restrictions on use:

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**

Not regulated.

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work**

Not regulated.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.**

Not regulated.

### Other EU regulations:

**Directive 2012/18/EU on major accident hazards involving dangerous substances**

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.**

Always applicable.



**Directive 94/33/EC on the protection of young people at work**

Not listed.

**Additional Information:****SARA 302 Components:** The following components are subject to reporting levels established by SARA Title III, Section 302: Mercury monoxide / CAS No. 21908-53-2 / Revision Date 2007-07-01.**SARA 313 Components:** This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.**SARA 311/312 Hazards:** Acute Health Hazard, Chronic Health Hazard.**Massachusetts Right to Know Components:** Mercury monoxide / CAS No. 21908-53-2 / Revision Date 2007-07-01**Pennsylvania Right to Know Components:** Mercury monoxide / CAS No. 21908-53-2 / Revision Date 2007-07-01**New Jersey Right to Know Components:** Mercury monoxide / CAS No. 21908-53-2 / Revision Date 2007-07-01**California Prop. 65 Components:** WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm: Mercury monoxide / CAS No. 21908-53-2 / Revision Date 2007-07-01**Chemical safety assessment:** No Chemical Safety Assessment has been carried out.**Section 16: Other Information****List of abbreviations:**

ACGIH American Conference of Governmental Industrial Hygienists  
ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road  
ALARA As Low As Is Reasonably Achievable  
AMU Atomic Mass Unit  
ANSI American National Standards Institute  
BLS Basic Life Support  
CAM Continuous Air Monitor  
CAS Chemical Abstracts Service (division of the American Chemical Society)  
CEN European Committee for Standardization  
CERCLA Comprehensive Environmental Response Compensation and Liability Act  
CLP Classification, Labelling and Packaging (European Union)  
CPR Controlled Products Regulations (Canada)  
CWA Clean Water Act (USA)  
DAC Derived Air Concentration (USA)  
DOE United States Department of Energy (USA)  
DOT United States Department of Transportation (USA)  
DSL Domestic Substances List (Canada)  
EC50 Half Maximal Effective Concentration  
EINECS European Inventory of Existing Commercial Chemical Substances  
EHS Environmentally Hazardous Substance  
ELINCS European List of Notified Chemical Substances  
EMS Emergency Response Procedures for Ships Carrying Dangerous Goods  
EPA Environmental Protection Agency (USA)  
EPCRA Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986  
GHS Globally Harmonized System  
HMIS Hazardous Materials Identification System (USA)  
IARC International Agency for Research on Cancer  
IATA International Air Transport Association



IBC Intermediate Bulk Containers  
ICAO International Civil Aviation Organization  
IDLH Immediately Dangerous to Life or Health  
IMDG International Maritime Code for Dangerous Goods  
LC50 Lethal concentration, 50 percent  
LD50 Lethal dose, 50 percent  
LDLO Lethal Dose Low  
LOEC Lowest-Observed-Effective Concentration  
MARPOL International Convention for the Prevention of Pollution from Ships  
MSHA Mine Safety and Health Administration (USA)  
NCRP National Council on Radiation Protection & Measurements (USA)  
NDSL Non-Domestic Substances List (Canada)  
NFPA National Fire Protection Association (USA)  
NIOSH National Institute for Occupational Safety and Health (USA)  
NOEC No Observed Effect Concentration  
N.O.S. Not Otherwise Specified  
NRC Nuclear Regulatory Commission (USA)  
NTP National Toxicology Program (USA)  
OSHA Occupational Safety and Health Administration (USA)  
PBT Persistent Bioaccumulative and Toxic Chemical  
PEL Permissible Exposure Limit  
PIH Poisonous by Inhalation Hazard  
RCRA Resource Conservation and Recovery Act (USA)  
RCT Radiation Control Technician  
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)  
RID Regulations Concerning the International Transport of Dangerous Goods by Rail  
RTECS Registry of Toxic Effects of Chemical Substances  
SARA Superfund Amendments and Reauthorization Act (USA)  
TDG Transportation of Dangerous Goods (Canada)  
TIH Toxic by Inhalation Hazard  
TLV Threshold Limit Value  
TPQ Threshold Planning Quantity  
TSCA Toxic Substances Control Act  
TWA Time Weighted Average  
UN United Nations (Number)  
VOC Volatile Organic Compound  
vPvB Very Persistent Very Bioaccumulative Chemical  
WGK Wassergefährdungsklassen (Germany: Water Hazard Classes)  
WHMIS Workplace Hazardous Materials Information System

**References:**

Not available.

**Full text of any H-statements not written out in full under Sections 2 to 15:**

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.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

**Revision information:**

None.

**Training information:**

Follow training instructions when handling this material.

**Further Information:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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