

Mercury In Glass Thermometer**Safety Data Sheet**

Effective date: May 29, 2015

According to 29 CFR 1910:1200 and GHS Rev. 3

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SECTION 1: Identification of the substance/mixture and of the Manufacturer**Chemical Name:**

Mercury, Hg (CAS No: 7439-97-6)

Manufacturer Product Name:

Mercury In Glass Thermometer

Recommended uses of the chemical/product: Mercury is the thermometric fluid in a mercury in glass thermometer. The mercury expands or contracts with change in temperature. The thermometer will have between 1.5 and 30 grams of mercury. Average amount of mercury in a Miller & Weber thermometer is approximately 4.5 grams. The product is hazardous if broken.

Manufacturer Details:

Miller & Weber, Inc.
1637 George Street
Ridgewood, NY 11385-5342
718-821-7110 Fax: 718-821-1673

Emergency Telephone Number:

Chem-Tel, Inc. (Contract Number: MIS0003159)
1-800-255-3924

SECTION 2: Hazards Identification**Hazard Classification of the chemical (GHS-US Hazard Pictograms):**

GHS06



GHS08



GHS09



GHS05

Signal word (GHS-US):

Danger

Hazard statements (GHS-US):

H330 - Fatal if inhaled
H360 - May damage fertility or the unborn child
H372 - Causes 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 (GHS-US):

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe vapors, gas
P264 - Wash skin, hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in well-ventilated area
P280 - Wear eye protection, protective clothing, protective gloves, face mask
P284 - [In case of inadequate ventilation] wear respiratory protection
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 or doctor/physician
P314 - Get medical advice and attention if you feel unwell
P320 - Specific treatment is urgent (see First aid measures on this label)
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to comply with applicable local, national and international regulation.

NFPA/HMIS Ratings (0-4) (Non-GHS): Health: 3*, Flammability: 0, Reactivity: 0, PPG: See Section 8 below.

SECTION 3: Composition/Information on Ingredients

Name	Product Identifier	%	GHS-US Classification
Mercury	CAS No. 7439-97-6	100	Acute Tox. 2 (Inhalation), H330 Repr. 1B, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

See Section 16 for full text of H-phrases

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SECTION 4: First aid measures

The first aid measures described in this section are for exposure to metallic mercury, regardless of the quantity of the mercury involved in the exposure. The first aid measures below come from the Safety Data Sheets of our bulk mercury suppliers.

Description of first aid measures

General: Never give anything by mouth to an unconscious person. If exposed or concerned: Get medical advice/attention.

After inhalation: Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Loosen clothing and place exposed person in a comfortable position. Immediately seek medical attention.

After skin contact: Wash immediately with lots of water (15 minutes)/safety shower, as necessary. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Seek immediate medical advice.

After eye contact: Protect unexposed eye. Rinse exposed eye immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Keep eye wide open while rinsing. Immediately seek medical attention. Continue rinsing during transport.

After swallowing (ingestion): Immediately call a POISON CONTROL CENTER OR DOCTOR/PHYSICIAN FOR MOST CURRENT INFORMATION. Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Immediately seek medical attention.

Most important symptoms and effects, both acute and delayed

After inhalation: Short-term over-exposures to high concentrations of mercury vapors can lead to breathing difficulty, coughing, acute, chemical pneumonia, and pulmonary edema (a potentially fatal accumulation of fluid in the lungs). Depending on the concentration of over-exposure, cardiac abnormalities, damage to the kidney, liver or nerves and effects on the brain may occur. Long-term inhalation over-exposures can lead to the development of a wide variety of symptoms, including the following: excessive salivation, gingivitis, anorexia, chills, fever, cardiac abnormalities, anemia, digestive problems, abdominal pains, frequent urination, an inability to urinate, diarrhea, peripheral neuropathy (numbness, weakness, or burning sensations in the hands or feet), tremors (especially in the hands, fingers, eyelids, lips, cheeks, tongue, or legs), alteration of tendon reflexes, slurred speech, visual disturbances, and deafness. Allergic reactions (i.e. breathing difficulty) may occur in sensitive individuals.

