

# Material Safety Data Sheet

## Mercury, 99.999%

MSDS Number: M1001  
Effective Date: 6/2/2004

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Mercury, 99.999%

**Synonyms:** Quicksilver; Hydrargyrum; Liquid Silver

**Company Identification:**

VEE GEE Scientific, Inc.  
13600 NE 126th PI Ste A  
Kirkland, WA 98034

**For information in North America, call:** 425-823-4518

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7439-97-6	Mercury	99.999	231-106-7

**Hazard Symbols:** T

**Risk Phrases:** 23 33 50/53

### Section 3 - Hazards Identification

#### Emergency Overview

**Appearance:** Silver liquid. May cause central nervous system effects. May be absorbed through intact skin. This substance has caused adverse reproductive and fetal effects in animals. Inhalation of fumes may cause metal-fume fever. Harmful if inhaled. Possible sensitizer. May cause liver and kidney damage. **Danger!** Corrosive. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Causes eye and skin irritation and possible burns.

**Target Organs:** Blood, kidneys, central nervous system, liver, brain.

#### Potential Health Effects

**Eye Contact:** Causes irritation and burns to eyes. Symptoms include redness, pain, blurred vision; may cause serious and permanent eye damage.

**Skin Contact:** Causes irritation and burns to skin. Symptoms include redness and pain. May cause skin allergy and sensitization. Can be absorbed through the skin with symptoms to parallel ingestion.

**Ingestion:** May cause burning of the mouth and pharynx, abdominal pain, vomiting, corrosive ulceration, bloody diarrhea. May be followed by a rapid and weak pulse, shallow breathing, paleness, exhaustion, tremors and collapse. Delayed death may occur from renal failure. Gastrointestinal uptake of mercury is less than 5% but its ability to penetrate tissues presents some hazard. Initial symptoms may be thirst, possible abdominal discomfort.

**Inhalation:** Mercury vapor is highly toxic via this route. Causes severe respiratory tract damage. Symptoms include sore throat, coughing, pain, tightness in chest, breathing difficulties, shortness of breath, headache, muscle weakness, anorexia, gastrointestinal disturbance, ringing in the ear, liver changes, fever, bronchitis and pneumonitis. Can be absorbed through inhalation with symptoms similar to ingestion.

**Chronic Exposure:** Chronic exposure through any route can produce central nervous system damage. May cause muscle tremors, personality and behavior changes, memory loss, metallic taste, loosening of the teeth, digestive disorders, skin rashes, brain damage and kidney damage. Can cause skin allergies and accumulate in the body. Repeated skin contact can cause the skin to turn gray in color. A suspected reproductive hazard; may damage the developing fetus and 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 4 - First Aid Measures

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Ingestion:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** The concentration of mercury in whole blood is a reasonable measure of the body-burden of mercury and thus is used for monitoring purposes. Treat symptomatically and supportively. Persons with kidney disease, chronic respiratory disease, liver disease, or skin disease may be at increased risk from exposure to this substance.

**Antidote:** The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel. The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel.

## Section 5 -

## Fire Fighting Measures

**General Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Undergoes hazardous reactions in the presence of heat and sparks or ignition. Smoke may contain toxic mercury or mercuric oxide. Smoke may contain toxic mercury or mercuric oxide.

**Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. Do not allow water runoff to enter sewers or waterways.

**Explosion:** Not considered to be an explosion hazard.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 0

## Section 6 -

## Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

## Section 7 -

## Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale. Use only in a chemical fume hood. Discard contaminated shoes. Do not breathe vapor.

**Storage:** Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Store protected from azides.

## Section 8 -

## Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs	OSHA - Vacated Pels
Mercury	0.025 mg/m3 TWA; skin - potential for cutaneous absorption	0.05 mg/m3 TWA (vapor) 10 mg/m3 IDLH	1 mg/10m3 Ceiling (vapor)	0.05 mg/m3 TWA (vapor)

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

### 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 protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

## Section 9 -

## Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** Silver

**Odor:** Odorless

**pH:** Not available

**Vapor Pressure:** 0.002 mm Hg @ 25° C

**Vapor Density:** 7.0

**Evaporation Rate:** Not available

**Viscosity:** 15.5 mP @ 25° C

**Boiling Point:** 356.72° C

**Freezing/Melting Point:** -38.87° C

**Decomposition Temperature:** Not available

**Solubility:** Insoluble

**Specific Gravity/Density:** 13.59 (water=1)

**Molecular Formula:** Hg

**Molecular Weight:** 200.59

## Section 10 -

## Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** High temperatures, incompatible materials.

**Incompatibilities with Other Materials:** Metals, aluminum, ammonia, chlorates, copper, copper alloys, ethylene oxide, halogens, iron, nitrates, sulfur, sulfuric acid, oxygen, acetylene, lithium, rubidium, sodium carbide, lead, nitromethane, peroxyformic acid, calcium, chlorine dioxide, metal oxides, azides, 3-bromopropyne, alkynes + silver perchlorate, methylsilane + oxygen, tetracarbonylnickel + oxygen, boron diiodophosphide.

**Hazardous Decomposition Products:** Mercury/mercury oxides.

**Hazardous Polymerization:** Will not occur.

## Section 11 -

## Toxicological Information

**Carcinogenicity:** EPA / IRIS Group D1 - not classifiable

**IARC:** IARC Group 3 - not classifiable

**Epidemiology:** Intraperitoneal, rat: TDLo = 400 mg/kg/14D-I (Tumorigenic - equivocal tumorigenic agent by RTECS criteria - tumors at site of application).

