

Revision Number 2

Revision date 07-Dec-2015

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier

Product Code C101901
Product name CITRONELLOL-L

Other means of identification

Synonyms No information available

Recommended use of the chemical and restrictions on use

Recommended use Concentrated aromatic raw material intended for manufacturing use

Details of the Supplier of the Safety Data Sheet

Supplier Address

Takasago International Corporation (USA)
 4 Volvo Drive
 Rockleigh, NJ 07647 USA
 Phone: 1-201-767-9001

Emergency Telephone Number

Company Phone Number Health & Environmental: 1-201-767-9001 9 a.m - 5 p.m. EST M-F

Emergency Telephone Number

CHEMTREC: 1-800-424-9300 24 hours Everyday
 CHEMTREC (International): 01-703-527-3887 [U.S.A.] 24 hours Everyday

2. Hazard identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/Irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin Sensitization	Category 1B

Label Elements

Warning

Hazard Statements

Causes skin irritation
 Causes serious eye irritation
 May cause an allergic skin reaction



Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)

None known

Other Information

Other Hazards None known

3. Composition/information on Ingredients

Formula C10H20O
Hazardous components

	CAS No	Weight-%	Trade secret
Citronellol/laevo	7540-51-4	>=99%	*

4. First aid measures

FIRST AID MEASURES

General advice When in doubt or if symptoms are observed, get medical advice.
Inhalation Remove casualty to fresh air and keep warm and at rest. In case of respiratory tract irritation, consult a physician.
Skin contact Change contaminated, saturated clothing. After contact with skin, wash immediately with plenty of water and soap. In case of skin reactions, consult a physician.
Eye contact In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.
Ingestion If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting.
Self-protection of the first aider Use personal protection recommended in Section 8.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms No known symptoms to date.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media

Foam. Carbon dioxide (CO2). Dry extinguishing powder.

Large Fire Alcohol resistant foam. Water spray.

Unsuitable extinguishing media Full water jet.

Specific hazards

In case of fire may be liberated, Carbon monoxide, Carbon dioxide (CO2), Burning produces heavy smoke, Do not inhale explosion and combustion gases.

Protective equipment and precautions for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Use water spray jet to protect personnel and to cool endangered containers. Move undamaged containers from immediate hazard area if it can be done safely. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protection recommended in Section 8. Remove all sources of ignition. Provide adequate ventilation as well as local exhaust at critical locations. See section 7 for more information.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. Ensure waste is collected and contained.

Methods and material for containment and cleaning up

Methods for cleaning up Clean contaminated surface thoroughly.

7. Handling and Storage

Precautions for Safe Handling

Advice on safe handling Avoid contact with skin, eyes or clothing. Wear protective gloves and eye/face protection. See Section 8 for information on appropriate personal protective equipment. Remove all sources of ignition. Provide adequate ventilation as well as local exhaust at critical locations. Handle and open container with care.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a cool, well-ventilated place. Store in a dry place. Protect from direct sunlight. Remove all sources of ignition. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

8. Exposure Controls/Personal Protection

Control Parameters

Exposure guidelines This product does not contain any substances with occupational exposure limits established by OSHA under 29 CFR 1910 subpart Z, ACGIH or NIOSH.

Appropriate Engineering Controls

Engineering Controls Provide adequate ventilation as well as local exhaust at critical locations. Do not subject to unnecessarily high temperatures during processing.

Individual protection measures, such as personal protective equipment

Eye/face protection	Eye glasses with side protection.
Hand Protection	Wear chemically resistant gloves in combination with 'basic' employee training.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and after work. Do not eat, drink or smoke when using this product.

FEMA Statement This product does not contain any substances at $\geq 0.1\%$ listed as High Priority in Table 1 of the Flavor and Extract Manufacturers Association of the United States Respiratory Health and Safety in the Flavor Manufacturing Workplace (2012 edition)
 This product does not contain any substances at $\geq 1.0\%$ listed as Low Priority in Table 1 of the Flavor and Extract Manufacturers Association of the United States Respiratory Health and Safety in the Flavor Manufacturing Workplace (2012 edition)

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Liquid
Color	colorless
Odor	Floral, Rose, Fresh
Odor threshold	No data available

<u>Property</u>	<u>VALUES</u>	<u>Remarks • Method</u>
pH	No data available	
Melting point / freezing point	No data available	
Boiling point / boiling range	108-110 °C	@ 10 mmHg
Flash Point	102 °C / 216 °F	Cleveland Open Cup, JIS K 2265-4
Evaporation rate	No data available	
Flammability (solid, gas)	No data available	
Flammability Limit in Air		
Upper Flammability Limit	No data available	
Lower Flammability Limit	No data available	
Vapor pressure	0.0102 mmHg@20°C (calculated)	
Vapor Density	No data available	
Relative Density	0.855-0.861 (D20°C/20°C)	
Relative Density	0.850-0.860(D25°C/25°C)	
Water Solubility	60.54 mg/l (25°C)	(calculated)
Solubility in Other Solvents	soluble in 70% Alcohol	
Partition coefficient	log Kow = 3.55 (calculated)	
Autoignition Temperature	No data available	
Decomposition temperature	No data available	
Kinematic viscosity	No data available	
Dynamic viscosity	No data available	
Explosive Properties	No data available	
Oxidizing Properties	No data available	

Other Information

Molecular weight	156.27
Refractive Index	1.453-1.459 (n _{20°C/D})

10. Stability and Reactivity

Reactivity

None under normal use conditions.

Chemical Stability

Stable under normal conditions. Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Extremes of temperature and direct sunlight. Do not heat closed containers.

Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

None under normal use.

11. Toxicological Information

Information on Likely Routes of Exposure

Product Information	No data available.
Inhalation	No data available.
Eye contact	No data available.
Skin contact	No data available.
Ingestion	No data available.

Information on Toxicological Effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin Corrosion/Irritation	The material was irritating to guinea pig skin when tested as a closed patch for 6 hours; 0.5% in diethyl phthalate was not irritating, concentrations of 1% to 10% resulted in slight erythema and concentration of 25% to 100% resulted in moderate erythema. A concentration of 1% in propylene glycol was found mildly irritating in rabbits.
Serious eye damage/eye irritation	l-Citronellol was not irritating in a Draize rabbit eye irritation test when applied at a 1% concentration in propylene glycol.
Sensitization	A concentration of 10% in a Buehler guinea pig test with l-citronellol did not produce sensitization responses. A human repeated insult patch test with d,l-citronellol at 25% produced no sensitization reactions.
Mutagenic effects	Not mutagenic in AMES Test.
Carcinogenicity	This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.
Reproductive Toxicity	No information available.
STOT - Single Exposure	No information available.
STOT - Repeated Exposure	No information available.
Aspiration Hazard	No information available.

Numerical Measures of Toxicity - Product Information

Oral LD50	3450 mg/kg (rats) - d,l-Citronellol
Dermal LD50	2650 mg/kg (rabbit) - d,l-Citronellol

12. Ecological Information

Ecotoxicity	Fish (Lenciscus idus): 96hr-LC50 = 10-22 mg/l; Daphnia: 48hr-EC50 = 17 mg/l; Algae: 72hr-EC50 = 2.4 mg/l.
Persistence and Degradability	d,l-Citronellol was readily and ultimately biodegradable by activated sludge (OECD 301C). d,l-Citronellol was anaerobically metabolized under non-enriched conditions by Pseudomonas citronellolis.
Bioaccumulation	No information available
Other Adverse Effects	No information available

13. Disposal Considerations

Waste Treatment Methods

Waste disposal method	Dispose of in accordance with local regulations.
Contaminated Packaging	Do not reuse container.

14. Transport Information

DOT Non-bulk Packaging

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard class	Not regulated
Packing group	Not regulated
Marine Pollutant	Not applicable

Air transport

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard class	Not regulated
Packing group	Not regulated

IMDG/IMO

UN/ID no	Not regulated
Proper Shipping Name	Not regulated
Hazard class	Not regulated
Packing group	Not regulated
Marine Pollutant	Not applicable

15. Regulatory Information

Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazardous Categorization

Acute health hazard	Yes
Chronic health hazard	No

Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

16. Other Information

Revision date 07-Dec-2015

Disclaimer

The information in this MSDS was obtained from current and reputable sources. However, the data is provided without any warranty, express or implied regarding its accuracy. Where the handling, storage and disposal of this material is beyond the immediate control of Takasago International Corporation, it shall be the user's responsibility to determine safe conditions for the use of this product. The user assumes all liability for loss, injury damage or expense resulting from the improper use of this product.

End of Safety Data Sheet