

Creation Date 11-Jun-2009

Revision Date 24-Mar-2024

Revision Number 2

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

| | |
|-----------------------------|----------------------------------|
| Product Description: | Ethanolamine |
| Cat No. : | C14958 |
| Synonyms | 2-Aminoethanol, monoethanolamine |
| Index No | 603-030-00-8 |
| CAS No | 141-43-5 |
| EC No | 205-483-3 |
| Molecular Formula | C2 H7 N O |

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

| | |
|---------------------------------------|---------------------------------------------------------------------------------------------|
| Recommended Use | Laboratory chemicals. |
| Sector of use | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Product category | PC21 - Laboratory chemicals |
| Process categories | PROC15 - Use as a laboratory reagent |
| Environmental release category | ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) |
| Uses advised against | No Information available |

1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH
Erlenbachweg 2, 76870 Kandel, Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
<https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html>

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

SECTION 2: HAZARDS IDENTIFICATION

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2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

| | |
|----------------------------------------------------|---------------------|
| Acute oral toxicity | Category 4 (H302) |
| Acute dermal toxicity | Category 4 (H312) |
| Acute Inhalation Toxicity - Vapors | Category 4 (H332) |
| Skin Corrosion/Irritation | Category 1 B (H314) |
| Serious Eye Damage/Eye Irritation | Category 1 (H318) |
| Specific target organ toxicity - (single exposure) | Category 3 (H335) |

Environmental hazards

| | |
|--------------------------|-------------------|
| Chronic aquatic toxicity | Category 3 (H412) |
|--------------------------|-------------------|

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled
Combustible liquid

Precautionary Statements

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
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
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 or shower

2.3. Other hazards

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Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

| Component | CAS No | EC No | Weight % | CLP Classification - Regulation (EC) No 1272/2008 |
|--------------|----------|-------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | 141-43-5 | EEC No. 205-483-3 | >95 | Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT 3 (H335) Aquatic Chronic 3 (H412) |

| Component | Specific concentration limits (SCL's) | M-Factor | Component notes |
|--------------|---------------------------------------|----------|-----------------|
| Ethanolamine | STOT SE 3 :: C>=5% | - | - |

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General Advice | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. |
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately. |
| Ingestion | Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately. |
| Inhalation | Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately. If not breathing, give artificial respiration. |
| Self-Protection of the First Aider | Use personal protective equipment as required. |

4.2. Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Combustible material. Containers may explode when heated.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe mist/vapors/spray. Keep away from open flames, hot surfaces and sources of ignition.

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Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat, sparks and flame. Store under an inert atmosphere.

Technical Rules for Hazardous Substances (TRGS) 510
Storage Class (LGK) (Germany)

Storage Class/LGK 8A

Switzerland - Storage of hazardous substances

Storage class - SC 8
(Alkali) <https://www.kvu.ch/de/themen/stoffe-und-produkte>
<https://www.kvu.ch/fr/themes/substances-et-produits>
<https://www.kvu.ch/it/temi/sostanze-e-prodotti>

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

| Component | European Union | The United Kingdom | France | Belgium | Spain |
|--------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | TWA: 1 ppm 8 hr TWA: 2.5 mg/m ³ 8 hr STEL: 3 ppm 15 min STEL: 7.6 mg/m ³ 15 min Skin | STEL: 3 ppm 15 min STEL: 7.6 mg/m ³ 15 min TWA: 1 ppm 8 hr TWA: 2.5 mg/m ³ 8 hr Skin | TWA / VME: 1 ppm (8 heures). TWA / VME: 2.5 mg/m ³ (8 heures). STEL / VLCT: 3 ppm. STEL / VLCT: 7.6 mg/m ³ . Peau | TWA: 1 ppm 8 uren TWA: 2.5 mg/m ³ 8 uren STEL: 3 ppm 15 minuten STEL: 7.6 mg/m ³ 15 minuten Huid | STEL / VLA-EC: 3 ppm (15 minutos). STEL / VLA-EC: 7.5 mg/m ³ (15 minutos). TWA / VLA-ED: 1 ppm (8 horas) TWA / VLA-ED: 2.5 mg/m ³ (8 horas) Piel |

| Component | Italy | Germany | Portugal | The Netherlands | Finland |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | TWA: 1 ppm 8 ore. TWA: 2.5 mg/m ³ 8 ore. STEL: 3 ppm 15 minuti. Breve termine STEL: 7.6 mg/m ³ 15 minuti. Breve termine Pelle | TWA: 2 ppm (8 Stunden). AGW - exposure factor 2 TWA: 5.1 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 2 ppm (8 Stunden). MAK TWA: 5.1 mg/m ³ (8 Stunden). MAK Höhepunkt: 4 ppm Höhepunkt: 10.2 mg/m ³ Haut | STEL: 3 ppm 15 minutos STEL: 7.6 mg/m ³ 15 minutos TWA: 1 ppm 8 horas TWA: 2.5 mg/m ³ 8 horas Pele | huid STEL: 7.6 mg/m ³ 15 minuten TWA: 2.5 mg/m ³ 8 uren | TWA: 1 ppm 8 tunteina TWA: 2.5 mg/m ³ 8 tunteina STEL: 3 ppm 15 minuutteina STEL: 7.6 mg/m ³ 15 minuutteina Iho |

