

Safety Data Sheet

Citronellal

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Version: 4.0

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1. Identification

Product identifier used on the label

Citronellal

Recommended use of the chemical and restriction on use

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

Unsuitable for use: Not intended for sale to or use by the general public.

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300

BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Synonyms: Citronellal

2. Hazards Identification

According to Regulation 2024 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Flam. Liq.	4	Flammable liquids
Eye Irrit.	2A	Eye irritation
Skin Sens.	1	Skin sensitization
Aquatic Acute	2	Hazardous to the aquatic environment - acute
Skin Irrit.	2	Skin irritation

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Label elements

Pictogram:



Signal Word:
Warning

Hazard Statement:

H227	Combustible liquid.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H401	Toxic to aquatic life.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P261	Avoid breathing mist or vapour or spray.
P273	Avoid release to the environment.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash contaminated body parts 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.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical attention.
P332 + P313	If skin irritation occurs: Get medical attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P337 + P313	If eye irritation persists: Get medical attention.
P370 + P378	In case of fire: Use extinguishing powder, foam or CO2 for extinction.

Precautionary Statements (Storage):

P403	Store in a well-ventilated place.
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Precautionary Statements (Disposal):

P501	Dispose of contents/container in accordance with local regulations.
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Hazards not otherwise classified

When finely distributed on porose material, self-ignition is possible.

3. Composition / Information on Ingredients

According to Regulation 2024 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

citronellal

CAS Number: 106-23-0

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Content (W/W): 80.0 - 100.0%
Synonym: 3,7-Dimethyl-6-octenal; Citronellal

The actual concentration is withheld as a trade secret.

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing immediately and clean before re-use or dispose it if necessary.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Remove contaminated clothing. Wash skin with soap and water, rinse abundantly. Seek medical attention.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. If irritation develops, seek medical attention.

If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Information on: citronellal

Symptoms: Overexposure may cause: Eye irritation, skin irritation, erythema, allergic contact dermatitis, nausea, headache, vomiting, dizziness, diarrhea, abdominal cramps

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote.
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5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
carbon dioxide, foam, dry powder

Unsuitable extinguishing media for safety reasons:
water

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Special hazards arising from the substance or mixture

Hazards during fire-fighting:

carbon oxides, harmful vapours

The substances/groups of substances mentioned can be released in case of fire. Combustible Liquid

Advice for fire-fighters

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. Cool endangered containers with water-spray.

Impact Sensitivity:

Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Further accidental release measures:

When finely distributed on porose material, self-ignition is possible. Soiled textiles/cleaning rags made of natural fibres (e.g. of pure wool or of pure cotton) are capable of ignition and should not be used and/or must be desposed of in a safe manner.

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Information regarding personal protective measures, see section 8. Ensure adequate ventilation. Do not breathe vapour/spray. Avoid contact with the skin, eyes and clothing.

Environmental precautions

May be harmful to the aquatic environment. Prevent entry into drains and surface waters. Inform the authorities immediately in cases where the product spills into sewage waters.

Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material. Do not use saw-dust or other combustible substances as an absorbant during cleanup.

For large amounts: Dike spillage. Cover with blanket of foam (alcohol-resistant foam). Pump off product.

Dispose of absorbed material in accordance with regulations. Mop up spills with non-flammable adsorbents (e.g. vermiculite, spill mats). Soiled textiles / cleaning rags / adsorbents and Silica are capable of self ignition and should be wetted with water and must be disposed of in a safe manner.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Wear suitable protective clothing and eye/face protection. Avoid contact with the skin, eyes and clothing. Keep container tightly sealed. This product may cause irritations; wash your hands after every contact.

Protection against fire and explosion:

Risk of self-ignition when a large surface area is produced due to fine dispersion. Soiled textiles / cleaning rags / adsorbents and Silica are capable of self ignition and should be wetted with water

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and must be disposed of in a safe manner. Avoid all sources of ignition: heat, sparks, open flame. Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities

Odour-sensitive: Segregate from products releasing odours.

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place. Protect against heat.

8. Exposure Controls/Personal Protection

No substance specific occupational exposure limits known.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate.

Hand protection:

Wear chemical resistant protective gloves.

Eye protection:

Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:

Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended. Avoid contact with the skin, eyes and clothing. Avoid contact with skin and eyes. Remove soiled or soaked clothing immediately. Wash off any contamination that gets onto the skin with plenty of water and soap, skin care.

9. Physical and Chemical Properties

Physical state:	liquid	
Form:	liquid	
Odour:	fruity	
Odour threshold:	< 100 ppm	
Colour:	colourless to yellowish clear	
pH value:	approx. 7	
Melting point:	< -20 °C (1,013 hPa)	
Freezing point:	No data available.	
Boiling point:	206.9 °C (1,013 hPa) Literature data.	
Flash point:	74 °C Literature data.	(closed cup)
Flammability:	Combustible liquid.	(derived from flash point)

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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.	
Autoignition:	202 °C	(DIN 51794)
SADT:	Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.	
Vapour pressure:	0.16 hPa (20 °C) dynamic 1.73 hPa (50 °C) dynamic	(OECD Guideline 104) (OECD Guideline 104)
Density:	0.85 g/cm3 (20 °C)	
Relative density:	0.86 (20 °C)	
Relative vapour density:	5.31 (20 °C) Heavier than air.	(calculated)
Partitioning coefficient n-octanol/water (log Pow):	3.62 (25 °C)	(Directive 92/69/EEC, A.8)
Self-ignition temperature:	Based on its structural properties the product is not classified as self-igniting.	
Thermal decomposition:	>= 190 °C (DSC (DIN 51007))	
Viscosity, dynamic:	1.48 mPa.s (20 °C) 0.52 mPa.s (100 °C)	
Viscosity, kinematic:	1.82 mm2/s (20 °C) 1.33 mm2/s (40 °C)	(OECD Guideline 114)
Solubility in water:	88 mg/l (25 °C)	
Solubility (qualitative):	soluble solvent(s): organic solvents,	
Molecular weight:	154.25 g/mol	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	

Particle characteristics

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

10. Stability and Reactivity

Reactivity

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

Corrosion to metals:

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Corrosive effects to metal are not anticipated.

Oxidizing properties:

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

Formation of Remarks:

flammable gases:

Forms no flammable gases in the presence of water.

Chemical stability

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

Possibility of hazardous reactions

Self-ignition is possible when finely distributed on flammable surfaces in the presence of air.

Conditions to avoid

Avoid electro-static discharge. Avoid all sources of ignition: heat, sparks, open flame.

Incompatible materials

acids, bases

Hazardous decomposition products

Decomposition products:

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

Thermal decomposition:

≥ 190 °C (DSC (DIN 51007))

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of low toxicity after single ingestion. Of low toxicity after short-term skin contact.

Oral

Type of value: LD50

Species: rat

Value: 2,423 mg/kg (BASF-Test)

Inhalation

No data available.

Dermal

Type of value: LD50

Species: rabbit

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Value: > 2,500 - < 5,000 mg/kg

Assessment other acute effects

Assessment of STOT single:

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

Irritation / corrosion

Assessment of irritating effects: Skin contact causes irritation. Eye contact causes irritation.

Skin

Species: rabbit

Result: Irritant.

Method: BASF-Test

Eye

Species: rabbit

Result: Irritant.

Sensitization

Assessment of sensitization: Caused skin sensitization in animal studies.

Guinea pig maximization test

Species: guinea pig

Result: skin sensitizing

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Prolonged repeated exposure caused inflammable degenerative processes in the respiratory tract of rats. Causes irritating effects at esophagus and the gastro-intestinal tract. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture.

Carcinogenicity

Assessment of carcinogenicity: Results from a number of long-term carcinogenity studies are available. Taking into account all of the information, there is no indication that the substance itself is carcinogenic. 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.

Teratogenicity

Assessment of teratogenicity: Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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12. Ecological Information

Toxicity

Aquatic 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) approx. 22 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) 8.7 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) 13.33 mg/l (growth rate), *Scenedesmus subspicatus* (DIN 38412 Part 9, static)

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.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 static

activated sludge, domestic/EC20 (0.5 h): approx. 400 mg/l

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

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Readily biodegradable (according to OECD criteria).

Elimination information

83 % CO₂ formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EWG, C.4-C) (aerobic, activated sludge, domestic, non-adapted)

Assessment of stability in water

Substance is readily biodegradable, therefore hydrolysis is not expected to be relevant.

Bioaccumulative potential

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Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.
The product has not been tested. The statement has been derived from the structure of the product.

Bioaccumulation potential

Bioconcentration factor: 113.6 (calculated)
The product has not been tested. The statement has been derived from the structure of the product.

Mobility in soil

Assessment transport between environmental compartments

The substance will slowly evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.

13. Disposal considerations

Waste disposal of substance:

Observe national and local legal requirements.

Container disposal:

Dispose of in accordance with national, state and local regulations.

14. Transport Information

Land transport

USDOT

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

Chemical TSCA, US

All substances are TSCA listed and active.

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

NFPA Hazard codes:

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Health: 2 Fire: 2 Reactivity: 0 Special:

HMIS III rating

Health: 2 Flammability: 2 Physical hazard: 0

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

Acute Tox.	5 (oral)	Acute toxicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
Aquatic Acute	2	Hazardous to the aquatic environment - acute
Flam. Liq.	4	Flammable liquids
Acute Tox.	5 (dermal)	Acute toxicity
Skin Sens.	1B	Skin sensitization

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2025/08/12

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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