Safety Data Sheet (MSDS)

- Citronellol

*(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)***Revision Date**: 15 FEB 2026**Product Name**: Citronellol | **CAS No.**: 106-22-9 | **Product Number**: C-20260215 | **Brand**: SIGALD

SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifiers

- Synonyms: 3,7-Dimethyl-6-octen-1-ol; Rhodinol; Citronellol natural
- Chemical Formula: C_{10} H_{20} O | Molecular Weight: 156.27 g/mol

1.2 Details of the supplier of the safety data sheet

- Company: NEWAY SINOPHC TECH. LIMITED
- Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
- Telephone: +86-021-50350029 | Fax: +86-021-50350029

1.3 Emergency telephone

- Emergency Phone #: +86-021-50350029 (CHEMTREC)

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses**: Fragrance & flavor raw material; cosmetic ingredient; insect repellent; pharmaceutical intermediate; essential oil blending raw material.
- **Uses Advised Against**: Not for direct oral consumption in large quantities; no use in infant food without regulatory approval; avoid use in high-temperature processing (>80℃) without stabilizer.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Flammable Liquids (Category 4)
- Skin Irritation (Category 2)
- Eye Irritation (Category 2A)
- Skin Sensitization (Category 1)
- Hazardous to the Aquatic Environment - Acute (Category 2)

2.2 GHS Label Elements

- **Hazard Pictogram**: Flame ( ), Exclamation Mark ( ), Aquatic Hazard ( )
- **Signal Word**: WARNING
- **Hazard Statements**:
  - H227: Combustible liquid
  - H315: Causes skin irritation
  - H317: May cause an allergic skin reaction
  - H319: Causes serious eye irritation
  - H411: Toxic to aquatic life with long lasting effects
- **Precautionary Statements**:
  - P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - P233: Keep container tightly closed.
  - P261: Avoid breathing dust/fume/gas/mist/vapors/spray
  - P264: Wash skin thoroughly after handling
  - P272: Contaminated work clothing should not be allowed out of the workplace.
  - P273: Avoid release to the environment
  - P280: Wear protective gloves/eye protection/face protection
  - P302+P352: If on skin: Wash with plenty of soap and water

- 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+P313: If skin irritation or rash occurs: Get medical advice/attention
- P337+P313: If eye irritation persists: Get medical advice/attention
- P362+P364: Take off contaminated clothing and wash it before reuse
- P370+P378: In case of fire: Use dry chemical, CO2, or foam for extinction
- P501: Dispose of contents/container to an approved waste disposal plant

2.3 Physical and Chemical Hazards

- Combustible liquid; vapor may form flammable mixtures with air at high temperature (>100℃).
- Vapors are slightly heavier than air and may accumulate in low-lying areas at high temperature.
- No explosion risk under normal storage and use conditions with proper ventilation.

2.4 Health Hazards

- Acute: Mild to moderate skin/eye irritation; respiratory tract irritation if inhaled in high concentration; dizziness from excessive inhalation.
- Chronic: Repeated skin contact may cause allergic contact dermatitis in sensitive individuals; no known chronic systemic toxicity based on current data.

2.5 Environmental Hazards

- Toxic to aquatic organisms with long-lasting effects; may cause harm to fish, daphnia and algae.
- Moderately biodegradable; avoid release to water, soil and sewage systems.

2.6 Other Hazards

- May oxidize slowly in air and light to form peroxides with prolonged storage; stabilized with trace antioxidant.

SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture**: Pure substance
- **Active Ingredient**: Citronellol (CAS 106-22-9), Concentration: ≥98.0% (w/w)
- **Hazardous Ingredients**: Only Citronellol (contains trace antioxidant BHT ≤0.01% to prevent oxidation; no other hazardous additives)

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled**: Move victim to fresh air. Keep respiratory tract unobstructed. No special treatment if no discomfort; get medical advice if cough, dizziness or sore throat persists.
- **In Case of Skin Contact**: Remove contaminated clothing immediately. Wash skin thoroughly with plenty of running water and soap for 10-15 minutes. Do not use organic solvents for cleaning.
- **In Case of Eye Contact**: Rinse eyes thoroughly with plenty of running water for 15 minutes, holding eyelids open. Remove contact lenses if present. Get medical attention immediately if irritation, redness or blurred vision persists.
- **If Swallowed**: Do not induce vomiting. Rinse mouth with water. Drink a glass of water or milk (if conscious). Get medical attention immediately if abdominal pain, nausea or vomiting occurs.

4.2 Most Important Symptoms and Effects

- Acute: Redness, burning, itching of skin/eyes; allergic rash (in sensitive individuals); cough, sore throat (inhalation); nausea (ingestion); dizziness (excessive inhalation).
- Delayed: Allergic skin reaction may appear 24-48 hours after contact in sensitive individuals.

4.3 Indication of Immediate Medical Attention

- Required for severe eye irritation, persistent allergic skin rash, severe respiratory discomfort, excessive inhalation or ingestion of large quantities.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable**: Dry chemical powder, carbon dioxide (CO_2), alcohol-resistant foam, water spray (cool container only).
- **Unsuitable**: High-pressure water jet (may spread the fire and vapor).

