

# SAFETY DATA SHEET

Version 6.11  
Revision Date 06/08/2023  
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Trizma® base

Product Number : T1503  
Brand : Sigma  
CAS-No. : 77-86-1

### 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.

### 2.2 GHS Label elements, including precautionary statements

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Sigma - T1503

Page 1 of 9

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

Formula : C<sub>4</sub>H<sub>11</sub>NO<sub>3</sub>  
Molecular weight : 121.14 g/mol  
CAS-No. : 77-86-1  
EC-No. : 201-064-4

No components need to be disclosed according to the applicable regulations.

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## 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### **Suitable extinguishing media**

Water Foam Carbon dioxide (CO<sub>2</sub>) 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 (NO<sub>x</sub>)

Combustible.

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.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 6.4 Reference to other sections

For disposal see section 13.

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## 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. Dry.

#### Storage class

Storage class (TRGS 510): 11: Combustible Solids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### 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](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

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](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

### Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### 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: crystalline<br>Color: white  |
| b) Odor                                    | slight, characteristic   |
| c) Odor Threshold                          | No data available  |
| d) pH                                      | 10.2 - 10.6 at 6 g/l at 20 °C (68 °F)  |
| e) Melting point/freezing point            | Melting point/range: 169 °C (336 °F) at ca.1,013 hPa - OECD Test Guideline 102         |
| f) Initial boiling point and boiling range | 288 °C 550 °F at 1,013 hPa - OECD Test Guideline 103 - Decomposition at boiling point. |

Sigma - T1503

Page 4 of 9

g) Flash point	( )Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	< 0.1 hPa at 20 °C (68 °F)
l) Vapor density	No data available
m) Density	1.32 g/cm <sup>3</sup> at 20 °C (68 °F) - OECD Test Guideline 109
Relative density	1.3220.4 °C - OECD Test Guideline 109
n) Water solubility	678 g/l at 20 °C (68 °F) - completely soluble
o) Partition coefficient: n-octanol/water	log Pow: -2.31 at 20 °C (68 °F) - Bioaccumulation is not expected.
p) Autoignition temperature	The substance or mixture is not classified as self heating.
q) Decomposition temperature	143 °C (289 °F) -
r) Viscosity	Not applicable
s) Explosive properties	No data available
t) Oxidizing properties	none

## 9.2 Other safety information

Solubility in other solvents	ethyl acetate at 20 °C (68 °F) - slightly soluble Alcohol at 20 °C (68 °F) - soluble Dimethylformamide at 20 °C (68 °F) - soluble Acetone at 20 °C (68 °F) - soluble Chloroform at 20 °C (68 °F) - practically insoluble
Dissociation constant	8.22 at 25 °C (77 °F)

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 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:

Oxidizing agents

Bases

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

#### **10.4 Conditions to avoid**

no information available

#### **10.5 Incompatible materials**

No data available

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Acute toxicity**

LD50 Oral - Rat - female - > 5,000 mg/kg

(OECD Test Guideline 425)

Inhalation: No data available

LD50 Dermal - Rat - male and female - > 5,000 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**

No data available

##### **Germ cell mutagenicity**

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

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 - 90 d - NOAEL (No observed adverse effect level) - 250 mg/kg - LOAEL (Lowest observed adverse effect level) - 1,000 mg/kg

Remarks: Subchronic toxicity

The value is given in analogy to the following substances:

Repeated dose toxicity - Rabbit - male and female - 28 d - LOAEL (Lowest observed adverse effect level) - 500 mg/kg

Remarks: Subacute toxicity

RTECS: TY2900000

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

After swallowing of large amounts:

Diarrhea  
Nausea  
Vomiting  
Convulsions

The following applies to aliphatic amines in general: irritations after contact with eyes and skin. Mucosal irritations, coughing, and dyspnoea after inhalation.  
This substance should be handled with particular care.

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

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**SECTION 12: Ecological information**

**12.1 Toxicity**

Sigma - T1503

Page 7 of 9

Toxicity to daphnia and other aquatic invertebrates      static test EC50 - Daphnia magna (Water flea) - > 980 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to bacteria      static test EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

#### **12.2 Persistence and degradability**

Biodegradability      aerobic - Exposure time 28 d  
Result: 97.1 % - Readily biodegradable.  
(OECD Test Guideline 301F)

#### **12.3 Bioaccumulative potential**

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

#### **12.4 Mobility in soil**

No data available

#### **12.5 Results of PBT and vPvB assessment**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

#### **12.6 Endocrine disrupting properties**

No data available

#### **12.7 Other adverse effects**

Discharge into the environment must be avoided.

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### **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.

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### **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.



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## 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**

No SARA Hazards

### **Massachusetts Right To Know Components**

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

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## 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](http://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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