After skin contact: Symptoms include redness, dry skin, and pain. Prolonged contact may lead to ulceration of the skin. Allergic reactions (i.e. rashes, welts) may occur in sensitive individuals. Dermatitis (redness and inflammation of the skin) may also occur in sensitive individuals.

After eye contact: Symptoms of eye exposure can include redness, pain, and watery eyes. A symptom of mercury exposure is discoloration of the lens of the eyes.

After ingestion: If mercury is swallowed, symptoms of such over-exposure can include metallic taste in mouth, nausea, vomiting, central nervous system effects, and damage to the kidneys. Metallic mercury is not usually absorbed sufficiently from the gastrointestinal tract to induce an acute, toxic response. Damage to the tissues of the mouth, throat, esophagus, and other tissues of the digestive system may occur. Ingestion may be fatal, due to the effects on the gastrointestinal system and kidneys.

Chronic symptoms: Long-term over-exposure can lead to a wide range of adverse health effects. Anyone using mercury must pay attention to personality changes, weight loss, skin or gum discolorations, stomach pains, and other signs of mercury over-exposure. Gradually developing syndromes ("Erethism" and "Acrodynia") are indicative of potentially severe health problems. Mercury can cause the development of allergic reactions (i.e. dermatitis, rashes, breathing difficulty) upon prolonged or repeated exposures. Refer to Section 11 (Toxicology Information) for additional data.

Indication of any immediate medical attention and special treatment needed

If seeking medical attention provide SDS document to physician. (Information for hospital or physician) 1. As soon as possible, have patient drink milk or slurry of activated charcoal to help precipitate mercury in the stomach. 2. Gastric lavage with tap water, milk, or 2-5% solution of sodium bicarbonate, unless spontaneous vomiting is intense and productive, 3. Administer through the lavage tube 0.5-1.0 oz. of sodium or magnesium sulfate in 6-8 oz. of water (unless spontaneous purging has already begun) and a slurry of activated charcoal. 4. Administer BAL (Dimercaprol; 3 mg/kg or 0.3 mL/10 kg) intramuscularly as a 10% solution in oil. If given within three hours after ingestion, severe renal damage may be prevented. Collect urine before and after BAL therapy for mercury analysis. 5. Demulcents (i.e. milk of magnesia, starch, bismuth subcarbonate) and analgesic drugs may be useful and necessary. 4. FIRST-AID MEASURES (Continued) RECOMMENDATIONS TO PHYSICIANS (continued): 6. Because the BAL-Mercury Complex excreted in bile may be partly resorbed in the bowel, it is probably useful to administer activated charcoal every few hours, starting as soon as vomiting subsides. 7. Treat shock by correcting dehydration and electrolyte imbalances. If renal insufficiency develops, treat for acute renal failure. 8. The maintenance of an adequate nutritional status may be troublesome if gastrointestinal disorders becomes severe or persistent. 9. If toxic signs or symptoms recur after an apparent recovery, another course of chelation therapy is warranted. BAL is still appropriate, but a trial of D-Penicillamine or N-acetyl-D, L-penicillamine may be preferable. Either penicillamine compound is given by mouth, usually on an empty stomach, in a dose of 250 mg (4 times daily for adults; 3 times daily in children; 5-10 days). Penicillamine should be withheld until mercury is cleared out of the bowels. A chelating agent should be used until the urine-mercury level falls below 50 micrograms/24 hours. Laboratory Analysis: Determination of beta-2-Microglobulins has been recommended as a useful test for renal function. Electroencephalographic changes may be correlated closely with the clinical state. Analysis of the blood, hair, urine, or feces can be done to determine the level of Mercury exposure. Mercury deposits in the body can be observed in X-Rays.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents: Foam, dry powder, carbon dioxide, water spray, sand.

Unsuitable extinguishing media: None identified, but avoid heavy water stream.

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Special hazards arising from the substance or mixture

Fire Hazard: Mercury is not flammable. Mercury vapors and oxides generated during fires involving the product are toxic.

