

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.10.2017

Version 9.6

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

### 1.1 Product identifier

Catalogue No. 807167

Product name Nonanoic 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. 112-05-0

### 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](http://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](mailto:prodsafe@merckgroup.com)

1.4 Emergency telephone number Please contact the regional company representation in your country.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

**Classification (REGULATION (EC) No 1272/2008)**

Skin irritation, Category 2, H315

Eye irritation, Category 2, H319

Chronic aquatic toxicity, Category 3, H412

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*

Warning

*Hazard statements*

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

*Precautionary statements*

Prevention

P273 Avoid release to the environment.

Response

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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 807167  
Product name Nonanoic acid for synthesis

---

## Reduced labelling (≤125 ml)

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H412 Harmful to aquatic life with long lasting effects.

*Index-No.* 607-197-00-8

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> COOH	C <sub>9</sub> H <sub>18</sub> O <sub>2</sub> (Hill)
Index-No.	607-197-00-8	
EC-No.	203-931-2	
Molar mass	158,24 g/mol	

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

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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nonanoic acid (≤ 100 %)

112-05-0 \*)

Skin irritation, Category 2, H315

Eye irritation, Category 2, H319

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

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

## 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

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. Call in ophthalmologist. Remove contact lenses.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

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

irritant effects

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

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

## 5.2 Special hazards arising from the substance or mixture

Combustible.

Forms explosive mixtures with air on intense heating.

Vapours are heavier than air and may spread along floors.

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*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Suppress (knock down) gases/vapours/mists with a water spray jet.

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## 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. 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® H<sup>+</sup>, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Observe label precautions.

#### *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*

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.

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## 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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 807167  
Product name Nonanoic acid for synthesis

---

## 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:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 30 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 730 Camatril® -Velours (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](http://www.kcl.de)).

### *Other protective equipment*

protective clothing

### *Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: filter ABEK

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

properly documented.

## Environmental exposure controls

Do not let product enter drains.

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	weak
Odour Threshold	No information available.
pH	4,4 at 0,1 g/l 25 °C Method: DIN 19268
Melting point	13 °C Method: ISO 3016
Boiling point/boiling range	245 - 266 °C at 1.013 hPa Method: OECD Test Guideline 103 Decomposition
Flash point	137 °C Method: ISO 2719
Evaporation rate	No information available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

Flammability (solid, gas)	No information available.
Lower explosion limit	0,8 %(V)
Upper explosion limit	9 %(V)
Vapour pressure	0,04 hPa at 20 °C  0,22 hPa at 50 °C
Relative vapour density	No information available.
Density	0,91 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	0,3 g/l at 25 °C Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	log Pow: 3,4 (25 °C) OECD Test Guideline 117 Bioaccumulation is not expected.
Auto-ignition temperature	355 °C at 1.013 hPa Method: DIN 51794
Decomposition temperature	No information available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

Viscosity, dynamic	8,2 mPa.s at 20 °C Method: ASTM D 445
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Explosive properties	Not classified as explosive.
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Oxidizing properties	none
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## 9.2 Other data

Viscosity, kinematic	9,0 mm <sup>2</sup> /s at 20 °C
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## 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

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

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidizing agents, Reducing agents, alkalines

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

no information available

### 10.6 Hazardous decomposition products

no information available

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### *Acute oral toxicity*

LD50 Rat: > 2.000 mg/kg

OECD Test Guideline 423

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.

#### *Acute inhalation toxicity*

LC50 Rat: > 5,997 mg/l; 4 h ; dust/mist

OECD Test Guideline 403

Symptoms: Possible damages:, mucosal irritations

#### *Acute dermal toxicity*

LD50 Rat: > 2.000 mg/kg

OECD Test Guideline 402

#### *Skin irritation*

Rabbit

Result: Irritations

OECD Test Guideline 404

Causes skin irritation.

#### *Eye irritation*

Causes serious eye irritation.

#### *Sensitisation*

Buehler Test Guinea pig

Result: negative

Method: OECD Test Guideline 406

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

## *Germ cell mutagenicity*

### *Genotoxicity in vitro*

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.

Human lymphocytes

Result: negative

Method: OECD Test Guideline 473

## *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

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

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## SECTION 12. Ecological information

### 12.1 Toxicity

#### *Toxicity to fish*

static test LC50 *Leuciscus idus* (Golden orfe): 7,2 mg/l; 96 h

OECD Test Guideline 203

#### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): 96 mg/l; 48 h

OECD Test Guideline 202

#### *Toxicity to algae*

NOEC *Desmodesmus subspicatus* (green algae): 0,568 mg/l; 72 h  
(ECHA)

#### *Toxicity to fish (Chronic toxicity)*

flow-through test NOEC *Oncorhynchus mykiss* (rainbow trout): 19,2 mg/l; 28 d

OECD Test Guideline 204

### 12.2 Persistence and degradability

#### *Biodegradability*

68 - 75 %; 28 d; aerobic

OECD Test Guideline 301B

Readily biodegradable

### 12.3 Bioaccumulative potential

#### *Partition coefficient: n-octanol/water*

log Pow: 3,4 (25 °C)

OECD Test Guideline 117

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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

## 12.6 Other adverse effects

### *Surface tension*

31,7 mN/m

at 20 °C

Method: OECD Test Guideline 115

31,7 mN/m

at 20 °C

Method: OECD Test Guideline 115

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 UN number UN 3265

14.2 Proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
(NONANOIC ACID)

14.3 Class 8

14.4 Packing group III

14.5 Environmentally hazardous --

14.6 Special precautions for user yes

Tunnel restriction code E

### Inland waterway transport (ADN)

Not relevant

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

## Air transport (IATA)

14.1 UN number	UN 3265
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (NONANOIC ACID)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

## Sea transport (IMDG)

14.1 UN number	UN 3265
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (NONANOIC ACID)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
Not relevant

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## 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	Not applicable

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.
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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

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  $\geq 0.1\%$  (w/w).

## *National legislation*

Storage class      8A

## 15.2 Chemical safety assessment

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

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## SECTION 16. Other information

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

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

### Training advice

Provide adequate information, instruction and training for operators.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	807167
Product name	Nonanoic acid for synthesis

---

## Labelling

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H412 Harmful to aquatic life with long lasting effects.

*Precautionary statements*

Prevention

P273 Avoid release to the environment.

Response

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.

P313 Get medical advice/ attention.

## 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](http://www.wikipedia.org).

## Regional representation

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 807167

Product name Nonanoic acid for synthesis

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*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.*