



Thimerosal

Effective Date: 22-Dec-1999

Eli Lilly and Company
Material Safety Data Sheet

Section 1 - Chemical Product and Company

Manufacturer:

Eli Lilly and Company
 Lilly Corporate Center
 Indianapolis, IN 46285

Manufacturer's Emergency Phone:

1-317-276-2000

CHEMTREC:

1-800-424-9300 (North America)

1-703-527-3887 (International)

Common Name: Thimerosal

CAS Number(s): 54-64-8

EC Number: 2002-10-4

EC Index Number: 080-004-00-7

Chemical Name: Mercurate(1-), ethyl[2-(mercapto-kappaS)benzoato(2-)-kappaO]-, sodium

Chemical Family: Organomercurial salt

Chemical Formula: C₉ H₉ Hg O S₂ . Na

Molecular Weight: 404.800000

Synonym(s): Benzoic acid, 2-mercapto-, mercury complex

Trademarks(s): Merthiolate Plus; Merthiolate Plus Y; Mertilly; Merthiolate

Lilly Serial Number(s): 006739

Lilly Item Code(s): ID3025; PO0020; QA041U

See attached glossary for abbreviations.

Section 2 - Composition / Information on Ingredients

Ingredient

Thimerosal

CAS

54-64-8

Thimerosal contains 49.6% w/w organically-bound mercury.

Exposure Guidelines: Thimerosal - No known occupational exposure limits established.

Mercury - (Alkyl compounds, as Hg) PEL 0.01 mg/m³ TWA, 0.4 mg/m³ ceiling. (Aryl compounds, as Hg) TLV 0.1 mg/m³ TWA (skin). BEI 35 micrograms total inorganic mercury per gram of creatinine sampled in urine before the shift. BEI 15 micrograms of total inorganic mercury per liter of blood sampled at the end of shift at the end of workweek.

UK- (Alkyl compounds, as Hg) Exposure Standard 0.01 mg/m³ TWA, 0.03 mg/m³ STEL (skin).

Ireland - (Alkyl compounds, as Hg) Occupational Exposure Limit 0.01 mg/m³ TWA, 0.03 mg/m³ 15-minute STEL (skin).

France - (Alkyl compounds as Hg) Occupational Exposure Limits 0.01 mg/m³ (VME) TWA (skin).

Germany - (Organic mercury compounds, as Hg) TRGS 900 Limit Value 0.01 mg/m³ TWA, 15-minute limit not to exceed 4 times MAK (skin).

Section 3 - Hazards Identification

Appearance: Light cream-colored crystalline powder

Physical State: Solid

Odor: Faint metallic odor/taste

Emergency Overview



Special
R = Reproductive
A = Allergen

Emergency Overview Effective Date: 08-Dec-1999

Lilly Laboratory Labeling Codes:

Health 2

Fire 1

Reactivity 0

Special R, A

Primary Physical and Health Hazards: Skin Permeable. Toxic. Mutagen. Irritant (eyes). Allergen. Nervous System and Reproductive Effects.

Caution Statement: Thimerosal may enter the body through the skin, is toxic, alters genetic material, may be irritating to the eyes, and causes allergic reactions. Effects of exposure may include numbness of extremities, fetal changes, decreased offspring survival, and lung tissue changes.

Routes of Entry: Inhalation and skin absorption.

Effects of Overexposure: Topical allergic dermatitis has been reported. Thimerosal contains mercury. Mercury poisoning may occur and topical hypersensitivity reactions may be seen. Early signs of mercury poisoning in adults are nervous system effects, including narrowing of the visual field and numbness in the extremities. Exposure to mercury in utero and in children may cause mild to severe mental retardation and mild to severe motor coordination impairment. Based on animal data, may be irritating to the eyes.

Medical Conditions Aggravated by Exposure: Hypersensitivity to mercury.

Carcinogenicity: No carcinogenicity data found. Not listed by IARC, NTP, ACGIH, or OSHA.

Section 4 - First Aid Measures

Eyes: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. See an

ophthalmologist (eye doctor) or other physician immediately.

Skin: This product is intended for topical application to the skin. However, in case of unintentional exposure, especially to large areas of skin, wash with soap and water. If symptoms develop consult a physician.

Inhalation: Move individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, provide artificial respiration assistance (mouth-to-mouth) and call a physician immediately.

Ingestion: Call a physician or poison control center. Drink one or two glasses of water and give 1-2 tablespoons syrup of ipecac to induce vomiting. Do not induce vomiting or give anything by mouth to an unconscious person. Use of chelating agents such as BAL may be needed to treat ingestion of mercury. Immediately transport to a medical care facility and see a physician.

