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

Revision Date 19.02.2014 Version 2.0

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

1.1 Product identifier

Catalogue No.	800605
Product name	Propionic acid 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.	79-09-4

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.merck-chemicals.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	EHS Manager *+61 (3) 8727 6300 * Monday through Friday, 8:00am to 5:00pm (EST)
Regional representation	Merck Pty. Limited ABN 80 001 239 818 Ground Floor, Building 1 885 Mountain Highway Bayswater VIC 3153 Australia www.merckmillipore.com

1.4 Emergency telephone number

+61 (3) 8727 6300
After hours: CHEMCALL +64 4 917 9888
Poisons Information Centre: 13 1126

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 3, H226
Skin corrosion, Category 1B, H314

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

Classification (67/548/EEC or 1999/45/EC)

C	Corrosive	R34

For the full text of the R-phrases 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.
H314 Causes severe skin burns and eye damage.

Precautionary statements
Prevention
P210 Keep away from heat.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
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.
P309 + P310 IF exposed or if you feel unwell: 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.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

CAS-No. 79-09-4

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula CH_3CH_2COOH $C_3H_6O_2$ (Hill)

EC-No. 201-176-3
Molar mass 74,08 g/mol

Hazardous components (REGULATION (EC) No 1272/2008)
Chemical Name (Concentration)
CAS-No. Registration number Classification
propionic acid *(<= 100 %)*
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.
79-09-4 *)
Flammable liquid, Category 3, H226
Skin corrosion, Category 1B, H314

*) 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.

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

Hazardous components (1999/45/EC)
Chemical Name (Concentration)
CAS-No. Classification
propionic acid *(<= 100 %)*
79-09-4 C, Corrosive; R34

For the full text of the R-phrases mentioned in this Section, see Section 16.

3.2 Mixture
not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures
General advice
First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

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

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
Irritation and corrosion, Cough, Shortness of breath, Nausea, Vomiting
Risk of blindness!

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
Carbon dioxide (CO2), Foam, Dry powder, Water

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 at elevated temperatures.
Pay attention to flashback.
Development of hazardous combustion gases or vapours possible in the event of fire.

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
Cool closed containers exposed to fire with water spray. 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. 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 empty into 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 material (e.g. Chemizorb®). 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.

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

propionic acid (79-09-4)

AU OEL	Time Weighted Average (TWA):	10 ppm 30 mg/m³

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
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
Acid-resistant 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 entrepeneur 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 properly documented.

Environmental exposure controls
Do not empty into drains.
Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	unpleasant
Odour Threshold	0,0003 - 19,5 ppm
pH	2,5 at 100 g/l 20 °C
Melting point	-20 °C
Boiling point/boiling range	141 °C at 1.013 hPa
Flash point	50 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	2,1 %(V)
Upper explosion limit	12 %(V)
Vapour pressure	5 hPa at 20 °C
Relative vapour density	2,56
Relative density	0,993 g/cm³ at 20 °C
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: 0,33 (experimental) Bioaccumulation is not expected. (Lit.)
Auto-ignition temperature	No information available.

Decomposition temperature	No information available.
Viscosity, dynamic	1,02 mPa.s at 25 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	485 °C DIN 51794

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapour/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Oxidizing agents

Violent reactions possible with:

Iron, Zinc, magnesium

Exothermic reaction with:

bases

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

various plastics

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 rat: 2.600 mg/kg (IUCLID)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Nausea, Vomiting, Risk of aspiration upon vomiting.

Acute inhalation toxicity

LC50 rat: > 5,4 mg/l; 4 h (IUCLID)

Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, damage of respiratory tract

Acute dermal toxicity

LD50 rabbit: 500 mg/kg (IUCLID) (Regulation (EC) No 1272/2008, Annex VI)

Skin irritation
rabbit
Result: Causes burns.
(IUCLID)
Causes burns.

Eye irritation
rabbit
Result: Causes burns.
(IUCLID)
Causes serious eye damage.
Risk of blindness!

Sensitisation
This information is not available.

Germ cell mutagenicity
Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
(National Toxicology Program)

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
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): 51 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 22,7 mg/l; 48 h (ECOTOX Database)

Toxicity to algae
IC50 Desmodesmus subspicatus (green algae): 46 mg/l; 72 h (IUCLID)

Toxicity to bacteria
EC50 Pseudomonas putida: 60 mg/l; 17 h
DIN 38412 (IUCLID)

EC20 activated sludge: > 100 mg/l; 30 min
OECD Test Guideline 209

12.2 Persistence and degradability

Chemical Oxygen Demand (COD)
1.420 mg/g
(IUCLID)

Theoretical oxygen demand (ThOD)
1.510 mg/g
(IUCLID)

Ratio BOD/ThBOD
BOD5 69 - 78 %
(IUCLID)

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: 0,33
(experimental)
Bioaccumulation is not expected. (Lit.)

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.
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods
Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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 3463
14.2 Proper shipping name	PROPIONIC ACID
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	--
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 3463
14.2 Proper shipping name	PROPIONIC ACID
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3463
14.2 Proper shipping name	PROPIONIC ACID WITH NOT LESS THEN 90%
14.3 Class	8 (3)
14.4 Packing group	II
14.5 Environmentally hazardous	--
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

Other regulations

Hazchem Code	*3W

SECTION 15. Regulatory information

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

National legislation

Storage class	3
Standard for the Uniform Scheduling of Medicines and Poisons - Poisons Schedule Number:	S6

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.
H314	Causes severe skin burns and eye damage.

Full text of R-phrases referred to under sections 2 and 3

R34	Causes burns.

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

Labelling (67/548/EEC or 1999/45/EC)

Symbol(s)	 C	Corrosive
R-phrase(s)	34	Causes burns.
S-phrase(s)	23-36-45	Do not breathe vapour. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
EC-No.	201-176-3	

Reduced labelling (≤125 ml)

Symbol(s)	 C	Corrosive
R-phrase(s)	34	Causes burns.
S-phrase(s)	36-45	Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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.

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.