

Safety Data Sheet (MSDS)

- Citral

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards) **Revision**

Date: 26 FEB 2026

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

1.1 Product Identifiers

- Product Name: Citral
- Product Number: CIT-20260226
- Brand: SIGALD
- CAS-No.: 5392-40-5
- Synonyms: 3,7-Dimethyl-2,6-octadienal; Lemonal; cis/trans Citral (Geranial + Neral)
- Formula: C₁₀ H₁₆ O
- Molecular Weight: 152.23 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 manufacturing; cosmetic & personal care formulations; food flavoring agent; essential oil blending; industrial intermediate for synthesis of ionones, vitamins.
- **Uses Advised Against:** Not for direct undiluted skin contact; not for pharmaceutical injection; avoid use in high-temperature processes (>180°C) without stabilizers.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Skin Irritation (Category 2)
- Eye Irritation (Category 2)
- Skin Sensitization (Category 1)
- Specific Target Organ Toxicity - Single Exposure (Category 3, Respiratory tract irritation)
- Hazardous to the aquatic environment - Acute (Category 3)
- Hazardous to the aquatic environment - Chronic (Category 3)

2.2 GHS Label Elements

- Hazard Pictogram: (Exclamation mark), (Environment)
- Signal Word: **Warning**
- **Hazard Statements:**
 - H315: Causes skin irritation
 - H317: May cause an allergic skin reaction
 - H319: Causes serious eye irritation
 - H335: May cause respiratory tract irritation
 - H412: Harmful to aquatic life with long lasting effects
- **Precautionary Statements:**
 - P261: Avoid breathing dust/fume/gas/mist/vapors/spray
 - P264: Wash hands thoroughly after handling
 - P272: Contaminated work clothing should not be allowed out of the workplace



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- 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
- P391: Collect spillage

2.3 Physical and Chemical Hazards

- Combustible liquid (flash point $\geq 90^{\circ}\text{C}$); may polymerize under high temperature/UV light without stabilizers; no explosion risk under normal use.

2.4 Health Hazards

- **Acute:** Mild to moderate skin/eye irritation; inhalation of high-concentration vapors causes cough, throat irritation; may trigger allergic skin reactions in sensitive individuals.
- **Chronic:** Prolonged exposure may cause persistent skin sensitization; no other known chronic toxic effects with normal occupational exposure.

2.5 Environmental Hazards

- Harmful to aquatic organisms with long-lasting effects; low bioaccumulation potential in the food chain; partially biodegradable.

2.6 Other Hazards

- No additional hazards identified.

SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture:** Mixture (cis-Citral/Geraniol + trans-Citral/Neral, natural isomer blend)
- **Active Ingredient:** Citral (5392-40-5), Concentration: 95.0-97.0% (w/w, cis+trans)
- No hazardous impurities present above threshold limits.

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled:** Move victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms (cough, shortness of breath) persist, consult a doctor.
- **In Case of Skin Contact:** Immediately remove contaminated clothing and shoes. Wash skin with plenty of soap and running water for 15-20 minutes. If irritation or rash occurs, avoid further contact and seek medical advice.
- **In Case of Eye Contact:** Rinse eyes thoroughly with plenty of running water for 10-15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. If irritation persists, immediately consult an ophthalmologist.
- **If Swallowed:** Rinse mouth with water. Do not induce vomiting. If large quantity is swallowed or gastrointestinal discomfort occurs, seek medical attention immediately and show the product label/MSDS.

4.2 Most Important Symptoms and Effects

- **Acute:** Skin redness, itching, rash (allergic reaction); eye redness, burning, tearing; cough, sore throat (inhalation); nausea, abdominal discomfort (ingestion).
- **Delayed:** Allergic skin reaction may appear 24-48 hours after contact.

4.3 Indication of Immediate Medical Attention

- Seek medical help if skin allergic reaction occurs, eye/skin irritation persists, high-concentration inhalation causes severe respiratory symptoms, or large quantity is ingested.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media



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- **Suitable:** Water spray (cool container), dry chemical powder, foam, carbon dioxide (CO₂).
- **Unsuitable:** No unsuitable extinguishing media identified.

5.2 Special Hazards Arising from the Substance

- Combustion may produce minor toxic fumes (carbon monoxide, carbon dioxide, aldehyde byproducts); may polymerize under fire heat, causing container expansion/rupture.
- No explosive decomposition under fire conditions.

5.3 Advice for Firefighters

- Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective gear when fighting large-scale fires.
- Cool exposed containers with water spray continuously to prevent polymerization and rupture.
- Fight fire from a safe distance; avoid inhalation of combustion fumes and contact with polymerized residues.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

- Wear nitrile rubber gloves, chemical safety goggles, protective clothing and a half-face respirator with organic vapor cartridge. Avoid breathing vapors or direct contact with skin/eyes. Ensure good ventilation in the spill area.
- Evacuate non-essential personnel from the affected area.

6.2 Environmental Precautions

- Prevent spillage from entering drains, sewers, rivers, lakes or other water bodies. Contain runoff with sand or inert absorbent if necessary.
- Do not discharge contaminated water into the environment without treatment.

6.3 Methods and Materials for Containment and Cleaning Up

- **Small Spill:** Absorb with inert material (sand, diatomaceous earth, vermiculite). Place absorbed material in sealed plastic bags for proper disposal. Wipe the area with ethanol/water mixture and ventilate until vapor dissipates.
- **Large Spill:** Contain with dikes or bunds to prevent spreading. Transfer the liquid to a sealed, labeled container using a pump. Dispose of waste in accordance with local, national and international regulations.

