

MATERIAL SAFETY DATA SHEET

Honeywell ID#: IL-50-001

Business Unit ID#:MS001

Section 1 - Chemical Product and Company Identification

Part Number:IL50-001

Chemical Name: Mercury

Product Use: Glass enclosed mercury switch.

Synonyms/Common Names: Mercury (elemental), mercury atomic, quick silver.

Manufacturer Information

Sensing and Control

Phone #: 800-707-4555

Honeywell Inc.

11 W. Spring

Emergency #: 800-707-4555

Freeport, IL 61032-4353

Section 2 - Composition / Information on Ingredients

CAS #	Component	Percent
7439-97-6	Mercury	100

Section 3 - Hazards Identification

Emergency Overview

Product is supplied as a glass enclosed mercury switch. If glass enclosure is damaged, mercury liquid and/or vapor may be released. Mercury evaporates slowly; spilled mercury forms many tiny droplets that will evaporate faster than a single pool, and can develop significant concentrations of vapor in an unventilated area. Such vapors can be poisonous, especially if inhaled over extended periods. Mercury is a silver colored, liquid, heavy metal. Poison. May be corrosive to some metals. May be harmful or fatal if inhaled. May be absorbed through the skin in harmful amounts. Prolonged or repeated exposure can cause damage to the kidney and the central and peripheral nervous systems. Symptoms can be persistent and/or the onset may be delayed. Contact with the eyes and skin may cause slight irritation.

Potential Health Effects: Eyes

Liquid metallic mercury is slightly irritating to the eyes.

Potential Health Effects: Skin

May be harmful if absorbed through the skin. Prolonged or repeated exposure to metallic mercury may cause slight irritation and may result in allergic skin sensitization. Broken or damaged glass enclosure may result in cuts or abrasions.

Potential Health Effects: Ingestion

Liquid metallic mercury is poorly absorbed through from the gastrointestinal tract, and acute ingestion has been associated with poisoning only in the presence of decreased gut motility.

Potential Health Effects: Inhalation

Mercury vapor is poisonous. Mercury is irritating to the respiratory system. May cause inflammation of the respiratory tract, lung lesions, and acute kidney damage. Inhalation may be fatal as a result of severe pulmonary irritation. Acute mercury poisoning can involve sweating, irritability, insomnia, lethargy, tachycardia, hypertension, and skin rash. Chronic exposure can cause neurobehavioral/psychological changes.

HMIS Ratings: Health: 3* Fire: 0 Reactivity: 0 Pers. Prof.: Safety glasses and impervious gloves; (for damaged enclosures or spill clean up wear chemical goggles and/or face shield, impervious gloves and protective clothing).

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

Section 4 - First Aid Measures

First Aid: Eyes

Flush eyes with plenty of water for 15 minutes. Seek immediate medical attention.

First Aid: Skin

Flush immediately with plenty of water for 15 minutes, and then wash skin thoroughly with soap and water. Remove contaminated clothing and shoes. Seek medical attention if symptoms develop or persist. Dispose of contaminated clothing.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Seek immediate medical attention. Have victim rinse mouth with water. Dilute contents of stomach by administering 8 oz. of water. Never give anything by mouth to a person who is unconscious or convulsing.

First Aid: Inhalation

Remove to fresh air. If breathing has stopped, perform artificial respiration, avoiding mouth-to-mouth contact if possible. Seek immediate medical attention.

First Aid: Notes to Physician

Treat symptomatically.

Section 5 - Fire Fighting Measures

Flash Point: None

Method Used: Not applicable

Upper Flammable Limit (UFL): Not available

Lower Flammable Limit (LFL): Not available

Auto Ignition: Not available

Flammability Classification: Not available

Rate of Burning: Not available

General Fire Hazards

Non-combustible, substance itself does not burn. Glass enclosure may become damaged from excessive heat and release mercury.

Hazardous Combustion Products

Fumes may be toxic and irritating and may include mercury vapors.

Extinguishing Media

Use any media suitable for the surrounding fires.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus. Use water spray to keep fire-exposed containers cool. Isolate hazard area.

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 0 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Section 6 - Accidental Release Measures

Containment Procedures

If mercury is released, stop the flow of material and collect with spill kit, aspiration bottle or approved mercury vacuum, if this is without risk. Wear appropriate personal protective clothing. Do not permit contact with spilled material.

Clean-Up Procedures

Pick up contained material with spill kit. Carefully sweep up broken glass enclosure. Do not allow the spilled product to enter public drainage system or open water courses. Put material in suitable, covered, labeled containers.

Evacuation Procedures

Keep unnecessary personnel away. Close off area.

Special Procedures

Wear adequate personal protective equipment. Avoid inhalation of dusts. Ventilate the area.

