

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: 02.04.2015

Version: 7.0

Product: **Citronellol**

(ID no. 30035053/SDS_GEN_EU/EN)

Date of print 17.09.2015

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

1.1. Product identifier

Citronellol

Chemical name: Citronellol

CAS Number: 106-22-9

REACH registration number: 01-2119453995-23-0000

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

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

According to Directive 67/548/EEC or 1999/45/EC

Xi

N

(Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances)

Possible Hazards:

Irritating to skin.

May cause sensitization by skin contact.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

2.2. Label elements

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

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):

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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.
P333 + P311	If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash 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.
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According to Regulation (EC) No 1272/2008 [CLP]

Hazard determining component(s) for labelling: 3,7-DIMETHYL-OCTEN-6-OL-1

According to Directive 67/548/EEC or 1999/45/EC

as in Annex VI of Directive 67/548/EEC

Hazard symbol(s)

Xi	Irritant.	
N	Dangerous for the environment.	

R-phrases(s)

R38	Irritating to skin.
R43	May cause sensitization by skin contact.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrases(s)

S60	This material and its container must be disposed of as hazardous waste.
S61	Avoid release to the environment. Refer to special instructions/safety data sheets.
S24	Avoid contact with skin.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.

Self classification

Hazard determining component(s) for labelling: 3,7-DIMETHYL-OCTEN-6-OL-1

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.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

Citronellol

CAS Number: 106-22-9

EC-Number: 203-375-0

For the classifications not written out in full in this section, including the indication of danger, the hazard symbols, the R phrases, and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Remove contaminated clothing. First aid personnel should pay attention to their own safety.

If inhaled:

Keep patient calm, remove to fresh air.

On skin contact:

Wash thoroughly with soap and water.

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 immediately and then drink plenty of water, seek medical attention.

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).

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

Suitable extinguishing media:
carbon dioxide, foam, dry powder

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 self-contained breathing apparatus and chemical-protective clothing.

Further information:

Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Fire debris must be disposed of in accordance with official regulations.

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

Avoid contact with the skin, eyes and clothing. Use personal protective clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Do not discharge into drains/surface waters/groundwater.

6.3. Methods and material for containment and cleaning up

For large amounts: Dike spillage. 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.

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: Low density polyethylene (LDPE), glass, High density polyethylene (HDPE), aluminum, Stove-lacquer RDL 50

Further information on storage conditions: Protect from air. Containers should be stored tightly sealed in a dry place. 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.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

| No occupational exposure limits known.

PNEC

freshwater: 0.0024 mg/l

marine water: 0.00024 mg/l

intermittent release: 0.024 mg/l

STP: 580 mg/l

sediment (freshwater): 0.0256 mg/kg

sediment (marine water): 0.00256 mg/kg

soil: 0.00371 mg/kg

DNEL

worker:

Long-term exposure- systemic effects, Inhalation: 161.6 mg/m³

worker:

| Long-term exposure- systemic effects, dermal: 327.4 mg/kg

worker:

| Short-term exposure - local effects, dermal: 2.95 mg/cm²

consumer:

Long-term exposure- systemic effects, Inhalation: 47.8 mg/m³

consumer:

| Long-term exposure- systemic effects, dermal: 196.4 mg/kg

consumer:

Long-term exposure- systemic effects, oral: 13.8 mg/kg

consumer:

| Short-term exposure - local effects, dermal: 2.95 mg/cm²

worker:

| Long- and short-term exposure - local effects, Inhalation: 10 mg/m³

consumer:

| Long- and short-term exposure - local effects, Inhalation: 10 mg/m³

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

butyl rubber (butyl) - 0.7 mm coating thickness

nitrile rubber (NBR) - 0.4 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 based on level of activity and exposure.

General safety and hygiene measures

Avoid contact with the skin, eyes and clothing. Wearing of closed work clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. When using, do not eat, drink or smoke. Store work clothing separately.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form:	oily	
Colour:	colourless	
Odour:	mild, of essential oil	
Odour threshold:	not determined	
pH value:	approx. 7	
Boiling point:	223.8 °C (1,013 hPa)	(measured)
Flash point:	107 °C	(DIN 51758, closed cup)
Evaporation rate:	not determined	
Flammability:	not flammable	
Lower explosion limit:	No data available.	
Upper explosion limit:	No data available.	
Ignition temperature:	240 °C	(DIN 51794)
Vapour pressure:	< 0.01 hPa (20 °C)	(measured)
Density:	0.8549 g/cm ³ (20 °C)	(pycnometer)
	0.83 g/cm ³ (55 °C)	
Relative density:	0.8549 (20 °C)	(pycnometer)
Relative vapour density (air):	not determined	
Solubility in water:	307 mg/l (25 °C)	
Partitioning coefficient n-octanol/water (log Kow):	3.41 (25 °C)	(Directive 92/69/EEC, A.8)
Self ignition:	Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
Thermal decomposition:	> 200 °C	
Viscosity, dynamic:	11.1 mPa.s (20 °C)	(OECD 114)
	5.33 mPa.s (40 °C)	(OECD 114)

