

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



2-Ethoxyethanol ≥ 99%, for synthesis

article number: **5127**
Version: **1.0 en**

date of compilation: 2017-02-22

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

1.1 Product identifier

Identification of the substance	2-Ethoxyethanol
Article number	5127
Registration number (REACH)	01-2119560582-38-xxxx
Index No	603-012-00-X
EC number	203-804-1
CAS number	110-80-5

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

Identified uses: laboratory chemical

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
2.6	flammable liquid	(Flam. Liq. 3)	H226
3.10	acute toxicity (oral)	(Acute Tox. 4)	H302
3.11	acute toxicity (inhal.)	(Acute Tox. 3)	H331
3.7	reproductive toxicity	(Repr. 1B)	H360FD

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2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word

Danger

Pictograms



Hazard statements

H226	Flammable liquid and vapour
H302	Harmful if swallowed
H331	Toxic if inhaled
H360FD	May damage fertility. May damage the unborn child

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat, hot surfaces, sparks, open flames. No smoking.
P261	Avoid breathing mist/vapours/spray.
P270	Do not eat, drink or smoke when using this product.

Precautionary statements - response

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P309	IF exposed or if you feel unwell:.
P310	Immediately call a POISON CENTER/doctor.

For professional users only

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H331	Toxic if inhaled.
H360FD	May damage fertility. May damage the unborn child.
P261	Avoid breathing mist/vapours/spray.
P304+P340	IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.

2.3 Other hazards

There is no additional information.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Ethylene glycol monoethyl ether
Index No	603-012-00-X
Registration number (REACH)	01-2119560582-38-xxxx
EC number	203-804-1
CAS number	110-80-5
Molecular formula	C ₄ H ₁₀ O ₂
Molar mass	90,12 g/mol

Substance of Very High Concern (SVHC)

Name of substance	CAS No	Wt%	Listed in	Remarks
2-Ethoxyethanol	110-80-5	100	Candidate list	Repr. A57c

Legend

candidate list
Repr. A57c

Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV
Toxic for reproduction (article 57c)

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Self-protection of the first aider. Take off immediately all contaminated clothing.

Following inhalation

Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

Irrigate copiously with clean, fresh water, holding the eyelids apart. Consult an ophthalmologist.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects, Headache, Dizziness, Vertigo, Agitation, Nausea, Vomiting, Dyspnoea

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4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, alcohol resistant foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. Vapours can form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Advice for firefighters

Vapours are heavier than air. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Do not breathe vapour/spray. Avoid contact with skin and eyes. Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Explosive properties.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use extractor hood (laboratory). Avoid: Aerosol or mist formation. When not in use, keep containers tightly closed.

- Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Advice on general occupational hygiene

Wash hands before breaks and after work. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

Store locked up. Ground/bond container and receiving equipment.

- Ventilation requirements

Use local and general ventilation.

- Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Source
EU	2-ethoxyethanol	110-80-5		IOELV	2	8			2009/161/EU
IE	2-ethoxyethanol	110-80-5		OELV	2	8			S.I. No. 619 of 2001

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

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Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	83 µg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	0,3 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment
PNEC	1 mg/l	freshwater
PNEC	0,1 mg/l	marine water
PNEC	10 mg/l	water
PNEC	1.000 mg/l	sewage treatment plant (STP)

8.2 Exposure controls

Individual protection measures (personal protective equipment)



Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection

Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C, colour code: Brown).

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Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid (fluid)
Colour	colourless
Odour	like ether
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	(neutral)
Melting point/freezing point	-100 °C
Initial boiling point and boiling range	135 °C at 1.013 hPa
Flash point	40 °C (closed cup)
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)
<u>Explosive limits</u>	
• lower explosion limit (LEL)	1,8 vol%
• upper explosion limit (UEL)	15,7 vol%
Explosion limits of dust clouds	not relevant
Vapour pressure	5,3 hPa at 20 °C
Density	0,93 g/cm ³ at 20 °C
Vapour density	3,1 (air = 1)
Bulk density	Not applicable
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	soluble
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	0,32 (ECHA)
Auto-ignition temperature	235 °C
Decomposition temperature	no data available

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Viscosity

• dynamic viscosity 2,1 mPa s at 20 °C

Explosive properties Shall not be classified as explosive

Oxidising properties none

9.2 Other information

Temperature class (EU, acc. to ATEX) T3 (Maximum permissible surface temperature on the equipment: 200°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

May form explosive peroxides.

10.2 Chemical stability

Reactivity if exposed to air.

