SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Triethanolamine

Product Number : T58300
Brand : Sigma-Aldrich
CAS-No. : 102-71-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS).

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture according to the Globally Harmonized System (GHS).

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : 2,2’,2”-Nitrilotriethanol
Tris(2-hydroxyethyl)amine

Formula : C₆H₁₅NO₃
SECTION 4: First aid measures

4.1 Description of first-aid measures

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Carbon oxides
Nitrogen oxides (NOx)
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
In the event of fire, wear self-contained breathing apparatus.
5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Tightly closed.
hygroscopic

Storage class
Storage class (TRGS 510): 10: Combustible liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with workplace control parameters
<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethanolamine</td>
<td>102-71-6</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Appropriate engineering controls**
Change contaminated clothing. Wash hands after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
- Material: Latex gloves
- Minimum layer thickness: 0.6 mm
- Break through time: 480 min
- Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

- Splash contact
- Material: Nitrile rubber
- Minimum layer thickness: 0.11 mm
- Break through time: 60 min
- Material tested: KCL 741 Dermatril® L

**Respiratory protection**
Not required; except in case of aerosol formation.

**Control of environmental exposure**
Do not let product enter drains.

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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

- **a)** Appearance: Form: viscous  
  Color: colorless
- **b)** Odor: amine-like
c) Odor Threshold: No data available

d) pH: No data available

e) Melting point/freezing point: Melting point/range: 17.9 - 21 °C (64.2 - 70 °F) - lit.

f) Initial boiling point and boiling range: 190 - 193 °C 374 - 379 °F at 7 hPa - lit.

g) Flash point: 179 °C (354 °F) - closed cup

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: Upper explosion limit: 7.2 %(V)

k) Vapor pressure: No data available

l) Vapor density: 5.15 - (Air = 1.0)

m) Density: 1.124 g/cm³ at 25 °C (77 °F) - lit.

n) Water solubility: 149 g/l at 20 °C (68 °F) - completely soluble

o) Partition coefficient: n-octanol/water: No data available

p) Autoignition temperature: No data available

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: none

9.2 Other safety information

Dissociation constant: 7.86 at 25 °C (77 °F)

Relative vapor density: 5.15 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines! Exothermic reaction with:
- anhydrides
- halogenating agents
- Nitriles
- Oxidizing agents
- acids
A risk of explosion and/or of toxic gas formation exists with the following substances:
- Acid chlorides

10.4 Conditions to avoid
- Air Exposure to moisture. Light.
- Strong heating.

10.5 Incompatible materials
- nonferrous metals, Light metals

10.6 Hazardous decomposition products
- In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**
- LD50 Oral - Rat - male and female - 6,400 mg/kg (OECD Test Guideline 401)
- Inhalation: No data available
- Acute toxicity estimate Dermal - 2,500 mg/kg (Calculation method)
- LD50 Dermal - Rabbit - > 2,000 mg/kg (OECD Test Guideline 402)
- No data available

**Skin corrosion/irritation**
- Skin - Rabbit
  - Result: No skin irritation - 4 h (OECD Test Guideline 404)

**Serious eye damage/eye irritation**
- Eyes - Rabbit
  - Result: No eye irritation (OECD Test Guideline 405)

**Respiratory or skin sensitization**
- Maximization Test - Guinea pig
  - Result: negative (OECD Test Guideline 406)

**Germ cell mutagenicity**
- Test Type: In vitro mammalian cell gene mutation test
- Test system: mouse lymphoma cells
- Metabolic activation: with and without metabolic activation
- Method: OECD Test Guideline 476
  - Result: negative
  - Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Result: negative  
Remarks: (ECHA)  
Test Type: Mutagenicity (mammal cell test): chromosome aberration.  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
Test Type: Ames test  
Test system: S. typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

**Carcinogenicity**
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient 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 on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

### 11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 91 Days - NOAEL (No observed adverse effect level) - 1,000 mg/kg

Repeated dose toxicity - Rat - male - Dermal - 90 Days - NOAEL (No observed adverse effect level) - 125 mg/kg

RTECS: KL9275000  
Kidney injury may occur., Dermatitis  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence
SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
flow-through test LC50 - Pimephales promelas (fathead minnow) - 11,800 mg/l - 96 h
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Ceriodaphnia dubia (water flea) - 609.88 mg/l - 48 h
Remarks: (ECHA)

Toxicity to algae
static test ErC50 - Desmodesmus subspicatus (green algae) - 216 mg/l - 72 h
(DIN 38412)
Remarks: (ECHA)

Toxicity to bacteria
static test IC50 - activated sludge - > 1,000 mg/l - 3 h
(OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability
aerobic - Exposure time 5 d
Result: ca.100 % - rapidly biodegradable
Remarks: (ECHA)

Theoretical oxygen demand
2,040 mg/g
Remarks: (IUCLID)

12.3 Bioaccumulative potential

Bioaccumulation
Cyprinus carpio (Carp) - 6 Weeks at 25 °C - 0.25 mg/l(Triethanolamine)

Bioconcentration factor (BCF): < 3.9
(OECD Test Guideline 305)

Cyprinus carpio (Carp) - 6 Weeks at 25 °C - 2.5 mg/l(Triethanolamine)

Bioconcentration factor (BCF): < 0.4
(OECD Test Guideline 305)

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available
SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product**
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

**DOT (US)**
Not dangerous goods

**IMDG**
Not dangerous goods

**IATA**
Not dangerous goods

**Further information**
Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

**SARA 302 Components**
This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**
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**
Chronic Health Hazard

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.
SECTION 16: Other information

Further information
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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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