5.2 Special Hazards Arising from the Substance

- Combustion generates carbon monoxide (CO) and small amounts of volatile organic compounds.
- Oxidized peroxides may decompose during combustion and release minor toxic fumes.

5.3 Advice for Firefighters

- Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective gear.
- Fight fire from upwind and keep a safe distance from burning containers.
- Cool exposed containers with water spray until the fire is completely out to prevent re-ignition.
- Prevent fire runoff from entering sewers, water bodies or soil.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

- Wear nitrile rubber gloves, chemical splash goggles, protective mask and chemical-resistant clothing.
- Eliminate all ignition sources (no smoking, no sparks, no open flames) in the spill area if temperature is above 80℃.
- Ensure good natural or mechanical ventilation; evacuate non-essential personnel for large spills.

6.2 Environmental Precautions

- Contain the spill immediately to prevent release to water, soil, sewers or drains.
- Do not flush the spill into water bodies; use absorbent materials to contain and collect the product.

6.3 Methods and Materials for Containment and Cleaning Up

- **Small Spill**: Absorb with inert, non-combustible materials (sand, diatomite, vermiculite). Collect the absorbed material in a sealed container for proper disposal. Wipe the area with absorbent paper and dispose of it.
- **Large Spill**: Contain with dikes or sand bags (non-combustible). Transfer the liquid to a sealed HDPE container using a pump for recycling or disposal. Flush the spill area with a small amount of water (collect wash water for disposal).

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated fume hood or open, well-ventilated area.
- Avoid contact with skin, eyes and respiratory tract; avoid generating vapors or mists.
- No smoking, eating or drinking in the handling area; wash hands thoroughly after operation.
- Use plastic or glass tools for transfer; label contaminated clothing and wash separately before reuse.

7.2 Conditions for Safe Storage

- **Storage Conditions**: Store in a cool, dry, dark, well-ventilated warehouse (temperature ≤25℃). Keep away from heat, sparks, open flames, hot surfaces and direct sunlight.
- **Container**: Sealed dark glass or HDPE containers; keep tightly closed when not in use.
- **Incompatibilities**: Strong oxidizing agents (e.g., hydrogen peroxide, potassium permanganate), strong acids, strong bases, halogens, heavy metal salts.
- **Storage Class (TRGS 510)**: 3 (Flammable Liquids)
- **Shelf Life**: 24 months (unopened, under specified storage conditions with antioxidant BHT).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limit**: TWA: 50 ppm (320 mg/m³) (OSHA); STEL: 75 ppm (480 mg/m³) (OSHA)
- **TLV-TWA**: 25 ppm (ACGIH) (due to skin sensitization potential)

8.2 Exposure Controls

- **Engineering Controls**: Local exhaust ventilation (LEV) to keep vapor concentration below OEL; general ventilation to maintain air circulation.
- **Personal Protective Equipment (PPE)**:
  - Eye/Face Protection: Chemical splash goggles and face shield (for large-scale handling).
  - Skin Protection: Nitrile rubber gloves (thickness ≥0.3mm), chemical-resistant lab coat, protective boots; avoid latex gloves (may increase sensitization risk).
  - Respiratory Protection: Half-face respirator with organic vapor cartridge (if ventilation is insufficient or vapor concentration exceeds OEL).
  - Hand Protection: Replace gloves if damaged, contaminated or permeated; wash hands immediately after glove removal.

SECTION 9: Physical and Chemical Properties

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Property	Value	Unit
Physical State	Clear liquid	-
Color	Colorless	-
Odor	Characteristic fresh rose, citrus-like fragrance	-
Melting Point	-5.8	℃
Boiling Point	221.5	℃
Flash Point	88	℃ (Closed Cup)
Autoignition Temperature	290	℃
Relative Density (20/20℃)	0.853	-
Refractive Index (20℃)	1.4553	-
Viscosity (25℃)	2.1	mPa·s
Water Solubility	Slightly soluble (2.0 g/L at 25℃)	g/L
Solubility	Miscible with ethanol, ether, acetone, vegetable oil, most organic solvents	-
Vapor Pressure (25℃)	0.08	hPa
Vapor Density (Air=1)	5.4	(-)
Flammability	Combustible liquid (Category 4)	-
Optical Rotation (20℃)	+0.5	°
Octanol/Water Partition Coefficient (Log Koc)	3.5	(-)

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

- Stable under normal temperature and storage conditions (≤25℃, sealed, dark); may oxidize slowly in air and light to form peroxides (stabilized with BHT).
- Stable to hydrolysis under neutral and weak acidic/basic conditions (pH 5-8).

10.2 Possibility of Hazardous Reactions

- No hazardous reactions under normal use and storage conditions; may react violently with strong oxidizing agents and heavy metal salts.
- Peroxides formed by oxidation may decompose when heated or shocked, with no violent reaction risk.

10.3 Conditions to Avoid

- High temperature (>60℃), open flame, direct sunlight, air/oxygen (long-term contact), strong oxidizing agents, strong acids/bases, static electricity.

10.4 Incompatible Materials

- Strong oxidizing agents ($KMnO_4$, H_2O_2, concentrated nitric acid), concentrated sulfuric acid, sodium hydroxide (concentrated), chlorine gas, bromine, copper/zinc salts.

10.5 Hazardous Decomposition Products

- Carbon monoxide (CO), carbon dioxide (CO_2), volatile aliphatic alcohol fragments (at high temperature/combustion); peroxides (on long-term exposure to air/light).

SECTION 11: Toxicological Information

- **Acute Oral Toxicity (Rat, LD_{50})**: 3,400 mg/kg (moderate toxicity)
- **Acute Dermal Toxicity (Rabbit, LD_{50})**: >5,000 mg/kg (low toxicity)
- **Skin Irritation (Rabbit)**: Mild to moderate irritation (Category 2), reversible within 72 hours
- **Eye Irritation (Rabbit)**: Moderate irritation (Category 2A), reversible within 48 hours
- **Skin Sensitization (Guinea pig)**: Positive (Category 1), may cause allergic contact dermatitis
- **Inhalation Toxicity (Rat, LC_{50})**: >10,000 mg/m³ (4-hour exposure) (low inhalation toxicity)
- **Carcinogenicity**: Not classified as carcinogenic by IARC, EPA or NTP
- **Reproductive Toxicity**: No known reproductive toxicity based on current data (NOAEL: 400 mg/kg/day)
- **Specific Target Organ Toxicity**: May cause respiratory tract irritation at high concentration (single exposure)

SECTION 12: Ecological Information

- **Fish Toxicity (Zebrafish, LC_{50})**: 42 mg/L (96-hour exposure)
- **Daphnia Toxicity (EC_{50})**: 28 mg/L (48-hour exposure)
- **Algae Toxicity (Chlorella, EC_{50})**: 36 mg/L (72-hour exposure)
- **Persistence and Degradability**: Moderately biodegradable (BOD_5 /COD = 0.48; 70-75% biodegradation in 28 days)
- **Bioaccumulative Potential**: Low to moderate (Log Koc = 3.5; bioaccumulation factor (BCF) = 250-600 in fish)
- **Mobility in Soil**: Moderate mobility; may bind to soil organic matter
- **PBT/vPvB Assessment**: Not classified as PBT/vPvB (moderately biodegradable, no persistent bioaccumulation)

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste**: Dispose of through licensed hazardous waste treatment facilities in accordance with local/national/international regulations. Incineration with waste gas treatment (to remove organic vapors and CO) is recommended.
- **Contaminated Packaging**: Rinse packaging thoroughly with an organic solvent (ethanol/acetone); collect the rinse liquid for disposal. Dispose of the rinsed packaging as hazardous waste or recycle after professional treatment.
- **Do not dispose of into the environment, sewers, trash or water bodies; do not dump on soil.

SECTION 14: Transport Information

- **UN Number**: 3082
- **UN Proper Shipping Name**: Environmentally hazardous substances, liquid, n.o.s. (Citronellol)

- **Transport Hazard Class**: 9 (Miscellaneous dangerous goods)
- **Packaging Group**: III
- **Environmental Hazards**: IMDG Marine Pollutant: Yes
- **Special Precautions for Transport**:
  - Transport in sealed dark glass/HDPE containers; avoid collision, leakage, breakage and direct sunlight.
  - Keep away from heat, sparks, open flames and hot surfaces during transport (temperature ≤30℃).
  - Do not transport with strong oxidizing agents, strong acids, strong bases, food, food additives or cosmetics in the same vehicle.
  - Comply with IMDG, IATA, ADR/RID and national transport regulations for Class 9 goods.

SECTION 15: Regulatory Information

15.1 National & International Regulations

- **China**: Hazardous Chemicals Safety Management Regulation (Class 9 miscellaneous dangerous goods); National Food Safety Standard (approved for food flavor use); Cosmetic Safety and Technical Specifications (approved for cosmetic use).
- **International**: GHS Classification (Rev.9); REACH (EU: registered, not in SVHC Candidate List); TSCA (US: listed on TSCA Inventory); FDA (US: GRAS for food use); IMDG/IATA/ADR (Class 9 miscellaneous dangerous goods).

15.2 Other Regulations

- Comply with local environmental protection, hazardous waste disposal and occupational health and safety regulations; comply with cosmetic fragrance safety regulations (limit for skin sensitization); comply with insect repellent product regulatory standards (for repellent application).

SECTION 16: Other Information

- This MSDS is based on current scientific knowledge and complies with GB/T 16483, GB/T 17519 and GHS (Rev.9) standards.
- The product contains antioxidant BHT (≤0.01%) to prevent oxidation and peroxide formation; no other additives are present.
- The supplier is not liable for any damage caused by improper use, storage, transport or disposal of this product.
- For updated information, contact the supplier directly.