Section 5 - Fire Fighting Measures

Flash Point: No applicable information found

UEL: No applicable information found

LEL: No applicable information found

Extinguishing Media: Use water, carbon dioxide, dry chemical, foam, or Halon.

Unusual Fire and Explosion Hazards: As a finely divided material, may form dust mixtures in air which could explode if subjected to an ignition source.

Hazardous Combustion Products: May emit toxic mercury fumes when heated to decomposition.

Section 6 - Accidental Release Measures

Spills: Wear protective equipment, including eye protection, to avoid exposure (see Section 8 for specific handling precautions). This material is a mercury compound which are CERCLA Hazardous Substances and SARA 313 Toxic Chemicals. Vacuum material with appropriate dust collection filter in place. Be aware of potential for dust explosion when using electrical equipment. If vacuum is not available, lightly mist material and remove by sweeping or wet wiping.

Section 7 - Handling and Storage

Storage Conditions: Warehouse: 10 to 40 C (45 to 104 F).

Section 8 - Exposure Controls / Personal Protection

See Section 2 for Exposure Guideline information.

Under normal use and handling conditions, no protective equipment is required. The following is recommended for a production setting:

Respiratory Protection: Use an approved HEPA-filtered or supplied-air respirator.

Eye Protection: Chemical goggles and/or face shield.

Ventilation: Laboratory fume hood or local exhaust ventilation.

Other Protective Equipment: Chemical-resistant gloves and body covering to minimize skin contact. If handled in a ventilated enclosure, as in a laboratory setting, respirator and goggles or face shield may not be required. Safety glasses are always required.

Additional Exposure Precautions: In production settings, airline-supplied, hood-type respirators are preferred. Shower and change clothing if skin contact occurs.

Section 9 - Physical and Chemical Properties

Appearance: Light cream-colored crystalline powder

Odor: Faint metallic odor/taste

Boiling Point: No applicable information found

Melting Point: Starts to decompose at about 230 C (446 F)

Specific Gravity: No applicable information found

pH: 6.7 (1% aqueous)

Evaporation Rate: No applicable information found

Water Solubility: Soluble

Vapor Density: No applicable information found

Vapor Pressure: No applicable information found

Section 10 - Stability and Reactivity

Stability: Stable at normal temperatures and pressures.

Incompatibility: May react with strong oxidizing agents (e.g., peroxides, permanganates, nitric acid, etc.).

Hazardous Decomposition: May emit toxic mercury fumes when heated to decomposition.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

Acute Exposure

Oral: Rat, median lethal dose 73 mg/kg, reduced activity, drooping eyelids, weakness.

Skin: No applicable information found.

Inhalation: No applicable information found.

Intravenous: Rat, median lethal dose estimated greater than 45 mg/kg, mortality.

Skin Contact: Rabbit, nonirritant

Eye Contact: Rabbit, irritant

Chronic Exposure

Thimerosal is a mercuric compound. Toxicity data for thimerosal and mercury are presented.

Target Organ Effects: Thimerosal - Kidney effects (tubule necrosis), lung effects (tissue changes).
Mercury - Nervous system effects (insomnia, tremor, anorexia, weakness, headache), liver effects (jaundice, digestive effects (hypermotility, diarrhea).

Other Effects: Thimerosal - Decreased weight gain.

Reproduction: Thimerosal - Decreased offspring survival.

Mercury - Changes in sperm production, decreased offspring survival, and offspring nervous system effects including mild to severe mental retardation and motor coordination impairment.

Sensitization: No applicable information found.

Mutagenicity: Thimerosal - Mutagenic in mammalian cells. Not mutagenic in bacterial cells.

Section 12 - Ecological Information

Ecotoxicity Data: Thimerosal

Brown trout 48-hour median lethal concentration: 54 mg/L

Brook trout 48-hour median lethal concentration: 74.5 mg/L

Rainbow trout 48-hour median lethal concentration: 21.2 mg/L

Lake trout 48-hour median lethal concentration: 2.13 mg/L

Channel catfish 48-hour median lethal concentration: 5.65 mg/L

Bluegill 48-hour median lethal concentration: 64.5 mg/L

Guppy 24-hour median lethal concentration: 12 mg/L

Environmental Fate: Thimerosal

No applicable information found.

Environmental Summary: Thimerosal - Moderately toxic to slightly toxic in aquatic organisms.

Material is soluble in water and may leach into groundwater.

