1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Trizma® base
Product Number: T1503
Brand: Sigma
Supplier: Sigma-Aldrich Corporation
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
No known OSHA hazards
Not a dangerous substance or mixture according to the Globally Harmonised System (GHS).

HMIS Classification
Health hazard: 0
Flammability: 0
Physical hazards: 0

NFPA Rating
Health hazard: 0
Fire: 0
Reactivity Hazard: 0

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 2-Amino-2-(hydroxymethyl)-1,3-propanediol
THAM
Trometamol
Tris base
Tris(hydroxymethyl)aminomethane

Formula: C₄H₁₁NO₃
Molecular Weight: 121.14 g/mol

No ingredients are hazardous according to OSHA criteria.
4. FIRST AID MEASURES

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

**In case of skin contact**
Wash off with soap and plenty of water.

**In case of eye contact**
Flush eyes with water as a precaution.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water.

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, nitrogen oxides (NOx)

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Avoid dust formation. Avoid breathing vapours, mist or gas.

**Environmental precautions**
Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Precautions for safe handling**
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.

Hygroscopic. Store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, 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 and safety officer 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**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH
(US) or EN 166(EU).

**Skin and body protection**
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the
specific work-place,. The type of protective equipment must be selected according to the concentration and amount
of the dangerous substance at the specific workplace.

**Hygiene measures**
General industrial hygiene practice.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>crystalline</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless white</td>
</tr>
<tr>
<td><strong>Safety data</strong></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>10.5 - 12</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 169 °C (336 °F)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>288 °C (550 °F) at 1,013 hPa (760 mmHg) - Decomposes below the boiling point.</td>
</tr>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>Ignition temperature</td>
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</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>The substance or mixture is not classified as self heating.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
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</tr>
<tr>
<td>Upper explosion limit</td>
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</tr>
<tr>
<td>Vapour pressure</td>
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</tr>
<tr>
<td>Density</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>678 g/l at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: -2.31 at 20 °C (68 °F)</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td></td>
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<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Odour</td>
<td>no data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
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</tbody>
</table>
10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
hygroscopic

**Materials to avoid**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**
LD50 Oral - rat - > 5,000 mg/kg

**Inhalation LC50**
no data available

**Dermal LD50**
LD50 Dermal - rat - > 5,000 mg/kg

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - No skin irritation - OECD Test Guideline 404

**Serious eye damage/eye irritation**
Eyes - rabbit - No eye irritation - OECD Test Guideline 405

**Respiratory or skin sensitisation**
Buehler Test - guinea pig - OECD Test Guideline 406 - Does not cause skin sensitisation.

**Germ cell mutagenicity**
Genotoxicity in vitro - Not mutagenic in Ames Test.
Genotoxicity in vitro - in vitro assay - negative
In vitro tests did not show mutagenic effects

Genotoxicity in vivo - In vivo tests did not show any chromosomal changes.

**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 harmful if inhaled. May cause respiratory tract irritation.
- **Ingestion**: May be harmful if swallowed.
- **Skin**: May be harmful 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
Repeated dose toxicity - rat - Oral - No observed adverse effect level - 1,000 mg/kg
RTECS: TY2900000

12. ECOLOGICAL INFORMATION

**Toxicity**

- Toxicity to daphnia and other aquatic invertebrates
  - EC50 - Daphnia - > 980 mg/l - 48 h
- Toxicity to algae
  - EC50 - Algae - 397 mg/l - 72 h
  - NOEC - Algae - 100 mg/l - 72 h

**Persistence and degradability**

- Biodegradability
  - Result: - Readily biodegradable.
  - Method: OECD Test Guideline 301F

**Bioaccumulative potential**
No bioaccumulation is to be expected (log Pow <= 4).

**Mobility in soil**
no data available

**PBT and vPvB assessment**

- Results of PBT assessment
  - This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

**Other adverse effects**
no data available

13. DISPOSAL CONSIDERATIONS

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

**Contaminated packaging**
Dispose of as unused product.
14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
No known OSHA hazards

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
No SARA Hazards

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>CAS-No.</th>
<th>Revision Date</th>
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<tr>
<td>77-86-1</td>
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New Jersey Right To Know Components

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<th>CAS-No.</th>
<th>Revision Date</th>
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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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