

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 26.10.2017

Version 12.0

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

1.1 Product identifier

Catalogue No. 800181

Product name Acrylic acid (stabilised with hydroquinone monomethyl ether) for synthesis

REACH Registration Number A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. 79-10-7

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

Identified uses Chemical for synthesis
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.

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SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 3, H226

Acute toxicity, Category 4, Oral, H302

Acute toxicity, Category 4, Inhalation, H332

Acute toxicity, Category 4, Dermal, H312

Skin corrosion, Category 1A, H314

|| Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335

Acute aquatic toxicity, Category 1, H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H226 Flammable liquid and vapour.

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

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

Precautionary statements

Prevention

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P210 Keep away from heat.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

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

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

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

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Index-No. 607-061-00-8

2.3 Other hazards

None known.

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SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	CH ₂ =CHCOOH	C ₃ H ₄ O ₂ (Hill)
Index-No.	607-061-00-8	
EC-No.	201-177-9	
Molar mass	72,06 g/mol	

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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acrylic acid ($\geq 50\%$ - $\leq 100\%$)

79-10-7 *)

Flammable liquid, Category 3, H226
Acute toxicity, Category 4, H302
Acute toxicity, Category 4, H332
Acute toxicity, Category 4, H312
Skin corrosion, Category 1A, H314
Specific target organ toxicity - single exposure, Category 3, H335
Acute aquatic toxicity, Category 1, H400

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For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

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General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

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

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Risk of blindness!

Irritation and corrosion, Cough, Shortness of breath

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.

Forms explosive mixtures with air at elevated temperatures.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

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5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system. Suppress (knock down) gases/vapours/mists with a water spray jet.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. 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. Risk of explosion.

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® H⁺, Merck Art. No. 101595). 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

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Advice on safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

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

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.

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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

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	> 120 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 898 Butoject® (full contact), KCL 730 Camatril® -Velours (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).

Other protective equipment

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be

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properly documented.

Environmental exposure controls

Do not let product enter drains.

Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	stinging
Odour Threshold	No information available.
pH	2,1 at 72,06 g/l 20 °C
Melting point	13 °C
Boiling point/boiling range	141 °C at 1.013 hPa
Flash point	46 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.

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Lower explosion limit	3,9 %(V)
Upper explosion limit	19,8 %(V)
Vapour pressure	3,8 hPa at 20 °C
Relative vapour density	2,45
Density	1,05 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	1.000 g/l at 25 °C
Partition coefficient: n-octanol/water	log Pow: 0,38 (25 °C) OECD Test Guideline 107 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	1,22 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

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Ignition temperature	390 °C
	DIN 51794

SECTION 10. Stability and reactivity

10.1 Reactivity

Polymerisation can occur.

Vapour/air-mixtures are explosive at intense warming.

10.2 Chemical stability

heat-sensitive

In case of decomposition in closed containers and tubes risk of bursting due to buildup of overpressure.

Please observe stabilisation.

Stabilizer

hydroquinone monomethyl ether

10.3 Possibility of hazardous reactions

Risk of explosion with:

Oxidizing agents, polymerisation initiators, Peroxides, Oxygen

Violent polymerisation may be caused by:

alkali hydroxides, Amines, Ammonia, sulphuric acid, mercaptans, azides, Ether, Ketones,

Aldehydes, nitrates, nitrites

increased reactivity with:

anhydrides

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

Copper, Nickel, Mild steel, Zinc

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10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

LD50 Rabbit: ca. 1.000 mg/kg

Skin irritation

Rabbit

Result: Causes burns.

(IUCLID)

Causes severe burns.

Eye irritation

Rabbit

Result: Causes burns.

(IUCLID)

Causes serious eye damage.

Risk of blindness!

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Sensitisation

Sensitisation test: Guinea pig

Result: negative

(Lit.)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

Mutagenicity (mammal cell test):

Result: negative

(Lit.)

Carcinogenicity

Did not show carcinogenic effects in animal experiments. (IUCLID)

Reproductive toxicity

No impairment of reproductive performance in animal experiments. (IUCLID)

Teratogenicity

Did not show teratogenic effects in animal experiments. (IUCLID)

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Target Organs: Respiratory system

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

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11.2 Further information

After absorption:

We have no description of any toxic symptoms.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC50 *Oncorhynchus mykiss* (rainbow trout): 27 mg/l; 96 h

OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

EC50 *E.sulcatum*: 20 mg/l; 72 h

(maximum permissible toxic concentration) (Lit.)

EC50 *Daphnia magna* (Water flea): 47 mg/l; 48 h

(IUCLID)

Toxicity to algae

NOEC *Chlorella vulgaris* (Fresh water algae): 0,2 mg/l; 72 h

OECD Test Guideline 201

IC50 *Desmodesmus subspicatus* (green algae): 0,13 mg/l; 72 h

(IUCLID)

Toxicity to bacteria

EC50 *Pseudomonas putida*: 41 mg/l; 16 h

(maximum permissible toxic concentration) (IUCLID)

EC20 activated sludge: 900 mg/l; 30 min

ISO 8192

(IUCLID)

12.2 Persistence and degradability

Biodegradability

100 %; 5 d

OECD Test Guideline 302B

Readily eliminated from water

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81 %; 28 d

OECD Test Guideline 301D

Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 0,38 (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

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Additional ecological information

Biological effects:

Neutralise before sewage disposal.

Discharge into the environment must be avoided.

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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 UN number	UN 2218
14.2 Proper shipping name	ACRYLIC ACID, STABILIZED
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 2218
14.2 Proper shipping name	ACRYLIC ACID, STABILIZED
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

Sea transport (IMDG)

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14.1 UN number	UN 2218
14.2 Proper shipping name	ACRYLIC ACID, STABILIZED
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
EmS	F-E S-C

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	SEVESO III
Legislation	FLAMMABLE LIQUIDS
	P5c
	Quantity 1: 5.000 t
	Quantity 2: 50.000 t
	SEVESO III
	ENVIRONMENTAL HAZARDS
	E1
	Quantity 1: 100 t
	Quantity 2: 200 t

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
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Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

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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
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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).
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National legislation

Storage class	3
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15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

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

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

Training advice

Provide adequate information, instruction and training for operators.

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Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

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P210 Keep away from heat.

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P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

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.

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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.