

# • SAFETY DATA SHEET

Version 6.9  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Triethanolamine  
Product Number : 33729  
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  
Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 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 number

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

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## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Not a hazardous substance or mixture.

**Other hazards**

None known.

**GHS label elements**

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

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

CAS-No. : 102-71-6

**Components**

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Triethanolamine	102-71-6*	>= 90 - <= 100	-

\* Indicates that the identifier is a CAS No.

Actual concentration is withheld as a trade secret

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**SECTION 4. 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.

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

Protection of first-aiders : For personal protection see section 8.

Notes to physician : No data available

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**SECTION 5. FIREFIGHTING MEASURES**Suitable extinguishing media : Water  
Foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry powder

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Unsuitable extinguishing media	: For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	: Combustible.  Vapours 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.
Hazardous combustion products	: Carbon oxides  Nitrogen oxides (NOx)
Specific extinguishing methods	: No data available
Further information	: Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	: In the event of fire, wear self-contained breathing apparatus.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Advice for non-emergency personnel: Do not breathe vapours, aerosols. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental	: Do not let product enter drains.

precautions

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. Chemisorb® ). Dispose of properly. Clean up affected area.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Further information on storage conditions : Tightly closed.

Storage class : 10, Combustible liquids

Recommended storage temperature : Recommended storage temperature see product label.

Further information on storage stability : hygroscopic

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Triethanolamine	102-71-6	TWA	5 mg/m <sup>3</sup>	ACGIH

**Engineering measures** : No data available

### Personal protective equipment

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

#### Hand protection

Material : Latex gloves  
Break through time : 480 min  
Glove thickness : 0.6 mm  
Protective index : Full contact  
Manufacturer : Lapren® (KCL 706 / Aldrich Z677558, Size M)

Material : Nitrile rubber  
Break through time : 60 min  
Glove thickness : 0.11 mm  
Protective index : Splash contact

Manufacturer	: KCL 741 Dermatril® L
Remarks	: 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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Eye protection	: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Hygiene measures	: Change contaminated clothing. Wash hands after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: viscous
Color	: colourless
Odor	: amine-like
Odor Threshold	: No data available
pH	: No data available
Melting point/ range	: 64.2 - 70 °F / 17.9 - 21 °C
Boiling point/boiling range	: 374 - 379 °F / 190 - 193 °C (7 hPa)
Flash point	: 354 °F / 179 °C Method: closed cup
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Flammability (liquids)	: No data available
Burning rate	: No data available

Upper explosion limit / Upper flammability limit	: 7.2 %(V)
Lower explosion limit / Lower flammability limit	: 1.3 %(V)
Vapor pressure	: No data available
Relative vapour density	: 5.15 (Air = 1.0)
Relative density	: No data available
Density	: 1.124 g/mL (77 °F / 25 °C)
Solubility(ies) Water solubility	: 149 g/l completely soluble (68 °F / 20 °C)
Partition coefficient: n- octanol/water	: No data available
Autoignition temperature	: 601 °F / 316 °C
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: No data available
Oxidizing properties	: none
Molecular weight	: 149.19 g/mol
Particle characteristics Particle size	: No data available

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## SECTION 10. STABILITY AND REACTIVITY

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

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
Conditions to avoid	: Air Exposure to moisture Light.  Strong heating.
Incompatible materials	: nonferrous metals Light metals
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 - 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

Maximisation 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 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.

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 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 - No observed adverse effect level - 1,000 mg/kg

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

RTECS: KL9275000

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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

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

#### **Triethanolamine:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)):  
11,800 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Remarks: (ECHA)
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 609.88 mg/l  
End point: mortality  
Exposure time: 48 h  
Test Type: static test  
Remarks: (ECHA)
- Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)):  
216 mg/l  
Exposure time: 72 h  
Test Type: static test  
Method: DIN 38412  
Remarks: (ECHA)
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 16 mg/l  
End point: mortality  
Exposure time: 21 d  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 211
- Toxicity to microorganisms : IC50 (activated sludge): > 1,000 mg/l  
Exposure time: 3 h  
Test Type: static test  
Method: OECD Test Guideline 209

#### **Ecotoxicology Assessment**

Acute aquatic toxicity : This product has no known ecotoxicological effects.

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Chronic aquatic toxicity : This product has no known ecotoxicological effects.

### **Persistence and degradability**

#### **Components:**

##### **Triethanolamine:**

Biodegradability : aerobic  
Inoculum: activated sludge  
Concentration: 0.315 mg/l  
Result: rapidly biodegradable  
Biodegradation: ca. 100 %  
Exposure time: 5 d  
Remarks: (ECHA)

ThOD : 2,040 mg/g  
Remarks: (IUCLID)

### **Bioaccumulative potential**

#### **Components:**

##### **Triethanolamine:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): < 3.9  
Exposure time: 6 Weeks  
Temperature: 77 °F / 25 °C  
Concentration: 0.25 mg/l  
Method: OECD Test Guideline 305

Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): < 0.4  
Exposure time: 6 Weeks  
Temperature: 77 °F / 25 °C  
Concentration: 2.5 mg/l  
Method: OECD Test Guideline 305

### **Mobility in soil**

No data available

### **Other adverse effects**

#### **Components:**

##### **Triethanolamine:**

Results of PBT and vPvB assessment : Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : 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

### International Regulations

#### IATA-DGR

Not regulated as a dangerous good

#### IMDG-Code

Not regulated as a dangerous good

#### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### National Regulations

#### 49 CFR Road

Not regulated as a dangerous good

Poison Inhalation Hazard : No

### Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

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## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

**SARA 311/312 Hazards** : Chronic Health Hazard

**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.

### **US State Regulations**

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

Triethanolamine 102-71-6

#### **Pennsylvania Right To Know**

Triethanolamine 102-71-6

#### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

#### **The components of this product are reported in the following inventories:**

TSCA : All substances listed as active on the TSCA inventory

#### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## **SECTION 16. OTHER INFORMATION**

### **Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO -

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International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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