

# Safety data sheet

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BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.

Date / Revised: 02.06.2016

Version: 5.0

Product: **Linalool**

(ID no. 30034999/SDS\_GEN\_EU/EN)

Date of print 03.06.2016

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

### 1.1. Product identifier

## Linalool

Chemical name: Linalool

CAS Number: 78-70-6

REACH registration number: 01-2119474016-42-0002

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

Relevant identified uses: Chemical, Chemical for detergents, Cosmetic and oral care chemical, flavoring substance

Recommended use: Chemical, flavoring substance, Chemical for detergents, Cosmetic and oral care chemical

For the detailed identified uses of the product see appendix of the safety data sheet.

### 1.3. Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Operating Division Nutrition and Health

Telephone: +49 621 60-48434

E-mail address: EN-global-safety-data@basf.com

### 1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

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## SECTION 2: Hazards Identification

### 2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Skin Corr./Irrit. 2

Eye Dam./Irrit. 2

| Skin Sens. 1B

| H319, H315, H317

For the classifications not written out in full in this section the full text can be found in section 16.

### 2.2. Label elements

Globally Harmonized System, EU (GHS)

Pictogram:



Signal Word:

Warning

Hazard Statement:

H319 Causes serious eye irritation.

H315 Causes skin irritation.

| H317 May cause an allergic skin reaction.

Precautionary Statements (Prevention):

| P280 Wear protective gloves and eye/face protection.

| P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

| P272 Contaminated work clothing should not be allowed out of the workplace.

P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

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

| P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.

| P333 + P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.

P332 + P313 If skin irritation occurs: Get medical advice/attention.

| P362 + P364 Take off contaminated clothing and wash it before reuse.

P337 + P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Disposal):

P501

Dispose of contents/container to hazardous or special waste collection point.

### 2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

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## SECTION 3: Composition/Information on Ingredients

### 3.1. Substances

#### Chemical nature

Linalool

CAS Number: 78-70-6  
EC-Number: 201-134-4

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

### 3.2. Mixtures

Not applicable

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## SECTION 4: First-Aid Measures

### 4.1. Description of first aid measures

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air.

On skin contact:

Wash thoroughly with soap and water. Consult a doctor if skin irritation persists.

On contact with eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:

Rinse mouth and then drink 200-300 ml of water.

**4.2. Most important symptoms and effects, both acute and delayed**

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

**4.3. Indication of any immediate medical attention and special treatment needed**

Treatment: Symptomatic treatment (decontamination, vital functions).

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**SECTION 5: Fire-Fighting Measures****5.1. Extinguishing media**

Suitable extinguishing media:  
water spray, carbon dioxide, dry powder, foam

**5.2. Special hazards arising from the substance or mixture**

Burning produces harmful and toxic fumes.

**5.3. Advice for fire-fighters**

Special protective equipment:  
Wear a self-contained breathing apparatus.

Further information:

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

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**SECTION 6: Accidental Release Measures****6.1. Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation.

**6.2. Environmental precautions**

Do not empty into drains.

**6.3. Methods and material for containment and cleaning up**

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

**6.4. Reference to other sections**

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

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**SECTION 7: Handling and Storage****7.1. Precautions for safe handling**

Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

## 7.2. Conditions for safe storage, including any incompatibilities

Suitable materials for containers: High density polyethylene (HDPE), Aluminium, glass, Low density polyethylene (LDPE), Stove-lacquer RDL 50, Stainless steel 1.4301 (V2), Stainless steel 1.4401  
Further information on storage conditions: Containers should be stored tightly sealed in a dry place. Protect contents from the effects of light. Protect against heat.

## 7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

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## SECTION 8: Exposure Controls/Personal Protection

### 8.1. Control parameters

#### Components with occupational exposure limits

78-70-6: Linalool

#### PNEC

freshwater: 0.2 mg/l

marine water: 0.02 mg/l

intermittent release: 2 mg/l

STP: 10 mg/l

sediment (freshwater): 2.22 mg/kg

soil: 0.327 mg/kg

sediment (marine water): 0.222 mg/kg

oral (secondary poisoning): 7.8 mg/kg

#### DNEL

worker:

Long-term exposure- systemic effects, dermal: 2.5 mg/kg bw/day

worker:

