SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

Product code: TR149
Product Name: TROMETHAMINE, USP

Other means of identification

Synonyms:
- Tris(hydroxymethyl)aminomethane
- Tris(hydroxymethyl)methylamine
- 2-Amino-2-(hydroxymethyl)-1,3-propanediol
- 2-Amino2-(hydroxymethyl)propane-1,3-diol
- 2-Amino-2-methylol-1,3-propanediol
- Aminotrimethylolmethane;
- Aminotris(hydroxymethyl)methane
- Methyl, 1,1,1-tris(hydroxymethyl)-
- Tris (hydroxymethyl)methanamine
- 1,3-Propanediol, 2-amino-2(hydroxymethyl)-
- Spectris
- Tris Buffer
- Tris-amino
- Tromethane
- Tromethamine
- Trometamol
- Trisamine
- Trisaminol
- Trismat

CAS #: 77-86-1
RTECS #: TY2900000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use:
In synthesis of surface-active agents, vulcanization accelerators; in pharmaceuticals; titrimetric standard; as an emulsifying agent for cosmetic creams and lotions; in mineral oil and paraffin wax emulsions; in leather dressings; emulsifying agent for textile specialties; in polishes, cleaning compounds..

Uses advised against
No information available

Supplier:
Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number
Chemtrec 1-800-424-9300

Contact Person:
- Martin LaBenz (West Coast)
- Regina Wachenheim (East Coast)
2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
</tbody>
</table>

Label elements

Warning

Hazard statements
Causes skin irritation
Causes serious eye irritation

Hazard not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>77-86-1</td>
<td>100</td>
<td>*</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures
General Advice: Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126)
4. FIRST AID MEASURES

**Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

**Eye Contact:** Flush eye with water for 15 minutes. Get medical attention.

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

**Most important symptoms and effects, both acute and delayed**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Indication of any immediate medical attention and special treatment needed</th>
</tr>
</thead>
</table>

**Notes to Physician:**

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

**Suitable Extinguishing Media:** Carbon dioxide (CO2). Dry chemical. Water spray mist or foam.

**Unsuitable Extinguishing Media:** No information available.

**Specific hazards arising from the chemical**

**Hazardous Combustion Products:** Carbon monoxide; Carbon dioxide; nitrogen oxides

**Specific hazards:** May be combustible at high temperatures.

**Special Protective Actions for Firefighters**

**Specific Methods:** No information available.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:** Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition.

**Environmental precautions** No information available.

**Methods and material for containment and cleaning up**

**Methods for containment** Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up** Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

**Product code:** TR149  **Product name:** TROMETHAMINE, USP
7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Avoid dust formation. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

U.S Occupational Exposure Limits: Not determined

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine - 77-86-1</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Canada

Canada Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine - 77-86-1</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Australia and Mexico

Occupational Exposure Limits for Australia and Mexico: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine - 77-86-1</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures to reduce exposure:
Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment
**Eye protection:** Safety glasses. Safety glasses with side-shields.

**Skin and body protection:** Long sleeved clothing. Chemical resistant apron. Gloves.

**Respiratory protection:** Effective dust mask. Wear respirator with dust filter.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular/Formula weight: 121.14</td>
<td>Flash point (°C): Not applicable</td>
<td></td>
</tr>
<tr>
<td>Flash Point Tested according to: Not applicable</td>
<td>Lower Explosion Limit (%): No information available</td>
<td>Upper Explosion Limit (%): No information available</td>
</tr>
<tr>
<td>Autoignition Temperature (°C/°F): No information available</td>
<td>pH: No information available</td>
<td>Melting point/range(°C/°F): 168-172 °C/334.4-341.6 °F</td>
</tr>
<tr>
<td>Boiling point/range(°C/°F): No information available</td>
<td>Decomposition temperature(°C/°F): No information available</td>
<td>Specific gravity: No information available</td>
</tr>
<tr>
<td>Density (g/cm3): No information available</td>
<td>Bulk density: No information available</td>
<td>Vapor pressure @ 20°C (kPa): No information available</td>
</tr>
<tr>
<td>Evaporation rate: No information available</td>
<td>Vapor density: No information available</td>
<td>VOC content (g/L): No information available</td>
</tr>
<tr>
<td>Odor threshold (ppm): No information available</td>
<td>Partition coefficient (n-octanol/water): -1.56 to -2.31</td>
<td>Viscosity: No information available</td>
</tr>
<tr>
<td>Miscibility: No information available</td>
<td>Solubility: Freely soluble in water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Water: 5500-8000 g/l @20 °C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Ethylene Glycol: 79.1 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Methanol: 26 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Acetone: 14.6 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Ethyl Acetate: 0.5 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Olive oil: 0.4 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Cyclohexane: 0.1 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Chloroform: 0.05 mg/ml.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solubility in Carbon Tetrachloride: less than 0.05</td>
<td></td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Reactivity**