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Viscosity, kinematic:	13 mm ² /s (20 °C)	(OECD 114)
	6.34 mm ² /s (40 °C)	(OECD 114)

Explosion hazard: Based on the chemical structure there is no indicating of explosive properties.

Fire promoting properties: Based on its structural properties the product is not classified as oxidizing.

9.2. Other information

Self heating ability: It is not a substance capable of spontaneous heating.

pKA: The substance does not dissociate.

Surface tension: Based on chemical structure, surface activity is not to be expected.

Grain size distribution: Test substance The substance / product is marketed or used in a non solid or granular form.

Molar mass: 156.27 g/mol

SECTION 10: Stability and Reactivity

10.1. Reactivity

Corrosion to metals: No corrosive effect on metal.

Formation of flammable gases: Remarks: Forms no flammable gases in the presence of water.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Substances to avoid:
acids, bases

10.6. Hazardous decomposition products

Hazardous decomposition products:

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

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:

Of low toxicity after single ingestion. Of low toxicity after short-term skin contact.

Experimental/calculated data:

LD50 rat (oral): 3,450 mg/kg

LD50 rabbit (dermal): 2,650 mg/kg

Irritation

Assessment of irritating effects:

Skin contact causes irritation. May cause slight irritation to the eyes.

Experimental/calculated data:

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

Serious eye damage/irritation rabbit: Irritant. (Draize test)

Respiratory/Skin sensitization

Assessment of sensitization:

Sensitization after skin contact possible.

Experimental/calculated data:

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

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. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition. Based on the structure, there is a suspicion of a mutagenic effect.

Carcinogenicity

Assessment of carcinogenicity:

Did not show carcinogenic effects in animal experiments. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Reproductive toxicity

Assessment of reproduction toxicity:

The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies. The results were determined in a Screening test (OECD 421/422). The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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:

The information available on the product provides no indication of toxicity on target organs after repeated exposure. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration hazard

No aspiration hazard expected.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:

Acutely toxic 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) 14.66 mg/l, *Leuciscus idus* (DIN 38412 Part 15, static)

The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:

EC50 (48 h) 17.48 mg/l, *Daphnia magna* (Directive 79/831/EEC, static)

The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

Aquatic plants:

EC50 (72 h) 2.4 mg/l (growth rate), *Scenedesmus subspicatus* (DIN 38412 Part 9, static)

The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

Microorganisms/Effect on activated sludge:

EC10 (30 min) 580 mg/l, *Pseudomonas putida* (DIN 38412 Part 27 (draft), aquatic)

The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish:

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:

Study scientifically not justified.

Assessment of terrestrial toxicity:

Study scientifically not justified.

12.2. Persistence and degradability**Assessment biodegradation and elimination (H₂O):**

Readily biodegradable (according to OECD criteria).

Elimination information:

80 - 90 % BOD of the ThOD (28 d) (OECD 301F; ISO 9408; 92/69/EEC, C.4-D) (aerobic, activated sludge, domestic)

Information on Stability in Water (Hydrolysis):

Study scientifically not justified.

12.3. Bioaccumulative potential**Assessment bioaccumulation potential:**

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is possible.

12.4. Mobility in soil**Assessment transport between environmental compartments:**

Volatility: The substance will slowly evaporate into the atmosphere from the water surface.

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

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(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.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Observe national and local legal requirements.

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

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Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known
Transport in inland waterway vessel:	Not evaluated

Sea transport

IMDG

	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 MARPOL73/78 and the IBC Code

Regulation:	Not evaluated
Shipment approved:	Not evaluated
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**

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

Acute Tox. 5 (oral)
 Acute Tox. 5 (dermal)
 Skin Corr./Irrit. 2
 Aquatic Acute 2
 Eye Dam./Irrit. 2A
 Skin Sens. 1B

Full text of the classifications, including the indication of danger, the hazard symbols, the R phrases, 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
Xi	Irritant.
N	Dangerous for the environment.

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. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility

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of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.