| Component | Austria | Denmark | Switzerland | Poland | Norway |
|--------------|---------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Ethanolamine | Haut MAK-KZW: 3 ppm 15 Minuten MAK-KZW: 7.6 mg/m ³ | TWA: 1 ppm 8 timer TWA: 2.5 mg/m ³ 8 timer Hud | STEL: 4 ppm 15 Minuten STEL: 10 mg/m ³ 15 Minuten | STEL: 7.5 mg/m ³ 15 minutach TWA: 2.5 mg/m ³ 8 godzinach | TWA: 1 ppm 8 timer TWA: 2.5 mg/m ³ 8 timer STEL: 3 ppm 15 minutter. |

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| | | | | | |
|--|------------------------------------------------------------------------------------------|--|---------------------------------------------------------------|--|--------------------------------------------------|
| | 15 Minuten MAK-TMW: 1 ppm 8 Stunden MAK-TMW: 2.5 mg/m ³ 8 Stunden | | TWA: 2 ppm 8 Stunden TWA: 5 mg/m ³ 8 Stunden | | STEL: 5 mg/m ³ 15 minutter. Hud |
|--|------------------------------------------------------------------------------------------|--|---------------------------------------------------------------|--|--------------------------------------------------|

| Component | Bulgaria | Croatia | Ireland | Cyprus | Czech Republic |
|--------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | TWA: 1 ppm TWA: 2.5 mg/m ³ STEL : 3 ppm STEL : 7.6 mg/m ³ Skin notation | kože TWA-GVI: 1 ppm 8 satima. TWA-GVI: 2.5 mg/m ³ 8 satima. STEL-KGVI: 3 ppm 15 minutama. STEL-KGVI: 7.6 mg/m ³ 15 minutama. | TWA: 1 ppm 8 hr. TWA: 2.5 mg/m ³ 8 hr. STEL: 3 ppm 15 min STEL: 7.6 mg/m ³ 15 min Skin | Skin-potential for cutaneous absorption STEL: 3 ppm STEL: 7.6 mg/m ³ TWA: 1 ppm TWA: 2.5 mg/m ³ | TWA: 2.5 mg/m ³ 8 hodinách. Potential for cutaneous absorption Ceiling: 7.5 mg/m ³ |

| Component | Estonia | Gibraltar | Greece | Hungary | Iceland |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | Nahk TWA: 1 ppm 8 tundides. TWA: 2.5 mg/m ³ 8 tundides. STEL: 3 ppm 15 minutites. STEL: 7.6 mg/m ³ 15 minutites. | Skin notation TWA: 1 ppm 8 hr TWA: 2.5 mg/m ³ 8 hr STEL: 3 ppm 15 min STEL: 7.6 mg/m ³ 15 min | skin - potential for cutaneous absorption STEL: 3 ppm STEL: 7.6 mg/m ³ TWA: 1 ppm TWA: 2.5 mg/m ³ | STEL: 7.6 mg/m ³ 15 percekben. CK TWA: 2.5 mg/m ³ 8 órában. AK lehetséges borón keresztüli felszívódás | STEL: 3 ppm STEL: 7.6 mg/m ³ TWA: 1 ppm 8 klukkustundum. TWA: 2.5 mg/m ³ 8 klukkustundum. Skin notation Ceiling: 2 ppm Ceiling: 5 mg/m ³ |

| Component | Latvia | Lithuania | Luxembourg | Malta | Romania |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | skin - potential for cutaneous exposure STEL: 3 ppm STEL: 7.6 mg/m ³ TWA: 0.2 ppm TWA: 0.5 mg/m ³ | TWA: 3 ppm IPRD TWA: 8 mg/m ³ IPRD Oda STEL: 6 ppm STEL: 15 mg/m ³ | TWA: 1 ppm 8 Stunden TWA: 2.5 mg/m ³ 8 Stunden STEL: 3 ppm 15 Minuten STEL: 7.6 mg/m ³ 15 Minuten | possibility of significant uptake through the skin TWA: 1 ppm TWA: 2.5 mg/m ³ STEL: 3 ppm 15 minuti STEL: 7.6 mg/m ³ 15 minuti | Skin notation TWA: 1 ppm 8 ore TWA: 2.5 mg/m ³ 8 ore STEL: 3 ppm 15 minute STEL: 7.6 mg/m ³ 15 minute |