Section 13 - Disposal Considerations

Waste Disposal: Dispose of any cleanup materials and waste residue according to all applicable laws and regulations.

Section 14 - Transport Information

Regulatory Organizations:

DOT:

Proper Shipping Name: Mercury compound, solid, n.o.s. (Thimerosal)

UN/NA: UN2025

Hazard Class: 6.1

Packing Group: III

ICAO/IATA:

Proper Shipping Name: Mercury compound, solid, n.o.s. (Thimerosal)

UN/NA: UN2025

Hazard Class: 6.1

Packing Group: III

IMO:

Proper Shipping Name: Mercury compound, solid, n.o.s. (Thimerosal)

UN/NA: UN2025

Hazard Class: 6.1

Packing Group: III

Additional Information: Label: 6.1

Section 15 - Regulatory Information

Below is selected regulatory information chosen primarily for possible Eli Lilly and Company usage. This section is not a complete analysis or reference to all applicable regulatory information. Please consider all applicable laws and regulations for your country/state.

U.S. Regulations

Thimerosal

TSCA - Yes

CERCLA - Name on list is mercury compounds.

SARA 302 - Not on this list

SARA 313 - Name on list is mercury compounds. De minimis = 1%

OSHA Substance Specific - No

California Proposition 65 (Cancer/Reproductive) - Name on developmental list is mercury and mercury compounds.

EU Regulations

EC Classification

T+ (Very Toxic)

N (Dangerous for the Environment)

Risk Phrases

R 26/27/28 - Very toxic by inhalation, in contact with skin and if swallowed.

R 33 - Danger of cumulative effects.

R 50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases

S 13 - Keep away from food, drink and animal feedingstuffs.

S 28 - After contact with skin, wash immediately.

S 36 - Wear suitable protective clothing.

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

S 60 - This material and its container must be disposed of as hazardous waste.

S 61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

Section 16 - Other Information

MSDS Sections Revised: Section 1.

As of the date of issuance, we are providing available information relevant to the handling of this material in the workplace. All information contained herein is offered with the good faith belief that it is accurate. THIS MATERIAL SAFETY DATA SHEET SHALL NOT BE DEEMED TO CREATE ANY WARRANTY OF ANY KIND (INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). In the event of an adverse incident associated with this material, this safety data sheet is not intended to be a substitute for consultation with appropriately trained personnel. Nor is this safety data sheet intended to be a substitute for product literature which may accompany the finished product.

For additional information contact:

Eli Lilly and Company
Hazard Communication
317-277-6029

GLOSSARY:

ACGIH = American Conference of Governmental Industrial Hygienists

AIHA = American Industrial Hygiene Association

BEI = Biological Exposure Index

CAS Number = Chemical Abstract Service Registry Number

CERCLA = Comprehensive Environmental Response Compensation and Liability Act (of 1980)

CHAN = Chemical Hazard Alert Notice

CHEMTREC = Chemical Transportation Emergency Center

DOT = Department of Transportation

EC = European Community

EINECS = European Inventory of Existing Chemical Substances

ELINCS = European List of New Chemical Substances

EPA = Environmental Protection Agency

HEPA = High Efficiency Particulate Air (Filter)

IARC = International Agency for Research on Cancer

ICAO/IATA = International Civil Aviation Organization/International Air Transport Association

IEG = Lilly Interim Exposure Guideline

IMO = International Maritime Organization

Kow = Octanol/Water Partition Coefficient

LEG = Lilly Exposure Guideline

LEL = Lower Explosive Limit

MSDS = Material Safety Data Sheet

MSHA = Mine Safety and Health Administration

NA = Not Applicable, except in Section 14 where NA = North America

NADA = New Animal Drug Application

NAIF = No Applicable Information Found

NCI = National Cancer Institute

NIOSH = National Institute for Occupational Safety and Health

NOS = Not Otherwise Specified

NTP = National Toxicology Program

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit (OSHA)

RCRA = Resource Conservation and Recovery Act

RQ = Reportable Quantity

RTECS = Registry of Toxic Effects of Chemical Substances

SARA = Superfund Amendments and Reauthorization Act

STEG = Lilly Short Term Exposure Guideline

STEL = Short Term Exposure Limit

TLV = Threshold Limit Value (ACGIH)

TPQ = Threshold Planning Quantity

TSCA = Toxic Substances Control Act

TWA = Time Weighted Average/8 Hours Unless Otherwise Noted

UEL = Upper Explosive Limit

UN = United Nations

WEEL = Workplace Environmental Exposure Level (AIHA)