10.3 Possibility of hazardous reactions

Violent reaction with: Oxidisers, Aluminium

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

aluminium, copper, Light metals

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
oral	LD50	2.125 mg/kg	rat	TOXNET
dermal	LD50	3.900 mg/kg	rabbit	TOXNET

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

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Summary of evaluation of the CMR properties

Reproductive toxicity: May damage fertility or the unborn child

- **Specific target organ toxicity - single exposure**

Shall not be classified as a specific target organ toxicant (single exposure).

- **Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**

gastrointestinal complaints, nausea, vomiting, diarrhoea

- **If in eyes**

causes slight to moderate irritation

- **If inhaled**

irritant effects, headache, vertigo, dizziness, breathing difficulties

- **If on skin**

slightly irritant

Other information

Other adverse effects: Dyspnoea, Narcosis, Liver and kidney damage

SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
EC50	7.670 mg/l	daphnia magna		48 h
EC50	>1.000 mg/l	Grünalge	IUCLID	72 h
LC50	>10.000 mg/l	bluegill (Lepomis macrochirus)	IUCLID	96 h

12.2 Process of degradability

The substance is readily biodegradable.

Theoretical Oxygen Demand: 1.950 mg/g

Theoretical Carbon Dioxide: 1,953 mg/mg

Biochemical Oxygen Demand: 1.100 mg/g at 5 h

Process	Degradation rate	Time
biotic/abiotic	100 %	14 d

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12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) 0,32

12.4 Mobility in soil

Data are not available.

Henry's law constant $0 \text{ Pa m}^3/\text{mol}$

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	1171
14.2	UN proper shipping name	ETHYLENE GLYCOL MONOETHYL ETHER
	Hazardous ingredients	2-Ethoxyethanol
14.3	Transport hazard class(es)	
	Class	3 (flammable liquids)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)
14.6	Special precautions for user	
	Provisions for dangerous goods (ADR) should be complied within the premises.	

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

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1171
Proper shipping name	ETHYLENE GLYCOL MONOETHYL ETHER
Particulars in the transport document	UN1171, ETHYLENE GLYCOL MONOETHYL ETHER, 3, III, (D/E)
Class	3
Classification code	F1
Packing group	III
Danger label(s)	3



Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	D/E
Hazard identification No	30

• International Maritime Dangerous Goods Code (IMDG)

UN number	1171
Proper shipping name	ETHYLENE GLYCOL MONOETHYL ETHER
Particulars in the shipper's declaration	UN1171, ETHYLENE GLYCOL MONOETHYL ETHER, 3, III, 40°C c.c.
Class	3
Packing group	III
Danger label(s)	3



Special provisions (SP)	-
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-D
Stowage category	A

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• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1171
Proper shipping name	Ethylene glycol monoethyl ether
Particulars in the shipper's declaration	UN1171, Ethylene glycol monoethyl ether, 3, III
Class	3
Packing group	III
Danger label(s)	3



Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**
Not listed.
- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**
Not listed.
- **Regulation 850/2004/EC on persistent organic pollutants (POP)**
Not listed.
- **Restrictions according to REACH, Annex XVII**

Name of substance	Wt%	Type of registration	No
2-Ethoxyethanol	100	1907/2006/EC annex XVII	3
2-Ethoxyethanol	100	1907/2006/EC annex XVII	30
2-Ethoxyethanol	100	1907/2006/EC annex XVII	40

• List of substances subject to authorisation (REACH, Annex XIV)

Name acc. to inventory	CAS No	Listed in	Remarks
2-ethoxyethanol	110-80-5	Candidate list	Repr. A57c

Legend

candidate list
Repr. A57c

Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV
Toxic for reproduction (article 57c)

• Seveso Directive

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2012/18/EU (Seveso III)

No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements		Notes
H2	acute toxic (cat. 2 + cat. 3, inhal.)	50	200	41)

Notation

- 41) - Category 2, all exposure routes
- category 3, inhalation exposure route

• Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)

VOC content 100 %

• Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content 100 %

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

National inventories

Substance is listed in the following national inventories:

- EINECS/ELINCS/NLP (Europe)
- DSL/NDSL (Canada)
- REACH (Europe)
- Toxic Substance Control Act (TSCA)

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2009/161/EU	Commission Directive establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)

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Abbr.	Descriptions of used abbreviations
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	reproductive toxicity
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
STEL	short-term exposure limit
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

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Code	Text
H226	flammable liquid and vapour
H302	harmful if swallowed
H331	toxic if inhaled
H360FD	may damage fertility. May damage the unborn child

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.