

## SAFETY DATA SHEET

Version 6.8  
Revision Date 03/02/2024  
Print Date 04/21/2024

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Triethylamine

Product Number : 471283

Brand : Sigma-Aldrich

Index-No. : 612-004-00-5

CAS-No. : 121-44-8

**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**

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****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 3), H331

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Acute toxicity, Dermal (Category 3), H311  
 Skin corrosion (Category 1A), H314  
 Serious eye damage (Category 1), H318  
 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
 Short-term (acute) aquatic hazard (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard Statements

|             |                                           |
|-------------|-------------------------------------------|
| H225        | Highly flammable liquid and vapor.        |
| H302        | Harmful if swallowed.                     |
| H311 + H331 | Toxic in contact with skin or if inhaled. |
| H314        | Causes severe skin burns and eye damage.  |
| H335        | May cause respiratory irritation.         |
| H401        | Toxic to aquatic life.                    |

Precautionary Statements

|                           |                                                                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P210                      | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.                                                                                                        |
| P233                      | Keep container tightly closed.                                                                                                                                             |
| P240                      | Ground/bond container and receiving equipment.                                                                                                                             |
| P241                      | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                                                                                                          |
| P242                      | Use only non-sparking tools.                                                                                                                                               |
| P243                      | Take precautionary measures against static discharge.                                                                                                                      |
| P261                      | Avoid breathing mist or vapors.                                                                                                                                            |
| P264                      | Wash skin thoroughly after handling.                                                                                                                                       |
| P270                      | Do not eat, drink or smoke when using this product.                                                                                                                        |
| P271                      | Use only outdoors or in a well-ventilated area.                                                                                                                            |
| P273                      | Avoid release to the environment.                                                                                                                                          |
| P280                      | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                                                              |
| P301 + P312 + P330        | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.                                                                                                |
| P301 + P330 + P331        | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.                                                                                                                         |
| P303 + P361 + P353        | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.                                                                       |
| P304 + P340 + P310        | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.                                                       |
| P305 + P351 + P338 + P310 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P362                      | Take off contaminated clothing and wash before reuse.                                                                                                                      |
| P370 + P378               | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.                                                                                       |
| P403 + P233               | Store in a well-ventilated place. Keep container tightly closed.                                                                                                           |
| P403 + P235               | Store in a well-ventilated place. Keep cool.                                                                                                                               |
| P405                      | Store locked up.                                                                                                                                                           |

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none****SECTION 3: Composition/information on ingredients****3.1 Substances**

|                  |                                    |
|------------------|------------------------------------|
| Formula          | : C <sub>6</sub> H <sub>15</sub> N |
| Molecular weight | : 101.19 g/mol                     |
| CAS-No.          | : 121-44-8                         |
| EC-No.           | : 204-469-4                        |
| Index-No.        | : 612-004-00-5                     |

| Component            | Classification                                                                                                                                                                                       | Concentration |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>triethylamine</b> |                                                                                                                                                                                                      |               |
|                      | Flam. Liq. 2; Acute Tox. 4; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; STOT SE 3; Aquatic Acute 2; H225, H302, H331, H311, H314, H318, H335, H401<br>Concentration limits:<br>>= 1 %: STOT SE 3, H335; | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures****4.1 Description of first-aid measures****General advice**

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

**In case of skin contact**

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

**In case of eye contact**

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

#### **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**

Carbon dioxide (CO<sub>2</sub>) Foam 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.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

#### **5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### **5.4 Further information**

Remove container from danger zone and cool with water. 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: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. 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. Risk of explosion.

#### **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 carefully 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.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

#### Storage class

Storage class (TRGS 510): 3: Flammable liquids

### 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

| Component     | CAS-No.  | Value                                                                    | Control parameters | Basis                                   |
|---------------|----------|--------------------------------------------------------------------------|--------------------|-----------------------------------------|
| triethylamine | 121-44-8 | TWA                                                                      | 0.5 ppm            | USA. ACGIH Threshold Limit Values (TLV) |
|               | Remarks  | Not classifiable as a human carcinogen<br>Danger of cutaneous absorption |                    |                                         |
|               |          | STEL                                                                     | 1 ppm              | USA. ACGIH Threshold Limit Values (TLV) |
|               |          | Not classifiable as a human carcinogen<br>Danger of cutaneous absorption |                    |                                         |

|  |  |      |                                 |                                                                                         |
|--|--|------|---------------------------------|-----------------------------------------------------------------------------------------|
|  |  | TWA  | 25 ppm<br>100 mg/m <sup>3</sup> | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|  |  | C    | 1 ppm<br>4.1 mg/m <sup>3</sup>  | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|  |  | Skin |                                 |                                                                                         |

#### Derived No Effect Level (DNEL)

| Application Area | Routes of exposure | Health effect                                       | Value                  |
|------------------|--------------------|-----------------------------------------------------|------------------------|
| Workers          | Inhalation         | Long-term local effects, Long-term systemic effects | 8.4 mg/m <sup>3</sup>  |
| Workers          | Inhalation         | Acute local effects, Acute systemic effects         | 12.6 mg/m <sup>3</sup> |
| Workers          | Skin contact       | Long-term systemic effects                          | 12.1mg/kg BW/d         |

#### Predicted No Effect Concentration (PNEC)

| Compartment                  | Value        |
|------------------------------|--------------|
| Soil                         | 2.361 mg/kg  |
| Sea water                    | 0.0064 mg/l  |
| Fresh water                  | 0.064 mg/l   |
| Fresh water sediment         | 0.1992 mg/kg |
| Sewage treatment plant       | 100 mg/l     |
| Aquatic intermittent release | 0.064 mg/l   |

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face 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). Tightly fitting safety goggles

#### 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 EN 16523-1 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: 0.4 mm

Break through time: 480 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, 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 EN 16523-1 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: 10 min

Material tested: KCL 741 Dermatrill® L

### **Body Protection**

Flame retardant antistatic protective clothing.

### **Respiratory protection**

Recommended Filter type: Filter A-(P3)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

required when vapours/aerosols 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. Risk of explosion.

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## **SECTION 9: Physical and chemical properties**

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

|                                                 |                                                                    |
|-------------------------------------------------|--------------------------------------------------------------------|
| a) Appearance                                   | Form: liquid<br>Color: colorless                                   |
| b) Odor                                         | amine-like                                                         |
| c) Odor Threshold                               | No data available                                                  |
| d) pH                                           | 12.7 at 100 g/l at 15 °C (59 °F)                                   |
| e) Melting point/freezing point                 | Melting point/range: -115 °C (-175 °F) - lit.                      |
| f) Initial boiling point and boiling range      | 88.8 °C 191.8 °F - lit.                                            |
| g) Flash point                                  | -11 °C (12 °F) - c.c.                                              |
| h) Evaporation rate                             | No data available                                                  |
| i) Flammability (solid, gas)                    | No data available                                                  |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 9.3 %(V)<br>Lower explosion limit: 1.2 %(V) |
| k) Vapor pressure                               | 72 hPa at 20 °C (68 °F)                                            |
| l) Vapor density                                | 3.48                                                               |

|                                           |                                                  |
|-------------------------------------------|--------------------------------------------------|
| m) Density                                | 0.726 g/cm <sup>3</sup> at 25 °C (77 °F) - lit.  |
| Relative density                          | No data available                                |
| n) Water solubility                       | 112.4 g/l at 20 °C (68 °F) - soluble             |
| o) Partition coefficient: n-octanol/water | log Pow: 1.45 - Bioaccumulation is not expected. |
| 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

|                        |      |
|------------------------|------|
| Relative vapor density | 3.48 |
|------------------------|------|

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapors may form explosive mixture with air.