| Component | Russia | Slovak Republic | Slovenia | Sweden | Turkey |
|--------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Ethanolamine | Skin notation MAC: 0.5 mg/m ³ | Ceiling: 7.6 mg/m ³ Potential for cutaneous absorption TWA: 1 ppm TWA: 2.5 mg/m ³ | TWA: 1 ppm 8 urah TWA: 2.5 mg/m ³ 8 urah Koža STEL: 3 ppm 15 minutah STEL: 7.5 mg/m ³ 15 minutah | STV: 6 ppm 15 minuter STV: 15 mg/m ³ 15 minuter LLV: 3 ppm 8 timmar. LLV: 8 mg/m ³ 8 timmar. Hud | Deri TWA: 1 ppm 8 saat TWA: 2.5 mg/m ³ 8 saat STEL: 3 ppm 15 dakika STEL: 7.6 mg/m ³ 15 dakika |

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

Workers; See table for values

| Component | Acute effects local (Oral) | Acute effects systemic (Oral) | Chronic effects local (Oral) | Chronic effects systemic (Oral) |
|--------------|-------------------------------|----------------------------------|---------------------------------|------------------------------------|
| Ethanolamine | | | | 3.75 mg/kg |

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| | | | | |
|------------------|--|--|--|--|
| 141-43-5 (>95) | | | | |
|------------------|--|--|--|--|

| Component | Acute effects local (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects systemic (Dermal) |
|----------------------------------|------------------------------|---------------------------------|--------------------------------|------------------------------------------------|
| Ethanolamine 141-43-5 (>95) | | | | DNEL = 3mg/kg bw/day DNEL = 331mg/kg bw/day |

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|----------------------------------|----------------------------------|-------------------------------------|------------------------------------|----------------------------------------------------------|
| Ethanolamine 141-43-5 (>95) | | | DNEL = 0.51mg/m ³ | DNEL = 1mg/m ³ DNEL = 156mg/m ³ |

Predicted No Effect Concentration (PNEC)

See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture) |
|----------------------------------|----------------------------------|----------------------------------------------------------------|------------------------------------|------------------------------------|--------------------------------------------------------|
| Ethanolamine 141-43-5 (>95) | PNEC = 0.07mg/L PNEC = 57µg/L | PNEC = 0.357mg/kg sediment dw PNEC = 0.533mg/kg sediment dw | PNEC = 0.028mg/L PNEC = 100µg/L | PNEC = 100mg/L PNEC = 5mg/L | PNEC = 1.29mg/kg soil dw PNEC = 0.0731mg/kg soil dw |

| Component | Marine water | Marine water sediment | Marine water Intermittent | Food chain | Air |
|----------------------------------|------------------------------------|------------------------------------------------------------------|---------------------------|------------|-----|
| Ethanolamine 141-43-5 (>95) | PNEC = 0.007mg/L PNEC = 5.7µg/L | PNEC = 0.0357mg/kg sediment dw PNEC = 0.0533mg/kg sediment dw | | | |

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|----------------|-----------------------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers recommendations | - | EN 374 | (minimum requirement) |
| Nitrile rubber | | | | |
| Neoprene | | | | |
| PVC | | | | |

Skin and body protection

Wear impervious gloves and/or clothing if needed to prevent contact with the material.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local

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conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Ammonia and organic ammonia derivatives filter Type K Green conforming to EN14387 Particulates filter conforming to EN 143

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls Prevent product from entering drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | |
|-----------------------------------------|-----------------------------------------------|------------------------------------------|
| Physical State | Liquid | |
| Appearance | Colorless | |
| Odor | Fishy | |
| Odor Threshold | No data available | |
| Melting Point/Range | 10 °C / 50 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 170 °C / 338 °F | @ 760 mmHg |
| Flammability (liquid) | Combustible liquid | On basis of test data |
| Flammability (solid,gas) | Not applicable | Liquid |
| Explosion Limits | Lower 5.5 vol% Upper 17 vol% | |
| Flash Point | 92 °C / 197.6 °F | Method - No information available |
| Autoignition Temperature | 450 °C / 842 °F | |
| Decomposition Temperature | No data available | |
| pH | 12 @ 20°C | 20 g/l aq. sol |
| Viscosity | 24 cP at 20 °C | |
| Water Solubility | Miscible | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Component | log Pow -1.91 | |
| Ethanolamine | | |
| Vapor Pressure | 0.48 mmHg @ 20°C | |
| Density / Specific Gravity | 1.012 | |
| Bulk Density | Not applicable | Liquid |
| Vapor Density | 2.1 (Air = 1.0) | (Air = 1.0) |
| Particle characteristics | Not applicable (liquid) | |

