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

1.1 Product identifier

Trade name: Triethylamine

Stock number: A12646
CAS Number: 121-44-8
EC number: 204-469-4
Index number: 812-004-00-5

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

Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:
Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de  Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 flame
Flam. Liq. 2 H225 Highly flammable liquid and vapour.

GHS05 corrosion
Skin Corr. 1A H314 Causes severe skin burns and eye damage.

GHS07
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS02 GHS05 GHS07

Signal word Danger

Hazard statements
H225 Highly flammable liquid and vapour.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe dusts or mists.
P303+P361+P338 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances

CAS# Designation:
121-44-8 Triethylamine
Concentration: ≤100%
Identification number(s):
EC number: 204-469-4
Index number: 812-004-00-5

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Instantly remove any clothing soiled by the product.

After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact Seek immediate medical advice.

After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.
Trade name Triethylamine

4.2 Most important symptoms and effects, both acute and delayed
Causes severe skin burns.
Harmful if swallowed.
Harmful if inhaled.
Harmful in contact with skin.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)
5.3 Advice for firefighters
Protective equipment: Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.

6.2 Environmental precautions: Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.

Prevention of secondary hazards: Keep away from ignition sources.

6.4 Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protective equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires:
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: Store in cool location.
Information about storage in one common storage facility:
Do not store together with acids.
Store away from oxidising agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
Components with critical values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>121-44-8 Triethylamine (100,0%)</th>
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</thead>
<tbody>
<tr>
<td>AGW (Germany)</td>
</tr>
<tr>
<td>PEL (USA)</td>
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<tr>
<td>TLV (USA)</td>
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<tr>
<td></td>
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</tbody>
</table>

Additional information: No data

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

Breathing equipment: Use breathing protection with high concentrations.
Recommended filter device for short term use:
Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves Nitrile rubber, NBR
Penetration time of glove material (in minutes) 480

Glove thickness: 0.4 mm
Eye protection:
Tightly sealed safety glasses.

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Trade name: Triethylamine

Full face protection
Safety glasses with side shields / NIOSH (US) or EN 166(EU)
Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance: Liquid
Odour: Ammonia-like
Odour threshold: Not determined.

pH-value: Not determined.

Change in condition
Melting point/freezing point: -115 °C
Initial boiling point and boiling range: 89-90 °C
Sublimation temperature/start: Not determined

Flash point: -11 °C
Inflammability (solid, gaseous): Not determined.
Ignition temperature: 230 °C
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Explosive properties: Product is not explosive. However, formation of explosive air/steam mixtures is possible.

Critical values for explosion:
Lower: 1.2 Vol %
Upper: 8 Vol %

Steam pressure at 20 °C: 72 hPa
Density at 20 °C: 0.726 g/cm³
Relative density: Not determined.
Vapour density: Not determined.
Evaporation rate: Not determined.
Solubility in / Miscibility with
- Water at 20 °C: 166 g/l
- Fully miscible
Partition coefficient: n-octanol/water: Not determined.
Viscosity:
- Dynamic: Not determined.
- Kinematic: Not determined.

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No information known.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts with strong oxidising agents

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials:
- Acids
- Oxidising agents

10.6 Hazardous decomposition products:
- Carbon monoxide and carbon dioxide
- Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Harmful if inhaled.
Harmful in contact with skin.
Harmful in contact with skin.
Harmful if swallowed.
Danger by skin resorption.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:
- Oral LD50: 460 mg/kg (rat)
- Dermal LD50: 414 mg/kg (rabbit)

Skin irritation or corrosion:
- Causes severe skin burns.
- Causes severe skin burns and eye damage.
- Causes severe eye damage.
- Causes severe skin burns and eye damage.

Eye irritation or corrosion:
- Causes serious eye damage.
- Causes severe skin burns and eye damage.
- Causes severe skin burns and eye damage.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
Carcinogenicity:
- NCIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.
Reproductive toxicity:
- No effects known.
Specific target organ system toxicity - repeated exposure:
- No effects known.
Specific target organ system toxicity - single exposure:
- No effects known.
Aspiration hazard:
- No effects known.
Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information:
- To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability
No further relevant information available.

12.3 Bioaccumulative potential
No further relevant information available.

12.4 Mobility in soil
No further relevant information available.
Additional ecological information:

General notes:
Water hazard class 1 (Assessment by list): slightly hazardous for water.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation: Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.
Uncleaned-packagings:
Recommendation: Disposal must be made according to official regulations.
Recommended cleaning agent: Water, if necessary with cleaning agent.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA
14.2 UN proper shipping name
ADR
IMDG, IATA
1296 TRIETHYLAMINE
TRIETHYLAMINE
14.3 Transport hazard class(es)
ADR
Class
Label
IMDG
3 (FC) Flammable liquids.
3
14.3 Transport hazard class(es)
IMDG
Class
Label
3 Flammable liquids.

14.4 Environmental hazards:
Not applicable.

14.6 Special precautions for user
Kemler Number:
338
EMS Number:
F-E,S-C
Stowage Category: B
Stowage Code:
SW2 Clear of living quarters.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable.

Transport/Additional information:
ADR
Excepted quantities (EQ):
Limited quantities (LQ): E2
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
Transport category: 2
Tunnel restriction code: D/E
IMDG
Limited quantities (LQ): 1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":
UN 1296 TRIETHYLAMINE, 3 (8), II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances: Substance is listed.
Standard for the Uniform Scheduling of Medicines and Poisons: Substance is not listed.
Directive 2012/18/EU: Named dangerous substances - ANNEX I Substance is not listed.
Seveso category: P5c FLAMMABLE LIQUIDS
Qualifying quantity (tonnes) for the application of lower-tier requirements: 5,000 t
Qualifying quantity (tonnes) for the application of upper-tier requirements: 50,000 t
REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 40
National regulations: Information about limitation of use: Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.
Classification according to VbF: B
Water hazard class: Water hazard class 1 (Assessment by list): slightly hazardous for water.

(Contd. of page 3)
### Trade name

*Triethylamine*

### Other regulations, limitations and prohibitive regulations

**ELINCS (European List of Notified Chemical Substances)** Substance is not listed.

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006** Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.

#### 15.2 Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS**: Global Marketing Department

**Abbreviations and acronyms:**

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative, and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety and Health Administration (USA)
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- BEI: Biological Exposure Limit
- Flam. Liq. 2: Flammable liquids – Category 2
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Corr. 1A: Skin corrosion/irritation – Category 1A