Long-term exposure- systemic effects, Inhalation: 2.8 mg/m<sup>3</sup>

worker:

Long- and short-term exposure - local effects, dermal: 15 mg/cm<sup>2</sup>

consumer:

Long-term exposure- systemic effects, dermal: 1.25 mg/kg bw/day

consumer:

Long-term exposure- systemic effects, Inhalation: 0.7 mg/m<sup>3</sup>

consumer:

Long-term exposure- systemic effects, oral: 0.2 mg/kg bw/day

consumer:

Long- and short-term exposure - local effects, dermal: 15 mg/cm<sup>2</sup>

## 8.2. Exposure controls

### Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:

Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

butyl rubber (butyl) - 0.7 mm coating thickness

nitrile rubber (NBR) - 0.4 mm coating thickness

fluoroelastomer (FKM) - 0.7 mm coating thickness

Suitable materials for short-term contact (recommended: At least protective index 2, corresponding > 30 minutes of permeation time according to EN 374)

chloroprene rubber (CR) - 0.5 mm coating thickness

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

### General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Hands and/or face should be washed before breaks and at the end of the shift.

## SECTION 9: Physical and Chemical Properties

### 9.1. Information on basic physical and chemical properties

Form:	liquid	
Colour:	colourless	
Odour:	flowery	
Odour threshold:	< 100 ppm	
pH value:	not applicable	
Melting point:	< -100 °C	(OECD Guideline 102)
glass transition temperature:	-99 °C	
Boiling point:	196.3 °C (1,013.25 hPa)	(OECD Guideline 103)
Flash point:	81 °C 77.2 °C	(DIN 51758, closed cup) (DIN EN 22719; ISO 2719, closed cup)
Evaporation rate:	not determined	
Flammability:	not readily ignited	(other)
Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Ignition temperature:	250 °C 260 °C	(DIN 51794) (Directive 92/69/EEC, A.15)
Vapour pressure:	0.3 hPa (20 °C)	(measured)
Density:	dynamic 0.862 g/cm <sup>3</sup> (20 °C, 1,013 hPa)	(pycnometer)
Relative density:	0.862 (20 °C)	
Relative vapour density (air):	not determined	
Solubility in water:	1.45 g/l (25 °C, 1,013 hPa)	(other)
Solubility (qualitative) solvent(s):	organic solvents soluble	
Partitioning coefficient n-octanol/water (log Kow):	2.7 (25 °C)	(OECD Guideline 107)
Self ignition:	not self-igniting	

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Thermal decomposition: approx. > 200 °C  
Viscosity, dynamic: 0.446 mPa.s  
(25 °C)  
Literature data.  
Explosion hazard: not explosive  
Fire promoting properties: not fire-propagating

## 9.2. Other information

pKA: not applicable, The substance does not dissociate.  
Adsorption/water - soil: Study scientifically not justified.  
Surface tension: Based on chemical structure, surface activity is not to be expected.  
Grain size distribution: The substance / product is marketed or used in a non solid or granular form.  
Molar mass: 154.25 g/mol

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## SECTION 10: Stability and Reactivity

### 10.1. Reactivity

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
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### 10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

### 10.3. Possibility of hazardous reactions

Evolution of heat under influence of acids.

### 10.4. Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame.

### 10.5. Incompatible materials

Substances to avoid:  
acids

### 10.6. Hazardous decomposition products

Hazardous decomposition products:  
No hazardous decomposition products if stored and handled as prescribed/indicated.

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## SECTION 11: Toxicological Information

### 11.1. Information on toxicological effects

#### Acute toxicity

Assessment of acute toxicity:

Of low toxicity after single ingestion. Virtually nontoxic after a single skin contact.

Experimental/calculated data:

LD50 rat (oral): 2,790 mg/kg

Literature data.

LD50 rabbit (dermal): 5,610 mg/kg

Literature data.

#### Irritation

Assessment of irritating effects:

May cause slight irritation to the eyes. Irritating to skin.

Experimental/calculated data:

Skin corrosion/irritation rabbit: Irritant. (OECD Guideline 404)

Literature data.

Serious eye damage/irritation rabbit: Irritant. (OECD Guideline 405)

#### Respiratory/Skin sensitization

Assessment of sensitization:

Caused skin sensitization in animal studies.