**Teratogenicity:** Inhalation, rat: TCLo = 1 mg/m<sup>3</sup>/24H (female 1-20 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

**Reproductive Effects:** Inhalation, rat: TCLo = 890 ng/m<sup>3</sup>/24H (male 16 week(s) pre-mating) Paternal Effects - spermatogenesis (incl. genetic material, sperm morphology, motility, and count); Inhalation, rat: TCLo = 7440 ng/m<sup>3</sup>/24H (male 16 week(s) pre-mating) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

**Neurotoxicity:** The brain is the critical organ in humans for chronic vapor exposure; in severe cases, spontaneous degeneration of the brain cortex can occur as a late sequela to past exposure.

**Mutagenicity:** Cytogenetic Analysis: Unreported, man = 150 ug/m<sup>3</sup>.

**Other Studies:** No information available.

## Section 12 -

## Ecological Information

**Environmental Toxicity:** This material is expected to be toxic to aquatic life. The LC50/96-hour values for fish are less than 1 mg/l.

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

**Physical:** All forms of mercury (Hg) (metal, vapor, inorganic, or organic) are converted to methyl mercury. Inorganic forms are converted by microbial action in the atmosphere to methyl mercury.

## Section 13 -

## Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed

**RCRA U-Series:** CAS# 7439-97-6: waste number U151

## Section 14 -

## Transport Information

	<b>US DOT</b>	<b>Canada TDG</b>
<b>Shipping Name</b>	Mercury	Mercury
<b>Hazard Class</b>	8	8
<b>UN Number</b>	UN2809	UN2809
<b>Packing Group</b>	III	NA

## Section 15 -

## Regulatory Information

### US Federal

**TSCA:** CAS# 7439-97-6 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 Hazardous Substances and corresponding RQs:** CAS# 7439-97-6: 1 lb final RQ; 0.454 kg final RQ

**SARA Section 302 Extremely Hazardous Substances:** None of the chemicals in this product have a TPQ.

**SARA Codes:** CAS # 7439-97-6: acute, chronic.

**Section 313:** This material contains Mercury (CAS# 7439-97-6, 99.999%), 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. CAS# 7439-97-6 is listed as a Priority Pollutant under the Clean Water Act. CAS# 7439-97-6 is listed as a Toxic Pollutant under the Clean Water Act.

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

**STATE:** CAS# 7439-97-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**WARNING:** This product contains 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.

**Section 15 -****Regulatory Information (continued)****European/International Regulations****European Labeling in Accordance with EC Directives****Hazard Symbols:** T**Risk Phrases:**

R 23 Toxic by inhalation.

R 33 Danger of cumulative effects.

**Safety Phrases:**

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 7 Keep container tightly closed.

**WGK (Water Danger/Protection):** CAS# 7439-97-6: 3**Canada - DSL/NDL:** CAS# 7439-97-6 is listed on Canada's DSL List.**Canada - WHMIS:** This product has a WHMIS classification of D2A, E.**Canadian Ingredient Disclosure List:** CAS# 7439-97-6 is listed on the Canadian Ingredient Disclosure List.**Exposure Limits:** CAS# 7439-97-6: OEL-ARAB Republic of Egypt:TWA 0.05 mg/m<sup>3</sup> OEL-AUSTRALIA:TWA 0.1 mg/m<sup>3</sup>;Skin OEL-BELGIUM:TWA 0.1 mg/m<sup>3</sup>;Skin OEL-FINLAND:TWA 0.05 mg/m<sup>3</sup> OEL-FRANCE:TWA 0.05 mg/m<sup>3</sup>;Skin (vapor) OEL-FRANCE:TWA 0.1 mg/m<sup>3</sup>;Skin OEL-HUNGARY:TWA 0.02 mg/m<sup>3</sup>;STEL 0.04 mg/m<sup>3</sup> OEL-POLAND:TWA 0.05 mg/m<sup>3</sup> OEL-SWEDEN:TWA 0.05 mg/m<sup>3</sup> (vapor) OEL-SWITZERLAND:TWA 0.005 ppm (0.05 mg/m<sup>3</sup>);Skin (vapor) OEL-SWITZERLAND:TWA 0.01 mg/m<sup>3</sup>; Skin OEL-TURKEY:TWA 0.1 mg/m<sup>3</sup>;Skin OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV OEL-AUSTRALIA:TWA 0.05mg(Hg)/m<sup>3</sup>;Skin JANUARY 1993 OEL-BELGIUM:TWA 0.05 mg(Hg)/m<sup>3</sup>;Skin JANUARY 1993 OEL-CZECHOSLOVAKIA:TWA 0.05 mg(Hg)/m<sup>3</sup>;STEL 0.15 mg(Hg)/m<sup>3</sup> OEL-DENMARK:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-FINLAND:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-FRANCE:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-GERMANY:TWA 0.01 ppm (0.1mg(Hg)/m<sup>3</sup>) JANUARY 1993 OEL-HUNGARY:TWA 0.02 mg(Hg)/m<sup>3</sup>;STEL 0.04 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-JAPAN:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-THE NETHERLANDS:TWA 0.05 mg(Hg)/m<sup>3</sup>;STEL 0.15 mg(Hg)/m<sup>3</sup> OEL-THE PHILIPPINES:TWA 0.05 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-POLAND:TWA 0.01 mg(Hg)/m<sup>3</sup> JANUARY 1993 OEL-RUSSIA:TWA 0.05 mg(Hg)**Section 16 -****Additional Information****MSDS Creation Date:** 06/02/2004

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