Reactivity: Stable. Reacts with (some) metals. Mercury can react with metals to form amalgams.

Advice to firefighters:

Firefighting instructions: Use water spray or fog for cooling exposed thermometers. Exercise caution when fighting any chemical fire. If broken mercury thermometers are present, firefighters should prevent fire-fighting water from entering the environment. Do not allow run-off from fire-fighting to enter drains or water courses.

Protective equipment for firefighters: Do not enter area with exposed mercury without proper protective equipment, including respiratory protection.

Other information: Decontaminate all equipment thoroughly after the conclusion of fire-fighting activities.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

General Measures: Ensure adequate ventilation. Ensure that air-handling systems are operational. Remove unnecessary personnel from the area.

Protective Equipment: Remove unnecessary personnel. Equip cleanup crew with proper protection. In the event of a release under 1 pound (one Miller & Weber, Inc. thermometer has no more than 1 ounce (30 grams) of mercury), the minimum level "C" Personal Protective Equipment is needed. Triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Air-Purifying Respirator with cartridge appropriate for Mercury. In the event of a release over 1 pound or when concentration of oxygen in atmosphere is less than 19.5% or unknown, the level "B" Personal Protective Equipment which includes Self-Contained Breathing Apparatus must be worn.

Emergency procedures: Ventilate area.

Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

Methods and material for containment and cleaning up

There are a variety of methods which can be used to clean-up Mercury spills. Always use appropriate protective eyewear, gloves, and clothing. (Refer to Section 8 of the SDS). Use a commercially available Mercury Spill Kit for small spills. A suction pump with aspirator can also be used during clean-up operations. For larger release, a Mercury vacuum can be used. Never use a regular vacuum or a broom. Calcium polysulfide or excess sulfur (or flowers of sulfur) can also be used in clean-up. Mercury can migrate into cracks and other difficult to clean areas; calcium polysulfide and sulfur can be sprinkled effectively into these areas. Decontaminate the area thoroughly. The area should be inspected visually and with colorimetric tubes for Mercury to ensure all traces have been removed prior to re-occupation by non-emergency personnel. Thoroughly decontaminate all equipment used in response. If such equipments cannot be adequately decontaminated, it must be discarded with other spill residue. Place all spill residues in an appropriate container, seal immediately, and label appropriately. Dispose of in accordance with federal, state and local hazardous waste disposal requirements. (Refer to Section 13 of this SDS).

Reference to other sections

Section 8: Exposure controls/personal protection

Section 13: Disposal considerations

SECTION 7: Handling and storage

Precautions for safe handling

Handle and store thermometer in such a way to prevent breakage. If thermometer breaks, mercury will be released. Avoid getting Mercury ON YOU or IN YOU. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Report all mercury releases promptly. Storage containers for thermometers must be properly labeled.

Hygiene measures

Do not eat, drink or smoke when using this product. Always wash hands and face immediately after handling this product, and again before leaving the workplace. Remove contaminated clothing immediately.

Conditions for safe storage, including any incompatibilities

Store thermometer in such a way to prevent breakage. Store away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from materials incompatible with Mercury (see Section 10 of this SDS). Store in area that will secure mercury if thermometer is broken in storage. Post warning signs as needed. Inspect all incoming containers with thermometers carefully for breakage. If breakage is suspected, use proper protective equipment (see Section 8 of this SDS) and containment. Store and handle in well ventilated areas.

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SECTION 8: Exposure controls/personal protection

Control Parameters:

Mercury (CAS No. 7439-97-6)		
USA NIOSH	NIOSH Ceiling (C) (mg/m3)	0.1 mg/m3
USA OSHA	OSHA TWA (mg/m3)	0.05 mg/m3
USA ACGIH	ACGIH TWA (mg/m3)	0.025 mg/m3, (skin)A4 (Not classifiable as a human carcinogen)

Appropriate Engineering controls

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to ensure exposure is below occupational exposure limits (where available). Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal Protective Equipment (if thermometer breaks)

If thermometer breaks, avoid all unnecessary exposure. Gloves. Protective clothing. Safety glasses or goggles. Respiratory protection and if operation involves use of more than 1 pound of Mercury, a faceshield is recommended.