Section 7 - Handling and Storage

Handling Procedures

Handle this product in a manner to prevent damage to the glass enclosure. Do not get mercury or broken glass in eyes, on skin, or on clothing. Do not breathe fumes or vapors from this material if glass enclosure is damaged or broken. Use this product only with adequate ventilation. Keep this product from heat. Damaged glass enclosures may retain product residue and should be carefully discarded. Discard contaminated clothing. Wash thoroughly after handling.

Storage Procedures

Store in a cool, dry, well-ventilated area away from heat. Store this product in a manner to prevent damage to the glass enclosure. Limit quantity of material in storage and restrict access to storage area. Keep away from food and drinking water.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits below. The OSHA air contaminants exposure limit (PEL) in the 1989 update to 29 CFR 1910.1000 was .05 mg/m³. This limit was vacated and may not be enforceable.

B: Component Analysis

Mercury (CAS # 7439-97-6) Current Standards:

ACGIH TLV: Inorganic forms including metallic mercury 0.025 mg/m³ TWA

as Hg: skin - potential for skin absorption

OSHA PEL: vapor, as Hg: Ceiling: 0.1 mg/m³

Prevent or reduce skin absorption

NIOSH REL: 0.05 mg/m³ TWA skin

Potential for skin absorption

Engineering Controls

Use local exhaust and process enclosure to control airborne mists and vapors. Use of a corrosion-resistant ventilation system is recommended.

Personal Protective Equipment: Eyes/Face

Safety glasses with side shields. For handling damaged glass enclosures, or for spill clean up, wear chemical goggles and/or face shield.

Personal Protective Equipment: Skin

Wear impervious gloves. For handling damaged glass enclosures or for spill clean up, clothing should be worn to prevent all skin contact. It is suggested that gloves be tested for suitability.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively remove and prevent accumulation of airborne vapors, mists or fumes containing mercury, appropriate NIOSH/MSHA respiratory protection must be provided.

Personal Protective Equipment: General

Do not eat, drink or smoke in work areas. Follow good hygiene and housekeeping practices.

Section 9 - Physical & Chemical Properties

Appearance:	Glass enclosed switch containing mercury	Odor:	None
Physical State:	Glass switch with liquid mercury	Vapor Pressure:	0.0012 mm Hg @ 20 °C (mercury)
Flash Point:	None	Boiling Point:	356.72 °C (mercury)
Melting Point:	-38.87 °C (mercury)	Specific Gravity:	13.5 (water=1) (mercury)
Vapor Density:	7.0 (air=1) (mercury)	Freezing Point:	Not available
Evaporation Rate:	4 (butyl acetate=1) (mercury)	Molecular Weight:	200.59 (mercury)

Section 10 - Chemical Stability & Reactivity Information**Chemical Stability**

Normally stable.

Chemical Stability: Conditions to Avoid

Avoid heat and contact with incompatible materials.

Incompatibility

Mercury and mercury vapor is incompatible with acetylene, aluminum, amines, azides, ammonia, boron, diiodophosphide, bromine, 3-bromopropyne, calcium, chlorine, chlorine dioxide, copper, ethylene oxide, lithium, acids, oxidants, potassium and sodium. Mercury reacts with many metals, except iron, to form amalgams.

Hazardous Decomposition

Toxic mercury vapors.

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information**Acute Toxicity****A: General Product Information**

As supplied, this product is not hazardous. However, any damage to the glass enclosure may release mercury liquid and/or vapors which can be extremely hazardous. Exposure to mercury can cause conjunctivitis, corneal damage, irritation to the skin, mouth, esophagus and stomach. Other symptoms can include irritation of the respiratory tract, mucous membranes, epistaxis, headache, nausea, and vomiting. Systemic effects can include muscular irritability and kidney damage. Exposure to mercury can result in adverse effects in the central and peripheral nervous systems. May cause metal fume fever which is a transient flu-like condition including fever, sweating, aches and pains and difficulty in breathing. Inhalation may be fatal as a result of severe pulmonary irritation. Acute mercury poisoning can involve sweating, irritability, insomnia, lethargy, tachycardia, hypertension, and skin rash. Due to the long biological half-life of mercury, symptoms may persist and onset may be delayed. In acute inhalation assays, exposure to mercury vapor has produced severe damage to the kidneys, liver, brain, heart, lung and colon in experimental animals. In subchronic inhalation studies, mercury vapor has produced severe damage to the kidney, lung and brain of experimental animals in six weeks. Mercury has been reported to cause skin sensitivity in experimental animals.

B: Component LD50/LC50

No information is available.

Carcinogenicity**A: General Product Information**

No information available. Not listed on NTP, OSHA or IARC Lists of Carcinogens.

B: Component Analysis**Mercury (7439-97-6)**

ACGIH: as Hg: A4-not classifiable as a human carcinogen

Epidemiology

No information available.

