

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

**1.1 Product identifier**

Trade name **Ethanolamine**

Stock number: A11697

CAS Number:  
141-43-5

EC number:  
205-483-3

**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 (0) 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



GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

STOT SE 3 H335 May cause respiratory irritation.

**Other hazards that do not result in classification** No information known.

**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**



GHS05 GHS07 GHS09

**Signal word** Danger

**Hazard statements**

H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

H411 Toxic to aquatic life with long lasting effects.

**Precautionary statements**

P260 Do not breathe dusts or mists.

P303+P361+P353 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.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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:**

141-43-5 ethanolamine

**Concentration:** ≤100%

**Identification number(s):**

EC number: 205-483-3

**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.

Seek immediate medical advice.

**After skin contact**

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing** Seek medical treatment.

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#### 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 CO<sub>2</sub>, 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 (NO<sub>x</sub>)

#### 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 protection equipment.  
See Section 13 for information on disposal.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Handle under dry protective gas.  
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: No information known.

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

##### Storage

Requirements to be met by storerooms and containers: No special requirements.

##### Information about storage in one common storage facility:

Store away from air.  
Store away from water.  
Do not store together with acids.  
Store away from oxidising agents.  
Further information about storage conditions:  
Store under dry inert gas.  
This product is hygroscopic.  
This product is air sensitive.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and keep away from water.  
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:

##### 141-43-5 ethanolamine (100,0%)

AGW (Germany)	Long-term value: 0,5 mg/m <sup>3</sup> , 0,2 ppm 1(I);DFG, EU, H, Y, Sh, 11
PEL (USA)	Long-term value: 6 mg/m <sup>3</sup> , 3 ppm
REL (USA)	Short-term value: 15 mg/m <sup>3</sup> , 6 ppm Long-term value: 8 mg/m <sup>3</sup> , 3 ppm
TLV (USA)	Short-term value: 15 mg/m <sup>3</sup> , 6 ppm Long-term value: 7,5 mg/m <sup>3</sup> , 3 ppm

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 GEN (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 Latex/chloroprene

Penetration time of glove material (in minutes) 480

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**Glove thickness:** 0.6 mm  
**Eye protection:**  
Tightly sealed safety glasses.  
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:**

**Form:** Liquid  
**Odour:** Ammonia-like  
**Odour threshold:** Not determined.

**pH-value (100 g/l) at 20 °C:** 12,1

**Change in condition**

**Melting point/freezing point:** 10 °C  
**Initial boiling point and boiling range:** 169-170 °C  
**Sublimation temperature / start:** Not determined

**Flash point:** 93 °C  
**Inflammability (solid, gaseous)** Not determined.  
**Ignition temperature:** 385 °C  
**Decomposition temperature:** Not determined  
**Self-inflammability:** Not determined.

**Explosive properties:** Not determined.

**Critical values for explosion:**

**Lower:** Not determined  
**Upper:** Not determined

**Steam pressure at 20 °C:** 0,3 hPa  
**Density at 20 °C** 1,012 g/cm<sup>3</sup>  
**Relative density** Not determined.  
**Vapour density** Not determined.

**Evaporation rate** Not determined.

**Solubility in / Miscibility with**

**Water at 20 °C:** 1000 g/l  
**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.

**Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.

**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  
Air  
Oxidising agents  
Water/moisture

**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.  
Harmful if swallowed, in contact with skin or if inhaled.

**LD/LC50 values that are relevant for classification:**

Oral	LD50	1720 mg/kg (rat)
Dermal	LD50	1012 mg/kg (rabbit)

**Skin irritation or corrosion:**

Causes severe skin burns.  
Causes severe skin burns and eye damage.

**Eye irritation or corrosion:**

Causes serious eye damage.  
Causes severe skin burns and eye damage.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

**Carcinogenicity:** No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**Reproductive toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

**Specific target organ system toxicity - repeated exposure:** No effects known.

**Specific target organ system toxicity - single exposure:** May cause respiratory irritation.

**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.

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**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.  
Also poisonous for fish and plankton in water bodies.  
Toxic to aquatic life.

May cause long lasting harmful effects to aquatic life.

Avoid transfer into the environment.

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

**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.

**SECTION 14: Transport information**

**UN-Number**

ADR, IMDG, IATA

UN2491

**14.2 UN proper shipping name**

ADR

IMDG, IATA

2491 ETHANOLAMINE  
ETHANOLAMINE

**14.3 Transport hazard class(es)**

ADR



Class  
Label  
IMDG, IATA

8 (C7) Corrosive substances.  
8



Class  
Label

8 Corrosive substances.  
8

**Packing group**

ADR, IMDG, IATA

III

**14.5 Environmental hazards:**

Environmentally hazardous substance, liquid

**14.6 Special precautions for user**

Kemler Number:

EMS Number:

Segregation groups

Stowage Category

Segregation Code

Warning: Corrosive substances.

80

F-A,S-B

Alkalis

A

SG35 Stow "separated from" acids.

**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)

Excepted quantities (EQ)

E1

5L

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

3

E

Transport category

Tunnel restriction code

IMDG

Limited quantities (LQ)

Excepted quantities (EQ)

5L

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**UN "Model Regulation":**

UN 2491 ETHANOLAMINE, 8, III

**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** S4, S5, S6

**Directive 2012/18/EU**

**Named dangerous substances - ANNEX I** Substance is not listed.

**Seveso category E2** Hazardous to the Aquatic Environment

**Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t

**Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

**REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

**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:** Not applicable

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**Technical instructions (air):**

Class	Share in %
NK	100,0

**Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

**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.**

Substance is not listed.

**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

SVHC: Substances of Very High Concern

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

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2