Experimental/calculated data:

Mouse Local Lymph Node Assay (LLNA) mouse: skin sensitizing (OECD Guideline 429)

#### Germ cell mutagenicity

Assessment of mutagenicity:

Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

#### Carcinogenicity

Assessment of carcinogenicity:

Study does not need to be conducted.

#### Reproductive toxicity

Assessment of reproduction toxicity:

The results of animal studies gave no indication of a fertility impairing effect.

#### Developmental toxicity

##### Assessment of teratogenicity:

Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

#### Specific target organ toxicity (single exposure)

##### Assessment of STOT single:

Based on available Data, the classification criteria are not met.

#### Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

##### Assessment of repeated dose toxicity:

Effects on the kidney of male rats were detected after repeated exposure. These effects are specific for the male rat and are known to be of no relevance to humans.

#### Aspiration hazard

No data available.

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## **SECTION 12: Ecological Information**

### **12.1. Toxicity**

#### Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

#### Toxicity to fish:

LC50 (96 h) 27.8 mg/l, *Oncorhynchus mykiss* (OECD Guideline 203, static)

The statement of the toxic effect relates to the analytically determined concentration.

#### Aquatic invertebrates:

EC50 (48 h) 59 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

#### Aquatic plants:

EC50 (72 h) 156.6 mg/l (growth rate), *Desmodesmus subspicatus* (DIN 38412 Part 9, static)

#### Microorganisms/Effect on activated sludge:

EC10 (3 h) > 100 mg/l, (OECD Guideline 209, static)

#### Chronic toxicity to fish:

Study does not need to be conducted.

#### Chronic toxicity to aquatic invertebrates:

Study does not need to be conducted.

Assessment of terrestrial toxicity:  
Study scientifically not justified.

## **12.2. Persistence and degradability**

Assessment biodegradation and elimination (H<sub>2</sub>O):  
Readily biodegradable (according to OECD criteria).

Elimination information:  
60 - 70 % BOD of the ThOD (28 d) (OECD 301D; EEC 92/69, C.4-E) (aerobic, municipal sewage treatment plant effluent)

Assessment of stability in water:  
Study does not need to be conducted.

## **12.3. Bioaccumulative potential**

Assessment bioaccumulation potential:  
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

## **12.4. Mobility in soil**

Assessment transport between environmental compartments:  
Adsorption in soil: Adsorption to solid soil phase is not expected.

## **12.5. Results of PBT and vPvB assessment**

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

## **12.6. Other adverse effects**

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

## **12.7. Additional information**

Sum parameter

Chemical oxygen demand (COD): 2,810 mg/g

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# **SECTION 13: Disposal Considerations**

## **13.1. Waste treatment methods**

Incinerate in suitable incineration plant, observing local authority regulations.

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## SECTION 14: Transport Information

### Land transport

#### ADR

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

#### RID

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

### Inland waterway transport

#### ADN

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

#### Transport in inland waterway vessel

Not evaluated

### Sea transport

#### IMDG

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	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

### **Air transport**

IATA/ICAO

	Not classified as a dangerous good under transport regulations
UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

#### **14.1. UN number**

See corresponding entries for "UN number" for the respective regulations in the tables above.

#### **14.2. UN proper shipping name**

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

#### **14.3. Transport hazard class(es)**

See corresponding entries for "Transport hazard class(es)" for the respective regulations in the tables above.

#### **14.4. Packing group**

See corresponding entries for "Packing group" for the respective regulations in the tables above.

#### **14.5. Environmental hazards**

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

#### **14.6. Special precautions for user**

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

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

Regulation:	Not evaluated
Shipment approved:	Not evaluated

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Pollution name:	Not evaluated
Pollution category:	Not evaluated
Ship Type:	Not evaluated

## SECTION 15: Regulatory Information

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

#### Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 3

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

## SECTION 16: Other Information

#### Assessment of the hazard classes according to UN GHS criteria (most recent version)

Acute Tox. 5 (oral)
Skin Corr./Irrit. 2
Eye Dam./Irrit. 2A
Aquatic Acute 3
Flam. Liq. 4
Skin Sens. 1B

Any other intended applications should be discussed with the manufacturer. Corresponding occupational protection measurements must be followed.

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
Skin Sens.	Skin sensitization
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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