Neurotoxicity

Exposure to mercury can cause toxicity to the central nervous system, characterized by tremor, ataxia and loss of coordination, and to the peripheral nervous system including decreased strength, sensation and abnormal reflex responses. Other symptoms include depression, insomnia, increased irritability, paranoia, mania and continued nerve degeneration even after exposure has ceased.

Mutagenicity

Mercury has been reported to cause mutations and/or DNA damage in bacterial and mammalian cell cultures. Occupational exposures to mercury have been associated with a slight increase in the number of observed chromosomal aberrations.

Teratogenicity

Mercury has been reported to cause reduced male and female fertility, and birth defects including central nervous system defects, cleft palate and skeletal defects in humans, however the information supporting these findings is limited.

Other Toxicological Information

None

Section 12 - Ecological Information

Ecotoxicity

Due to the nature of mercury, it is expected to be harmful to aquatic life in low concentrations.

Fish: LC50 (96 hr) Catfish, 0.35 mg/L.
LC50(96 hr) Bluegill sunfish, Rainbow trout, Snakehead fish, 0.16 - 0.9 mg/L

Invertebrate: LC50 (48 hr) Modiolus carvalhoi (mollusk), 0.5 ppm.
LC50 (96 hr) Modiolus carvalhoi (mollusk), 0.19 ppm.
LC50 (96 hr) Lymnaea acuminata, Mais communis, Ilyodrilus frantzi, Aplexa hypnorum, 0.023 - 0.36 mg/L

Amphibian: LC50 (96 hr) Rana hexadactyla (tadpole), 0.051 ppm.

Environmental Fate

Aquatic fate of mercury: Mercury can be desorbed into the water column, transported by water (probably bound or chelated to some fine particles or dissolved substances) and redeposited on the bed sediment. Mercury bioaccumulates and concentrates in the food chain. The mercury bioconcentration may be as much as 10,000 times that of water. Mercury can also be transformed into methylmercury in the aquatic environment. This form is much more toxic than Hg itself.

Atmospheric fate of mercury: 50% of the volatile form is mercury vapor with a sizable portion of the remainder being Hg (II) and methyl mercury. 25 to 50% of mercury in water is organic. Mercury in the environment is deposited and revolatilized many times, with a residence time in the atmosphere of at least a few days. In the volatile phase it can be transported hundreds of kilometers.

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions

A: General Product Information

Wastes may require an EPA waste code for corrosivity (D002). Mercury should be salvaged for purification. Do not discharge mercury down the drain.

B: Component Analysis

Mercury (7439-97-6)

RCRA: waste number U151
waste number D009; regulatory level = 0.2 mg/L

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations. Waste should be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

Section 14 - Transportation Information

US DOT Information

Mercury contained in manufactured articles are not regulated when the amount of mercury per package is less than the reportable quantity of one pound, except when shipped by air.

When shipped by air, this product is fully regulated, even though it may contain only small amounts of mercury. The proper shipping description for this material, when shipped by air, is:

MERCURY CONTAINED IN MANUFACTURED ARTICLES, 8, UN2809, III.

If the shipment contains more than one pound of mercury, (air or ground transportation) then the proper shipping description is:

RQ, MERCURY CONTAINED IN MANUFACTURED ARTICLES, 8, UN2809, III.

Section 15 - Regulatory Information

US Federal Regulations

A: General Product Information

No additional information.

B: Component Analysis

Mercury (7439-97-6)

SARA 313: form R reporting required for 1.0% de minimus concentration

CERCLA: final RQ = 1 pound (0.454 kg)

State Regulations

A: General Product Information

No additional information.

B: Component Information

Component	CAS #	CA	FL	MA	MN	NJ	PA
Mercury	7439-97-6	Y	Y	Y	Y	Y	Y

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Other Regulations

A: General Product Information

No additional information.

B: Component Inventory Status

Component	CAS #	TSCA	DSL	EINECS
Mercury	7439-97-6	Yes	Yes	Yes

C: Component Information (Canada)

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	%	Minimum Concentration
Mercury	7439-97-6	100	0.1% item 990 (1080)

D. Product Labeling

Many states and other countries have passed or are proposing legislation which requires labeling of mercury containing products. You are responsible for making sure these labeling requirements are followed for your product and packaging.

Section 16 - Other Information

The information contained herein is based upon current available scientific information and manufacturers data. The descriptions contained herein represent the majority of use for this product. Abuse or unforeseen circumstances are not addressed. Information may be developed from time to time which may render the conclusions of this report obsolete. Honeywell makes no warranties to its customers, agents employees, or contractors as to the applicability of this information to the users intended purpose or for the consequences for its use or misuse. While we provide application assistance, personally and through our literature and Honeywell website, it is up to the customer to determine the suitability of the product in the application.

MSDS History: Issue Date: 11/05/1985
Revision No.: 8
Revision Date: 12/13/2001

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

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