SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 03.04.2019 Version 9.3

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

1.1 Product identifier

Catalogue No.	108379
Product name	Triethanolamine GR for analysis
REACH Registration Number	01-2119486482-31-XXXX
CAS-No.	102-71-6

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number

Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	$N(CH_2CH_2OH)_3$	$C_6H_{15}NO_3$ (Hill)
EC-No.	203-049-8	
Molar mass	149,19 g/mol	

Remarks No disclosure requirement according to Regulation (EC) No. 1907/2006.

3.2 Mixture
Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

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

After eye contact: rinse out with plenty of water. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

Cough, Pain, Dizziness, Unconsciousness, Diarrhoea, Nausea, Vomiting, collapse, Tiredness

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Combustible.
Vapours are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for firefighters
In the event of fire, wear self-contained breathing apparatus.

Further information
Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH^-, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed.

Recommended storage temperature see product label.

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

Derived No Effect Level (DNEL)

Worker DNEL, longterm	Systemic effects	inhalation	5 mg/m³
Worker DNEL, longterm	Systemic effects	dermal	6,3 mg/kg Body weight
Worker DNEL, longterm	Local effects	inhalation	5 mg/m³
Consumer DNEL, longterm	Systemic effects	inhalation	1,25 mg/m³
Consumer DNEL, longterm	Systemic effects	dermal	3,1 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	13 mg/kg Body weight
Consumer DNEL, longterm	Local effects	inhalation	1,25 mg/m³

Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,32 mg/l
PNEC Fresh water sediment	1,7 mg/kg
PNEC Marine water	0,032 mg/l
PNEC Marine sediment	0,17 mg/kg
PNEC Aquatic intermittent release	5,12 mg/l
PNEC Soil	0,151 mg/kg
PNEC Sewage treatment plant	10 mg/l

8.2 Exposure controls

Engineering measures
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection
Safety glasses

Hand protection

full contact:

Glove material:	natural latex
Glove thickness:	0,6 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm

Break through time: > 60 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 706 Lapren® (full contact), KCL 741 Dermatril® L (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Respiratory protection
Not required; except in case of aerosol formation.

Environmental exposure controls
Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	light yellow
Odour	amine-like
Odour Threshold	No information available.
pH	10,5 at 15 g/l 20 °C
Melting point	21 °C
Boiling point/boiling range	360 °C at 1.013 hPa (decomposition)
Flash point	190 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	3,6 %(V)
Upper explosion limit	7,2 %(V)

Vapour pressure	< 0,01 hPa at 20 °C
Relative vapour density	5,14
Density	1,12 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: -2,3 (25 °C) OECD Test Guideline 107 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	600 mPa.s at 25 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	325 °C DIN 51794

SECTION 10. Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

Sensitive to air.

10.3 Possibility of hazardous reactions

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

Exothermic reaction with:

anhydrides, halogenating agents, Nitriles, Oxidizing agents, acids

A risk of explosion and/or of toxic gas formation exists with the following substances:

Acid chlorides

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
nonferrous metals, Light metals

10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
LD50 Rat: 6.400 mg/kg
OECD Test Guideline 401

Acute inhalation toxicity

Symptoms: Cough

Acute dermal toxicity
LD50 Rabbit: > 2.000 mg/kg
OECD Test Guideline 402

Skin irritation
Rabbit
Result: No irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: No eye irritation
OECD Test Guideline 405

Sensitisation
Sensitisation test: Guinea pig
Result: negative
Method: OECD Test Guideline 406

Germ cell mutagenicity
Genotoxicity in vivo
Mutagenicity (mammal cell test): micronucleus.
Result: negative

(National Toxicology Program)

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster ovary cells
Result: negative
Method: OECD Test Guideline 473

In vitro mammalian cell gene mutation test
Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 476

Carcinogenicity
This information is not available.

Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
This information is not available.

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information

Systemic effects:
After uptake of large quantities:
Nausea, Vomiting, Diarrhoea, Dizziness, Tiredness, collapse, Unconsciousness
After long-term exposure to the chemical:
Damage to:
Liver, Kidney
Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.
However, when the product is handled appropriately, hazardous effects are unlikely to occur.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish
flow-through test LC50 Pimephales promelas (fathead minnow): 11.800 mg/l; 96 h
(ECHA)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 1.390 mg/l; 24 h
(IUCLID)

Toxicity to algae
EC10 Desmodesmus subspicatus (green algae): 7,9 mg/l; 72 h
DIN 38412 part 9

ErC50 Desmodesmus subspicatus (green algae): 216 mg/l; 72 h
DIN 38412 part 9

Toxicity to bacteria
static test EC50 activated sludge: > 1.000 mg/l; 3 h
OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
semi-static test NOEC Daphnia magna (Water flea): 16 mg/l; 21 d
Analytical monitoring: yes

OECD Test Guideline 211

12.2 Persistence and degradability
Biodegradability
96 %
OECD Test Guideline 301E
Readily biodegradable

82 %; 8 d
OECD Test Guideline 302B
Readily eliminated from water

Theoretical oxygen demand (ThOD)
2.040 mg/g

(IUCLID)

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: -2,3 (25 °C)
OECD Test Guideline 107

Bioaccumulation is not expected.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects
Additional ecological information
Biological effects:
Harmful effect due to pH shift.
Hazard for drinking water supplies.
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard Legislation	SEVESO III Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation
Storage class 10 - 13

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out according to regulation (EC) No. 1907/2006 (REACH) for this substance.

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation
This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

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