1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Thimerosal
Product Number : T5125
Brand : Sigma
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption

Target Organs
Nerves., Kidney

GHS Classification
Acute toxicity, Inhalation (Category 1)
Acute toxicity, Dermal (Category 1)
Acute toxicity, Oral (Category 2)
Eye irritation (Category 2B)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger
Hazard statement(s)
H300 + H310 Fatal if swallowed or in contact with skin
H320 Causes eye irritation.
H330 Fatal if inhaled.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash hands thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.
P284 Wear respiratory protection.
P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if
Present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

HMIS Classification
- Health hazard: 4
- Chronic Health Hazard: *
- Flammability: 1
- Physical hazards: 0

NFPA Rating
- Health hazard: 4
- Fire: 1
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation: May be fatal if inhaled. May cause respiratory tract irritation.
- Skin: May be fatal if absorbed through skin. May cause skin irritation.
- Eyes: May cause eye irritation.
- Ingestion: May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:
- 2-(Ethylmercuriomercapto)benzoic acid sodium salt
- Ethylmercurithiosalicylic acid sodium salt
- Mercury-([o-carboxyphenyl]thio)ethyl sodium salt
- Sodium ethylmercurithiosalicylate

Molecular Weight: 404.81 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thimerosal</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>54-64-8</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-210-4</td>
</tr>
<tr>
<td>Index-No.</td>
<td>080-004-00-7</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides, Sodium oxides, Mercury/mercury oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thimerosal</td>
<td>54-64-8</td>
<td>CEIL</td>
<td>0.1 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>

Remarks
Skin contact does contribute to exposure.

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>0.05 mg/m³</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>0.1 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
</tbody>
</table>

Potential for dermal absorption

Personal protective equipment

Respiratory protection
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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

| Appearance | Form: powder |
| Colour: beige |

<table>
<thead>
<tr>
<th>Safety data</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH: 6.7 - 8.2 at 10 g/l at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Melting point/freezing point: 234 °C (453 °F) - Decomposes on heating.</td>
</tr>
<tr>
<td>Boiling point: no data available</td>
</tr>
<tr>
<td>Flash point: 250 °C (482 °F) - closed cup</td>
</tr>
<tr>
<td>Ignition temperature: no data available</td>
</tr>
<tr>
<td>Autoignition temperature: no data available</td>
</tr>
<tr>
<td>Lower explosion limit: no data available</td>
</tr>
<tr>
<td>Upper explosion limit: no data available</td>
</tr>
<tr>
<td>Vapour pressure: no data available</td>
</tr>
<tr>
<td>Density: 0.500 g/cm3</td>
</tr>
<tr>
<td>Water solubility: no data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water: no data available</td>
</tr>
<tr>
<td>Relative vapour density: no data available</td>
</tr>
<tr>
<td>Odour: no data available</td>
</tr>
<tr>
<td>Odour Threshold: no data available</td>
</tr>
<tr>
<td>Evaporation rate: no data available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY
Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents, Strong acids, Strong bases

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides, Sodium oxides, Mercury/mercury oxides.
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 75 mg/kg

Inhalation LC50

Dermal LD50

Other information on acute toxicity
LD50 Subcutaneous - rat - 98 mg/kg

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation

Respiratory or skin sensitization
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity
Genotoxicity in vitro - Hamster - Lungs
Micronucleus test
Genotoxicity in vivo - mouse - Intraperitoneal
Micronucleus test

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available
Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation  May be fatal if inhaled. May cause respiratory tract irritation.
Ingestion  May be fatal if swallowed.
Skin  May be fatal if absorbed through skin. May cause skin irritation.
Eyes  May cause eye irritation.

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

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish  LC50 - Oncorhynchus mykiss (rainbow trout) - 21.2 mg/l - 48.0 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.
no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2025  Class: 6.1  Packing group: III
Proper shipping name: Mercury compounds, solid, n.o.s. (Thimerosal)
Marine pollutant: No
Poison Inhalation Hazard: No
IMDG
UN number: 2025  Class: 6.1  Packing group: III  EMS-No: F-A, S-A
Proper shipping name: MERCURY COMPOUND, SOLID, N.O.S. (Thimerosal)
Marine pollutant: Marine pollutant

IATA
UN number: 2025  Class: 6.1  Packing group: III
Proper shipping name: Mercury compound, solid, n.o.s. (Thimerosal)

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thimerosal</td>
<td>54-64-8</td>
<td>1989-12-01</td>
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</table>

New Jersey Right To Know Components

<table>
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<th>CAS-No.</th>
<th>Revision Date</th>
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<tr>
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California Prop. 65 Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.</td>
<td>54-64-8</td>
<td>2007-09-28</td>
</tr>
<tr>
<td>Thimerosal</td>
<td>54-64-8</td>
<td>2007-09-28</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Further information
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