9.2. Other information

| | |
|----------------------|----------------------------------------|
| Molecular Formula | C2 H7 N O |
| Molecular Weight | 61.08 |
| Explosive Properties | explosive air/vapour mixtures possible |
| Evaporation Rate | > 1 (Butyl Acetate = 1.0) |

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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Hygroscopic. Air sensitive.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous Reactions

Hazardous polymerization does not occur.
None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to moist air or water.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NO_x). Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

| | |
|------------|------------|
| Oral | Category 4 |
| Dermal | Category 4 |
| Inhalation | Category 4 |

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------|--------------------|---------------------------------------------|-----------------------------|
| Ethanolamine | 1720 mg/kg (Rat) | 1000 mg/kg (Rabbit) 1 mL/kg (Rabbit) | LC50 > 1.3 mg/L (Rat) 6 h |

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

| | |
|-------------|------------------------------------------------------------------|
| Respiratory | Based on available data, the classification criteria are not met |
| Skin | Based on available data, the classification criteria are not met |

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met
There are no known carcinogenic chemicals in this product

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| | |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (g) reproductive toxicity; | Based on available data, the classification criteria are not met |
| (h) STOT-single exposure; | Category 3 |
| Results / Target organs | Respiratory system. |
| (i) STOT-repeated exposure; | Based on available data, the classification criteria are not met |
| Target Organs | None known. |
| (j) aspiration hazard; | Based on available data, the classification criteria are not met |
| Symptoms / effects, both acute and delayed | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. |

11.2. Information on other hazards

| | |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Endocrine Disrupting Properties | Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors. |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Do not empty into drains. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|--------------|----------------------------------------------------------------------------|-------------------|-------------------|
| Ethanolamine | Leusiscus idus: LC50: >200 mg/L/48h Salmo gairdneri: LC50: 150 mg/L/96h | EC50: 65 mg/L/48h | EC50: 15 mg/L/72h |

| Component | Microtox | M-Factor |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------|----------|
| Ethanolamine | Pseudomonas putida: EC50: 110 mg/L/17 h Nitrosomonas: EC50: 12200 mg/L/2 h Photobacterium phosphoreum: EC50: 13.7 mg/L/30 min | |

12.2. Persistence and degradability

Persistence

Readily biodegradable

Soluble in water, Persistence is unlikely, based on information available, Miscible with water.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

| Component | log Pow | Bioconcentration factor (BCF) |
|--------------|---------|-------------------------------|
| Ethanolamine | -1.91 | No data available |

12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

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12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with high pH-value must be neutralized before discharge. Do not let this chemical enter the environment.

Switzerland - Waste Ordinance

Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number

UN2491

14.2. UN proper shipping name

ETHANOLAMINE

14.3. Transport hazard class(es)

8

14.4. Packing group

III

ADR

14.1. UN number

UN2491

14.2. UN proper shipping name

ETHANOLAMINE

14.3. Transport hazard class(es)

8

14.4. Packing group

III

IATA

14.1. UN number

UN2491

14.2. UN proper shipping name

ETHANOLAMINE

14.3. Transport hazard class(es)

8

14.4. Packing group

III

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- 14.5. Environmental hazards** No hazards identified
- 14.6. Special precautions for user** No special precautions required.
- 14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|--------------|----------|-----------|--------|-----|-------|------|------|------|------|
| Ethanolamine | 141-43-5 | 205-483-3 | - | - | X | X | X | X | X |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|--------------|----------|------|-----------------------------------------------|-----|------|------|-------|-------|
| Ethanolamine | 141-43-5 | X | ACTIVE | X | - | X | X | X |

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

Authorisation/Restrictions according to EU REACH

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|--------------|----------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Ethanolamine | 141-43-5 | - | Use restricted. See item 75. (see link for restriction details) | - |

REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

Seveso III Directive (2012/18/EC)

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|--------------|----------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Ethanolamine | 141-43-5 | Not applicable | Not applicable |

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

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Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|--------------|---------------------------------------|------------------------------------------------------|
| Ethanolamine | WGK 1 | Class I : 20 mg/m ³ (Massenkonzentration) |

| Component | France - INRS (Tables of occupational diseases) |
|--------------|---------------------------------------------------------------|
| Ethanolamine | Tableaux des maladies professionnelles (TMP) - RG 49,RG 49bis |

Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (volatile organic compound)

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<https://echa.europa.eu/information-on-chemicals>
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

| | |
|------------------|----------------------------------------------------|
| Prepared By | Health, Safety and Environmental Department |
| Creation Date | 11-Jun-2009 |
| Revision Date | 24-Mar-2024 |
| Revision Summary | New emergency telephone response service provider. |

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No
1907/2006 .**

**For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2,
Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and
Preparations).**

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet