RENESSENZ

SAFETY DATA SHEET

Distributed by:
J.H. Calo Company, Inc.
A Division Of R.E. Carroll, Inc.
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1. Identification

Product identifier	**Citronellol Prime**
Other means of identification	
Product code	17N85
Recommended use	Fragrance Ingredient.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company name	Renessenz LLC
Address	601 Crestwood Street Jacksonville, Florida 32208
Contact person	Regulatory Affairs Department
Telephone	904-768-5800
Emergency Telephone	CHEMTREC: (USA,Canada): 1-800-424-9300 ; (other): 703-527-3887
Email	SDSRequest@renessenz.com

2. Hazard(s) identification

Physical hazards	Not classified.	
Health Hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Sensitization, skin	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 3
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Avoid breathing mist or vapor. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves. Wear eye/face protection.
Response	If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Specific treatment (see this label). If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Citronellol		106-22-9	85 - < 87
3,7-Dimethyl-1-Octanol		106-21-8	5 - < 10
Alpha-Citronellol		7540-51-4	1 - < 5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation
If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed
Rash. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent product from entering drains. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions
Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

7. Handling and storage

Precautions for safe handling	Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices. Use care in handling/storage.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Face shield is recommended. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance	Clear liquid.
Physical state	Liquid.
Form	Liquid.
Color	Nearly colorless
Odor	Floral.
Odor threshold	Not relevant.
pH	Not relevant.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	437 °F (225 °C)
Boiling point pressure	1013 hPa
Flash point	212.0 °F (100.0 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor density	5.4 (Air=1)
Vapor density temp.	68 °F (20 °C)
Relative density	0.852
Relative density temperature	77 °F (25 °C)

Solubility(ies)	
Solubility (water)	0.3 g/l
Partition coefficient (n-octanol/water)	3.1
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not relevant.
Other information	
Bulk density	Not relevant.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	No adverse effects due to inhalation are expected.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Citronellol (CAS 106-22-9)	Result: Irritating Species: Rabbit
Eye contact	Causes serious eye irritation.
Citronellol (CAS 106-22-9)	Result: non-irritating Species: Rabbit
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Rash. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components	Species	Test Results
Citronellol (CAS 106-22-9)		
Dermal		
LC50	Rabbit	2650 mg/kg
Inhalation		
LC0	Rat	0.4 mg/l, 4 h
Oral		
LD50	Rat	3450 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Eye Contact	
Citronellol (CAS 106-22-9)	Result: non-irritating Species: Rabbit

Respiratory or skin sensitization

Respiratory sensitization	Not classified.
Skin sensitization	May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Mutagenicity

Citronellol (CAS 106-22-9)

Amest test: OECD 471
Result: Negative: S. typhimurium, +/- metabolic activation
mammalian cell gene mutation assay
Result: Negative: Chinese Hamster Ovary; +/- metabolic activation
Species: Hamster

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Citronellol (CAS 106-22-9)

2000 mg/kg/day
Result: NOAEL (male/female)
Species: Rat

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Developmental effects

Citronellol (CAS 106-22-9)

300 mg/kg/day
Result: NOAEL
Species: Rat

Reproductivity

Citronellol (CAS 106-22-9)

300 mg/kg
Result: NOAEL (dermal)
Species: Rat

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Citronellol (CAS 106-22-9)

1000 mg/kg/day Oral
Result: NOAEL
Species: Mouse
Test Duration: 13 weeks
63 mg/m³ Inhalation
Result: NOAEC
Species: Rat
Test Duration: 2 weeks

Aspiration hazard Not classified.

12. Ecological information

Ecotoxicity Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components		Species	Test Results
Citronellol (CAS 106-22-9)			
Aquatic			
Acute			
Algae	EC50	Algae	2.4 mg/l, 72 hours
Crustacea	EC50	Daphnia magna	17.48 mg/l, 48 hours
Fish	LC50	Leuciscus idus	14.66 mg/l, 96 hours
Other			
Bacteria	EC10	Pseudmonas putida	580 mg/l, 30 min
	EC50	Pseudmonas putida	> 10000 mg/l, 30 min

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Rapidly degradable.

Biodegradability

Percent degradation (Aerobic biodegradation)

Citronellol (CAS 106-22-9)

Activated sludge
Result: % Degredation of test substance: 80-90 (02 consumption); readily biodegradable

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Citronellol Prime (CAS 106-22-9)	3.1
Citronellol (CAS 106-22-9)	3.1

Bioconcentration factor (BCF)

Citronellol (CAS 106-22-9)	calculated Result: 82.59 L/kg

Mobility in soil No data available.

Adsorption

Soil/sediment sorption - log Koc

Citronellol (CAS 106-22-9)	Calculation Result: Adsorption coefficient: 1.85

Mobility in general

Volatility

Henry's law

Citronellol (CAS 106-22-9)	Bond estimation method Result: Henry's Law constant H: 5.76 Pa m3/mol at 25C

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

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

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 16-October-2014

Revision date -

Version # 01

NFPA ratings

Disclaimer

Renessenz LLC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.