### 10.2 Chemical stability

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

### 10.3 Possibility of hazardous reactions

Exothermic reaction with:  
anhydrides

Halogenated hydrocarbon  
organic nitro compounds

Risk of explosion with:  
nitrogen dioxide

Acids

Risk of ignition or formation of inflammable gases or vapours with:

Oxidizing agents

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

### 10.4 Conditions to avoid

Warming.

### 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 - male and female - 730 mg/kg  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 3.63 mg/l - vapor

(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - 580 mg/kg

(OECD Test Guideline 402)

Remarks: (ECHA)

#### Skin corrosion/irritation

Skin - Rabbit

Result: Corrosive

(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405)

Remarks: Risk of corneal clouding.

Causes serious eye damage.

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test

Species: Rat

Cell type: Bone marrow

Application Route: inhalation (vapor)

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**

Inhalation - May cause respiratory irritation. - Upper respiratory tract

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

RTECS: YE0175000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system - Irregularities - Based on Human Evidence

Central nervous system - Irregularities - Based on Human Evidence

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**SECTION 12: Ecological information****12.1 Toxicity**

|                                                                       |                                                                                                           |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                                      | LC50 - <i>Oryzias latipes</i> (Orange-red killifish) - 24 mg/l - 96 h<br>(OECD Test Guideline 203)        |
| Toxicity to daphnia and other aquatic invertebrates                   | semi-static test LC50 - <i>Ceriodaphnia dubia</i> (water flea) - 17 mg/l - 48 h<br>(US-EPA)               |
| Toxicity to algae                                                     | ErC50 - <i>Pseudokirchneriella subcapitata</i> (green algae) - 8 mg/l - 72 h<br>(OECD Test Guideline 201) |
| Toxicity to bacteria                                                  | static test EC50 - <i>Pseudomonas putida</i> - 95 mg/l - 17 h<br>(DIN 38421 TEIL 8)                       |
| Toxicity to fish(Chronic toxicity)                                    | semi-static test LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 137 mg/l - 60 d<br>Remarks: (ECHA)   |
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | EC50 - <i>Daphnia magna</i> (Water flea) - 38 mg/l - 21 d<br>(OECD Test Guideline 211)                    |

**12.2 Persistence and degradability**

|                  |                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------|
| Biodegradability | aerobic - Exposure time 29 d<br>Result: 80.3 % - Readily biodegradable.<br>(OECD Test Guideline 301B) |
|------------------|-------------------------------------------------------------------------------------------------------|

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### 12.3 Bioaccumulative potential

Bioaccumulation      Cyprinus carpio (Carp) - 42 d  
at 25 °C - 0.5 mg/l(triethylamine)

Bioconcentration factor (BCF): < 0.5  
(OECD Test Guideline 305C)

Remarks: Does not bioaccumulate.

### 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

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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. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

#### DOT (US)

UN number: 1296    Class: 3 (8)    Packing group: II  
Proper shipping name: Triethylamine  
Reportable Quantity (RQ): 5000 lbs  
Poison Inhalation Hazard: No

#### IMDG

UN number: 1296    Class: 3 (8)    Packing group: II    EMS-No: F-E, S-C  
Proper shipping name: TRIETHYLAMINE

#### IATA

UN number: 1296    Class: 3 (8)    Packing group: II

Proper shipping name: Triethylamine

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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

The following components are subject to reporting levels established by SARA Title III, Section 313:

|               | CAS-No.  | Revision Date |
|---------------|----------|---------------|
| triethylamine | 121-44-8 | 2007-03-01    |

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

|               | CAS-No.  | Revision Date |
|---------------|----------|---------------|
| triethylamine | 121-44-8 | 2007-03-01    |

### Pennsylvania Right To Know Components

|               | CAS-No.  | Revision Date |
|---------------|----------|---------------|
| triethylamine | 121-44-8 | 2007-03-01    |

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## SECTION 16: Other information

### Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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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