Hand Protection: Wear gloves impermeable and resistant to mercury. Neoprene gloves are recommended for routine industrial use. Use triple gloves for spill response, as stated in Section 6 of this SDS. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves.

Eye Protection: Splash goggles or safety glasses. For operations involving the use of more than 1 pound of mercury, or if the operation may generate a spray of mercury, the use of a faceshield is recommended.

Respiratory Protection: Maintain airborne contaminants concentration below provided exposure limits. If respiratory protection is needed, use only protection authorized by 29 CFR 1910.134 or applicable state regulations. Use supplied air respiration protection if oxygen levels are below 19.5% or are unknown.

Skin and Body Protection: Use body protection appropriate to the task (lab coat, coveralls, or Tyvek suit).

General hygienic measures: Do not eat, drink, or smoke during use. Perform routine housekeeping. Wash hands before breaks and immediately after handling the product. If thermometer breaks, avoid getting mercury ON YOU or IN YOU. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before re-wearing.

SECTION 9: Physical and chemical properties

Appearance (physical state, color)	Silver-white liquid	Explosion Limit (upper and lower)	Not Determined
Odor	Odorless	Vapor pressure	< 0.01 hPa at 20 °C
Odor threshold	Not Applicable	Vapor density	6.93 (Air = 1.0)
pH value	Not Applicable	Relative density	13.55 g/cm3 at 25 °C
Melting/Freezing point	-38.87 °C	Solubilities (at 25 °C)	Soluble in water: 0.00006g/l
Boiling point/ Boiling range	356.6 °C	Partition coefficient (n-octanol/water)	Not Determined
Flash point	Not Determined	Auto/Self-ignition temperature	Not Determined
Evaporation rate	Not Determined	Decomposition temperature	Not Determined
Flammability (solid, gaseous)	Not Determined	Viscosity (kinematic)	Not Determined
Upper.Lower flammability limits	Not Determined	Viscosity (dynamic)	Not Determined

SECTION 10: Stability and reactivity

Reactivity: Nonreactive under normal conditions. If thermometer is broken, mercury can react with many metals (i.e. calcium, lithium, potassium, sodium, rubidium, aluminum, gold, silver) to form amalgams.

Chemical stability: Stable under normal conditions of use.

Possibility of hazardous reactions: None under normal conditions. Hazardous polymerization will not occur.

Conditions to avoid: Intact thermometer should not be exposed to hydrofluoric acid. Avoid Excessive heat, sources of ignition, direct sunlight and extremely high or low temperatures. If broken, avoid materials incompatible with mercury.

Incompatible materials: acetylene and acetylene derivatives, amines, ammonia, 3-bromopropyne, boron diiodophosphide, methyl azide, sodium carbide, heated sulfuric acid, methylsilane/oxygen mixtures, nitric acid/alcohol mixtures, tetracarbonylnickel/oxygen mixtures, alkyne/silver perchlorate mixtures, halogens (i.e. chlorine, bromine) and strong oxidizers (i.e. chlorine dioxide, perchlorates). Mercury can attack copper and copper alloys. Mercury can react with many metals to form amalgams.

Hazardous decomposition products: If thermometer is broken, toxic vapors of mercury and mercury oxides.

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SECTION 11: Toxicological information

Acute toxicity: Inhalation (7439-97-6) LC50 Inhalation – rat – male – 2h < 27 mg/m3. Fatal if inhaled.

Skin corrosion/irritation: Not classified. pH: Not applicable

Serious eye damage/irritation: Not classified. pH: Not applicable

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: No classified (Based on available data, the classification criteria are not met).

Carcinogenicity: Not classified (Mercury 7439-97-6 IARC Group 3)

Reproductive toxicity: May damage fertility or the unborn child.

Specific target organ toxicity- (single exposure): Not classified.

Specific target organ toxicity- (repeated exposure): (7439-97-6) Causes damage to organs through prolonged or repeated exposure.

