

MATERIAL SAFETY DATA SHEET

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Version 1.10

Section 1 - Product and Company Information

Product Name THIMEROSAL
Product Number T5125
Brand SIGMA

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
THIMEROSAL	54-64-8	Yes

Formula C9H9HgO2S.Na
Synonyms ((o-Carboxyphenyl)thio)ethylmercury sodium salt *
Elicide * Ethyl(2-mercaptobenzoato-S)mercury
sodium salt * o-(Ethylmercurithio)benzoic acid
sodium salt * Ethylmercurithiosalicylic acid
sodium salt * Ethylmerkurithiosalicylan sodny
(Czech) * Ethyl (sodium
o-mercaptobenzoato)mercury * Mercurate(1-),
ethyl(2-mercaptobenzoate(2-)-O,S)-, sodium salt *
Mercuriothiolate * Mercury,
ethyl(2-mercaptobenzoate-S)-, sodium sal *
Merfamin * Merthiolate * Merthiolate sodium *
Mertorgan * Merzonin * Merzonin sodium * SET *
Sodium ethylmercuric thiosalicylate * Sodium
o-(ethylmercurithio)benzoate * Sodium
ethylmercurithiosalicylate * Sodium merthiolate *
Thimerosal * Thimerosalate * Thiomersal *
Thiomersalate * Ethylmercurithiosalicylic acid
sodium salt

RTECS Number: OV8400000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment.
Very toxic by inhalation, in contact with skin and if swallowed.
Danger of cumulative effects. Very toxic to aquatic organisms, may
cause long-term adverse effects in the aquatic environment.
Calif. Prop. 65 developmental hazard. Target organ(s): Nerves.
Kidneys. Possible sensitizer.

HMIS RATING

HEALTH: 3*
FLAMMABILITY: 1
REACTIVITY: 1

NFPA RATING

HEALTH: 3
FLAMMABILITY: 1
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

EXPLOSION DATA

Dust Potential: This material, like most materials in powder form, is capable of creating a dust explosion.

FLASH POINT

482 °F 250 °C Method: closed cup

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.1 MG(HG)/M3
Remarks: Skin			
USA	MSHA Standard-air	TWA	0.05 MG(HG)/M3
USA	OSHA.	PEL	8H TWA 0.01 MG(HG)/M3
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	Ceiling	co0.1 MG/M3 (SK)

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid Color: Slightly beige Form: Powder	
Property	Value	At Temperature or Pressure
Molecular Weight	404.81 AMU	
pH	6.7 - 8.2	20 °C Concentration: 10 g/l
BP/BP Range	N/A	
MP/MP Range	234 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	

SG/Density	0.5 g/cm ³	
Bulk Density	500 kg/l	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	482 °F 250 °C	Method: closed cup
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solvent: 0.1 g/ml MeOH Clear	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May discolor on exposure to light.

Materials to Avoid: Strong oxidizing agents, Strong acids, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide
Mercury/mercury oxides., Sulfur oxides

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be fatal if absorbed through skin.

Eye Contact: May cause eye irritation.

Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be fatal if swallowed.

SENSITIZATION

Sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

TARGET ORGAN(S) OR SYSTEM(S)

Nerves. Kidneys.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral

Rat

98 mg/kg
LD50

Intraaural
Child
60 MG/KG
LDLO

Remarks: Gastrointestinal:Nausea or vomiting. Behavioral:Ataxia.
Nutritional and Gross Metabolic:Changes in:Metabolic acidosis.

Oral
Rat
75 mg/kg
LD50

Subcutaneous
Rat
98 MG/KG
LD50

Oral
Mouse
91 mg/kg
LD50

Intraperitoneal
Mouse
54 MG/KG
LD50

Subcutaneous
Mouse
66 MG/KG
LD50

Intravenous
Mouse
45 MG/KG
LD50

Remarks: Kidney, Ureter, Bladder:Changes in tubules (including
acute renal failure, acute tubular necrosis).

IRRITATION DATA

Eyes
Rabbit
0.008 mg
Remarks: Mild irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Species: Rat
Route of Application: Subcutaneous
Dose: 104 MG/KG
Exposure Time: 1Y
Frequency: I
Result: Tumorigenic Effects: Uterine tumors
Tumorigenic:Neoplastic by RTECS criteria. Tumorigenic:Tumors at
site or application.

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 1300 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (6-18D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Rabbit
Dose: 112 MG/KG
Route of Application: Ocular
Exposure Time: (6-18D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

Species: Rabbit
Dose: 65 UG/KG
Route of Application: Ocular
Exposure Time: (6-18D PREG)
Result: Effects on Embryo or Fetus: Fetal death.

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 9 MG/L
Cell Type: lymphocyte
Mutation test: SLN

Species: Mouse
Route: Intraperitoneal
Dose: 45 MG/KG
Mutation test: Micronucleus test

Species: Mouse
Route: Intraperitoneal
Dose: 45 MG/KG
Mutation test: SLN

Species: Hamster
Dose: 125 UG/L
Cell Type: lung
Mutation test: Micronucleus test

Species: Hamster
Dose: 900 UG/L
Cell Type: Embryo
Mutation test: Other mutation test systems

Species: Hamster
Dose: 450 UG/L
Cell Type: Embryo
Mutation test: SLN

Species: Hamster
Dose: 125 UG/L
Cell Type: lung
Mutation test: SLN

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 130 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (6-18D PREG)
Result: Effects on Fertility: Abortion. Effects on Fertility:

Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Mercury compounds, solid, n.o.s.
UN#: 2025
Class: 6.1
Packing Group: Packing Group III
Hazard Label: Toxic Substance
PIH: Not PIH

IATA

Proper Shipping Name: Mercury compound, solid, n.o.s.
IATA UN Number: 2025
Hazard Class: 6.1
Packing Group: III

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T+-N
Indication of Danger: Very toxic. Dangerous for the environment.
R: 26/27/28-33-50/53
Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S: 13-28-36-45-60-61
Safety Statements: Keep away from food, drink, and animal feedingstuffs. After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Very Toxic (EU).
Dangerous for the environment.
Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements: Keep away from food, drink, and animal feedingstuffs. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing. In case of

accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets. US Statements: Calif. Prop. 65 developmental hazard. Target organ(s): Nerves. Kidneys. Possible sensitizer.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

NOTES: This product is subject to SARA section 313 reporting requirements - mercury compounds.

TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65

California Prop - 65: This product is or contains chemical(s) known to the state of California to cause developmental toxicity.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.