---

**Product code:** TR149  
**Product name:** TROMETHAMINE, USP
10. STABILITY AND REACTIVITY

Chemical stability
Stability: Stable at normal conditions
Possibility of Hazardous Reactions: Hazardous polymerization does not occur


Other Information
Corrosivity: No information available
Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Principal Routes of Exposure: Ingestion. Inhalation.

Acute Toxicity

Component Information

Tromethamine - 77-86-1
LD50/oral/rat = 5900 mg/kg Oral LD50 Rat (LOLI)
>3000 mg/kg (RTECS)
LD50/oral/mouse = 5500 mg/kg
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information
LD50/oral/rat = VALUE- Acute Tox Oral = 5900mg/kg
LD50/oral/mouse = Value - Acute Tox Oral = 5500mg/kg
LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available
LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

Product code: TR149 Product name: TROMETHAMINE, USP
LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/inhalation/mouse
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

**Symptoms**

**Skin Contact:** Causes skin irritation.

**Eye Contact:** Causes eye irritation.

**Inhalation**
May cause irritation of respiratory tract. Symptoms may include coughing and shortness of breath.

**Ingestion**
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May affect respiration (dyspnea, respiratory depression). May affect behavior/central nervous system (somnolence). May cause muscle weakness. May affect behavior/central nervous system (coma). May cause hyperkalemia. May cause hypoglycemia (low blood sugar). May affect urinary system (kidneys). May cause increase in urine volume. May affect liver.

**Aspiration hazard**
No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity**
No information available.

**Sensitization:**
No information available

**Mutagenic Effects:**
No information available

**Carcinogenic effects:**
No information available.

<table>
<thead>
<tr>
<th>Components</th>
<th>ACGIH - Carcinogens</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**
No data is available

**Reproductive Effects:**
No information available

**Developmental Effects:**
No information available

**Teratogenic Effects:**
No information available

**Specific Target Organ Toxicity**

**STOT - single exposure**
No information available

**STOT - repeated exposure**
No information available

**Target Organs:**
No information available

---

12. ECOLOGICAL INFORMATION

**Product code:** TR149  
**Product name:** TROMETHAMINE, USP
12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: Not regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: Not applicable
Packing Group: None
Marine Pollutant: No data available
ERG No: No information available
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

ADR

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

Product code: TR149  Product name: TROMETHAMINE, USP
14. TRANSPORT INFORMATION

IMO / IMDG
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available
- IMDG Page: No information available
- Marine Pollutant: No information available
- MFAG: No information available
- Maximum Quantity: No information available

RID
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Classification Code: No information available
- Description: No information available

ICAO
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available

IATA
- UN-No: Not Regulated
- Proper Shipping Name: No information available
- Hazard Class: No information available
- Subsidiary Risk: No information available
- Packing Group: No information available
- Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>Philippines (PICCS)</th>
<th>KOREA KECL</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>Present</td>
<td>Present</td>
<td>Present KE-01403</td>
<td>Present (2)-318</td>
<td>Present</td>
<td>Present</td>
<td>Present 201-064-4</td>
</tr>
</tbody>
</table>

U.S. Regulations


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)
### Components

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

### CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

### U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

### Canada

**WHMIS hazard class:**
D2B  Toxic materials

**Tromethamine**
D2B

**Canada Controlled Products Regulation:**
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

### Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

### EU Classification

**R-phrase(s)**
R36/38 - Irritating to eyes and skin.

**S-phrase(s)**
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37 - Wear suitable gloves.

<table>
<thead>
<tr>
<th>Components</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tromethamine</td>
<td>No information</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**The product is classified in accordance with Annex VI to Directive 67/548/EEC**

**Indication of danger:**
Xi - Irritant.

**Product code:** TR149  **Product name:** TROMETHAMINE, USP
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>Health Hazard</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Fire Hazard</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Reactivity</td>
</tr>
</tbody>
</table>

See Section 8.

Preparation Date: 2/20/2014
Revision Date: 2/20/2014
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Material Safety Data Sheet