

MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

SRM Number: 743
MSDS Number: 743
SRM Name: Mercury (Triple Point)

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Telephone: 301-975-2200
FAX: 301-948-3730
E-mail: SRMMSDS@nist.gov

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

Description: This Standard Reference Material (SRM) is intended primarily for use in calibrating temperature measuring devices in accordance with the International Temperature Scale (ITS-90). A unit of SRM 743 consists of approximately 680 g (50 mL) of pure mercury packaged in an argon-filled soft-glass ampoule.

Substance: Mercury

Other Designations: Quicksilver; liquid silver; hydrargyrum

2. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0-4): Health = 2 Fire = 0 Reactivity = 0

Major Health Hazards: Damage to the nervous system, kidneys, and lungs caused by mercury poisoning.

Physical Hazards: There are no known physical hazards associated with this material.

Potential Health Effects (Acute and Chronic)

Inhalation: Difficult breathing, headache, chest pain, cough, nausea, vomiting; at higher exposure levels, inflammation of the lungs, pulmonary edema, pneumothorax, central nervous system disturbances, and death. Chronic exposure can also damage the kidneys, gastrointestinal tract, and reproductive system.

Skin Contact: Exposure to intact skin may result in redness, pain, skin burns, and sensitization. Long-term exposure may result in effects reported for chronic inhalation.

Eye Contact: Exposure may cause eye redness, pain and blurred vision.

Ingestion: A small ingested dose may have no apparent effect, or it may cause burning of the mouth and throat with thirst, nausea, and vomiting. The effects of a larger dose may be similar to those of inhalation. Chronic ingestion may severely damage the gastrointestinal tract, kidneys, liver, and central nervous system.

Listed as a Carcinogen/Potential Carcinogen

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	_____	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	_____	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	_____	<u> X </u>

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component	CAS Registry	EC Number (EINECS)	Nominal Mass Concentration (%)
Mercury	7439-97-6	231-106-7	100

EC Classification: T+, N

EC Risk (R No.): 26, 48/23, 50/53, 61

EC Safety (S No.): 45, 53, 60, 61

EC Classification, R/S Phrases: See Section 15, "Regulatory Information".

4. FIRST AID MEASURES

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Eye Contact: Immediately flush eyes, including under the eyelids with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Skin Contact: Rinse affected area with copious amounts of water followed by washing with soap and water for at least 15 minutes while removing contaminated clothing. Seek medical attention, if needed.

Ingestion: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Negligible fire hazard.

Extinguishing Media: Regular dry chemical, carbon dioxide, water, regular foam.

Fire Fighting: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point (°C): Not applicable.

Autoignition Temp. (°C): Not applicable.

Flammability Limits in Air

UPPER (Volume %): Not applicable.

LOWER (Volume %): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Occupational Release: Do not touch spilled material. Notify safety personnel of spills. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

Disposal: Refer to Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

Handling and Storage: Store and handle in accordance with all current regulations and standards.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

NIOSH (TWA): 0.5 mg/m³ (vapor)

NIOSH (Ceiling): 0.1 mg/m³

Potential for dermal absorption.

NIOSH (IDLH): 10 mg/m³

ACGIH (TWA): 0.025 mg/m³

Skin – potential significant contribution to overall exposure by the cutaneous route.

OSHA (Ceiling): 0.1 mg/m³

Ventilation: Use local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Respirator: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29 CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye Protection: Wear chemical safety goggles. An eyewash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and chemically resistant gloves to prevent skin exposure.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data:

Fish Toxicity: Common carp (*Cyprinus carpio*) LC₅₀: 0.5 mg/L (96 h)
Common carp (*Cyprinus carpio*) LC₅₀ (static): 0.18 mg/L (96 h)
Invertebrate: Water flea (*Daphnia magna*) EC₅₀: 5 µg/L (96 h)

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local requirements. Subject to disposal regulations: U.S. EPA 40 CFR 262, Hazardous Waste Numbers: U151 and D009, Regulatory level: 0.2 mg/L.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: Mercury, Hazard Class 8, UN2809, Packing Group III.

15. REGULATORY INFORMATION

U.S. Regulations

CERCLA Sections 102a/103 (40 CFR 302.4): 1 lb (0.454 kg) final RQ.
SARA Title III Section 302 (40 CFR 355.30): Not regulated for this material.
SARA Title III Section 304 (40 CFR 355.40): Not regulated for this material.
SARA Title III Section 313 (40 CFR 372.65): 1 % Supplier notification limit.
OSHA Process Safety (29 CFR 1910.119): Not regulated for this material.
SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE:	Yes
CHRONIC:	Yes
FIRE:	No
REACTIVE:	No
PRESSURE:	No

State Regulations

California Proposition 65: Warning! This product contains a chemical (mercury) known to the state of California to cause reproductive/developmental effects.

Canadian Regulations

WHMIS Classification: Not provided for this material.

European Regulations

EC Classifications:

T+: Very Toxic
N: Dangerous for the Environment

EC Risk Phrases:

R26 - Very toxic by inhalation.
R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R50 - Very toxic to aquatic organisms.
R53 - May cause long-term adverse effects in the aquatic environment.
R61 - May cause harm to unborn child.

EC Safety Phrases:

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53 - Avoid exposure – obtain special instructions before use.
S60 - This material and its container must be disposed of as hazardous waste.
S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

National Inventory Status

U.S. Inventory (TSCA): Mercury is listed.

TSCA 12(b); Export Notification: Section 5, 1 % de minimis concentration.

16. OTHER INFORMATION

Sources: ChemAdvisor, Inc., MSDS *Mercury*, 18 June 2012.

EC; European Chemical Substance Information System (ESIS), *Mercury*, CAS No. 7439-97-96; available at <http://esis.jrc.ec.europa.eu/index.php?PGM=ein> (accessed July 2012).

National Institute of Occupational Safety and Health (NIOSH), *Mercury*, CAS No. 7439-97-96; available at <http://www.cdc.gov/niosh-rtecs/OV456D70.html> (accessed July 2012).

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data in the MSDS. The certified values for this material are given in the NIST Certificate.