See Section 4 of the SDS for most important symptoms and effects, both acute and delayed for inhalation, skin contact, eye contact, ingestion and chronic symptoms of mercury exposure.

SECTION 12: Ecological information

Exotoxicity

LD50 Fish: 0.5 mg/l (Exposure time: 96 h – Species: Cyprinus carpio)

EC50 Daphnia: 5.0 microgram/l (Exposure time: 96 h – Species: water flea)

LC50 Fish: 0.16 mg/l (Exposure time: 96 h – Species: Cyprinus carpio [semi-static])

Persistence and degradability: May cause long-term adverse effects in the environment.

Bioaccumulative potential: 7439-97-6 Carassius auratus (goldfish) – 1,789 d – 0.25 microgram/l.
7439-97-6 Bioconcentration factor (BCF): 155,986

Mobility in soil: No additional information available.

Other adverse effects: Avoid release to the environment.

SECTION 13: Disposal considerations

Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Mercury and mercury products should never be disposed of with household garbage. Waste disposal must be in accordance with appropriate federal, state, and local regulations. The elemental mercury, in the thermometer, should be recycled. Recycle at a licensed and permitted recycling facility. If the mercury is contaminated by the glass, it may need to be disposed of as hazardous waste. Either way it must be handled at a permitted facility or as advised by your local hazardous waste regulatory authority. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11).

Ecology – waste materials: Hazardous waste due to toxicity. Avoid release to the environment.

SECTION 14: Transport information

UN-Number: UN3506

UN proper shipping name: Mercury contained in Manufactured Articles

Transport hazard class(es):

Hazard labels (DOT): 8- Corrosive substances
6.1- Toxic substances*

***Special Provisions:** A191



DOT Packing Group: III

DOT Packaging: 49 CFR 173.164

Additional Information: In accordance with 49 CFR 172.101, Column 1 shows an A and a W. The A and W indicate these items are only regulated as a hazardous material if shipped by air or water. The exception to this rule is that if the thermometer meets the definition of a hazardous waste- if the thermometer is broken (required on a manifest by 40 CFR 262.40) or a hazardous substance (which exceeds the Reportable Quantity of 1 lb. for mercury), then the shipment is a regulated hazardous material. If shipping an intact thermometer or thermometers via common carrier and by ground service, and there is less than 1 pound of mercury in the total number of thermometers, the shipment is not regulated as a hazardous material.

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SECTION 15: Regulatory information

United States (USA)

SARA Section 304: Reportable Quantity 1 pound. The Superfund Amendments and Reauthorization Act (SARA) section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40).

SARA Section 311/312 (Specific toxic chemical listings): Acute, Chronic

SARA Section 313 (Specific toxic chemical listings): 7439-97-6 Mercury

RCRA (hazardous waste code): Mercury Code: U151

TSCA (Toxic Substances Control Act): All ingredients are listed.

EPA TSCA Regulatory Flag: S-S- indicates a substance that is identified in a proposed or final Significant New Uses Rule.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): 7439-97-6 Mercury 1 lb.

Proposition 65 (California)

Chemicals known to cause cancer: None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients is listed.

Chemicals known to cause developmental toxicity: Mercury and mercury compounds.

Canada

Canadian Domestic Substances List (DSL): All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%): 7439-97-6 Mercury

Canadian NPRI Ingredient list (limit 1%): None of the ingredients is listed.

Other Information

This thermometer/thermometers not to be offered for sale into any state where the sale of mercury-in-glass thermometers is prohibited.

SECTION 16: Other information

Full text of H-phrases: see section 3

Acute Tox. 2 (Inhalation)	Acute toxicity (inhalation) Category 2
Repr.1B	Reproductive toxicity Category 1B
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
Aquatic Acute 1	Hazardous to the aquatic environment- Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment- Chronic Hazard, Category 1
H330	Fatal if inhaled
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Other Information

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Prepared: May 29, 2015

Effective Date: May 29, 2015

No previous publication of SDS by Miller & Weber, Inc.