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
   REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
   CAS-No.: 121-44-8

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
   Company: Sigma-Aldrich Chemie BV
   Stationsplein 4
   3331 LL ZWIJNDRECHT
   NETHERLANDS
   Telephone: +31 78-620-5411
   Fax: +31 78-620-5421
   E-mail address: eurtechserv@sial.com

1.4 Emergency telephone number
   Emergency Phone #: 112

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   Flammable liquids (Category 2), H225
   Acute toxicity, Oral (Category 4), H302
   Acute toxicity, Inhalation (Category 3), H331
   Acute toxicity, Dermal (Category 3), H311
   Skin corrosion (Category 1A), H314
   Specific target organ toxicity - single exposure, Inhalation (Category 3), Respiratory system, H335

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

   Classification according to EU Directives 67/548/EEC or 1999/45/EC
   F Highly flammable R11
   C Corrosive R35
   Xn Harmful R20/21/22

   For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements
   Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.
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.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing vapours.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.

Supplemental Hazard Statements

none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula: \( \text{C}_6\text{H}_{15}\text{N} \)
Molecular weight: 101.19 g/mol
CAS-No.: 121-44-8
EC-No.: 204-469-4
Index-No.: 612-004-00-5

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethylamine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>121-44-8</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
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<td></td>
</tr>
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<td>612-004-00-5</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

Hazardous ingredients according to Directive 1999/45/EC

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<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>612-004-00-5</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled  
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact  
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact  
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed  
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture  
No data available

5.3 Advice for firefighters  
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information  
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures  
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions  
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up  
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections  
For disposal see section 13.

SECTION 7: Handling and storage
7.1 Precautions for safe handling  
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities  
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
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

**Components with workplace control parameters**

#### 8.2 Exposure controls

**Appropriate engineering controls**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Personal protective equipment**

- **Eye/face protection**
  - Tightly fitting safety goggles.
  - Faceshield (8-inch minimum).
  - Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

- **Skin protection**
  - Handle with gloves.
  - Gloves must be inspected prior to use.
  - Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.
  - Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
  - Wash and dry hands.

  The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

  **Full contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0,4 mm
  - Break through time: 480 min
  - Material tested: Camatri® (KCL 730 / Aldrich Z677442, Size M)

  **Splash contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0,2 mm
  - Break through time: 49 min
  - Material tested: Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

  **data source:** KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

  If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

- **Body Protection**
  - Complete suit protecting against chemicals.
  - Flame retardant antistatic protective clothing.
  - The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

- **Respiratory protection**
  - Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.
  - If the respirator is the sole means of protection, use a full-face supplied air respirator.
  - Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
</table>
| Appearance | Form: liquid, clear  
Colour: colourless |
| Odour | amine-like |
| Odour Threshold | No data available |
| pH | 12.7 at 100 g/l at 15 °C |
| Melting point/freezing point | Melting point/range: -115 °C - lit. |
| Initial boiling point and boiling range | 88.8 °C - lit. |
| Flash point | -14.99 °C - closed cup |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |
| Upper/lower flammability or explosive limits | Upper explosion limit: 8 %(V)  
Lower explosion limit: 1.2 %(V) |
| Vapour pressure | 68.99 hPa at 20 °C  
85.06 hPa at 30 °C |
| Vapour density | 3.49 - (Air = 1.0) |
| Relative density | 0.726 g/cm3 at 25 °C |
| Water solubility | 112 g/l at 20 °C |
| Partition coefficient: n-octanol/water | log Pow: 1.15 |
| Auto-ignition temperature | > 215 °C |
| Decomposition temperature | No data available |
| Viscosity | No data available |
| Explosive properties | No data available |
| Oxidizing properties | The substance or mixture is not classified as oxidizing. |

9.2 Other safety information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface tension</td>
<td>20.7 mN/m at 20 °C</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>3.49 - (Air = 1.0)</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 730 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - 4 h - 7.1 mg/l
(OECD Test Guideline 403)
LD50 Dermal - Rabbit - 580 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Extremely corrosive and destructive to tissue.
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
in vivo assay - Guinea pig
Result: Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity
No data available

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.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

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
SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish
LC50 - Oryzias latipes (Orange-red killifish) - 24 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates
LC50 - Daphnia dubia (water flea) - 17 mg/l - 48 h

Toxicity to algae
NOEC - Pseudokirchneriella subcapitata (green algae) - 1,1 mg/l - 72 h
(OECD Test Guideline 201)
EC50 - Pseudokirchneriella subcapitata (green algae) - 8 mg/l - 72 h
(OECD Test Guideline 201)

Toxicity to bacteria
LC50 - Bacteria - 95 mg/l - 17 h

12.2 Persistence and degradability

Biodegradability
aerobic - Exposure time 28 d
Result: 80 % - Readily biodegradable
(OECD Test Guideline 301B)

12.3 Bioaccumulative potential

Bioaccumulation
Cyprinus carpio (Carp) - 42 d

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
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Toxic to aquatic life.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 1296
IMDG: 1296
IATA: 1296

14.2 UN proper shipping name
ADR/RID: TRIETHYLAMINE
IMDG: TRIETHYLAMINE
IATA: Triethylamine
14.3 Transport hazard class(es)
ADR/RID: 3 (8)  
IMDG: 3 (8)  
IATA: 3 (8)

14.4 Packaging group
ADR/RID: II  
IMDG: II  
IATA: II

14.5 Environmental hazards
ADR/RID: no  
IMDG: Marine pollutant: no  
IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information
Full text of H-Statements referred to under sections 2 and 3.
Acute Tox.  
Acute toxicity
Flam. Liq.  
Flammable liquids
H225  
Highly flammable liquid and vapour.
H302  
Harmful if swallowed.
H311  
Toxic in contact with skin.
H314  
Causes severe skin burns and eye damage.
H331  
Toxic if inhaled.
H335  
May cause respiratory irritation.
Skin Corr.  
Skin corrosion
STOT SE  
Specific target organ toxicity - single exposure

Full text of R-phrases referred to under sections 2 and 3
C  
Corrosive
F  
Highly flammable
R11  
Highly flammable.
R20/21/22  
Harmful by inhalation, in contact with skin and if swallowed.
R35  
Causes severe burns.

Further information
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