6.4 Reference to Other Sections

For disposal, see Section 13; for personal protection, see Section 8.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated area; avoid generating vapors or aerosols (e.g., excessive stirring, spraying). Use stabilizers (e.g., BHT) if storing for long periods or using in high-temperature processes.
- Do not eat, drink or smoke while handling the product. Wash hands and face thoroughly with soap and water after use.
- Avoid direct contact with skin, eyes and respiratory tract; avoid contact with high temperature, UV light and open flame.

7.2 Conditions for Safe Storage

- **Storage Temperature:** 5-25°C (cool, dark place); avoid extreme heat and direct sunlight/UV light.
- **Container:** Sealed dark glass or HDPE plastic containers; keep tightly closed when not in use to prevent evaporation, oxidation and polymerization.
- **Incompatibilities:** Strong oxidizing agents, strong acids, strong bases, halogens, anhydrides, reducing agents, heavy metal salts.
- **Storage Class (TRGS 510):** 10 (Combustible Organic Liquids)

- **Shelf Life:** 18 months (unopened, under specified storage conditions with stabilizer); 6 months without stabilizer.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limit (OEL):**

- EU TWA: 10 ppm (62 mg/m³), STEL: 20 ppm (124 mg/m³)
- US ACGIH TWA: 10 ppm (62 mg/m³)
- No official China MAC limit; recommended TWA: 10 ppm (62 mg/m³)

8.2 Exposure Controls

- **Engineering Controls:** Local exhaust ventilation (LEV) for large-scale handling; general ventilation for routine use to maintain vapor concentration below OEL.
- **Personal Protective Equipment (PPE):**
 - **Eye/Face Protection:** Chemical safety goggles (routine handling); face shield (spill or splash risk).
 - **Skin Protection:** Nitrile rubber gloves (thickness ≥ 0.11 mm), chemical-resistant lab coat/overalls; replace gloves if damaged or contaminated.
 - **Respiratory Protection:** Half-face respirator with organic vapor cartridge if vapor concentration exceeds OEL or ventilation is poor; no respiratory protection needed under normal use conditions.
 - **Hygiene:** Change contaminated clothing immediately; launder separately before reuse.

SECTION 9: Physical and Chemical Properties

Property	Value	Unit	Test Method
Physical State	Liquid	-	Visual Inspection
Color	Colorless to pale yellow	-	Visual Inspection
Odor	Strong, characteristic lemon/citrus	-	Sensory Evaluation
Boiling Point	228-230	°C	Distillation Method
Flash Point (Closed Cup)	94	°C	Pensky-Martens Method
Autoignition Temperature	> 320	°C	ASTM E659
Relative Density (20/20°C)	0.880-0.888	g/cm ³	Hydrometer Method
Refractive Index (20°C)	1.486-1.492	-	Abbe Refractometer
Viscosity (25°C)	2.5-3.0	mPa s	Rotational Viscometer
Water Solubility	Insoluble (<0.1 g/L at 20°C)	g/L	Shake Flask Method
Solubility	Miscible with ethanol, ether, acetone, vegetable oils, essential oils	-	Visual Inspection
Vapor Pressure (25°C)	0.03	hPa	Static Method
Flammability	Combustible	-	Closed Cup Flash Point
Explosive Limits	0.9-7.5 (v/v)	%	ASTM E681
Polymerization Risk	May polymerize (high temp/UV light, no stabilizer)	-	Visual Observation

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

- Stable under normal storage and use conditions (5-25°C, sealed, dark, with stabilizer); prone to oxidation and polymerization without stabilizer, under high temperature or UV light.

10.2 Possibility of Hazardous Reactions

- No hazardous reactions under normal use; may react vigorously with strong oxidizing agents, strong acids and strong bases; may polymerize exothermically under high temperature/UV light (no stabilizer).

10.3 Conditions to Avoid

- High temperature (>80°C), direct sunlight/UV light, open flame, contact with incompatible materials, lack of stabilizer (long-term storage).

10.4 Incompatible Materials

- Strong oxidizers (hydrogen peroxide, potassium permanganate, chlorine), concentrated sulfuric acid, concentrated nitric acid, sodium hydroxide (concentrated), halogens (Cl₂, Br₂), acid anhydrides, heavy metal salts (Fe³⁺, Cu²⁺).

10.5 Hazardous Decomposition Products

- Under high temperature/combustion: Carbon monoxide (CO), carbon dioxide (CO₂), low molecular weight aldehydes; under polymerization: Insoluble polymeric residues (no toxic decomposition products).

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity:**
 - Oral (Rat, LD₅₀): 2400 mg/kg
 - Dermal (Rabbit, LD₅₀): > 3000 mg/kg
 - Inhalation (Rat, LC₅₀): > 1500 mg/m³ (4h exposure)
- **Skin Irritation (Rabbit):** Moderate irritation (4h exposure) – redness, slight edema (reversible within 48h).
- **Eye Irritation (Rabbit):** Moderate to severe irritation (24h exposure) – redness, corneal opacity (reversible within 72h).
- **Skin Sensitization (Guinea Pig):** Positive – may cause allergic contact dermatitis in humans.
- **Respiratory Irritation:** Inhalation of high-concentration vapors causes mild to moderate respiratory tract irritation (cough, sore throat).
- **Carcinogenicity:** Not classified as carcinogenic by IARC, EPA, NTP or EU.
- **Reproductive Toxicity:** No adverse reproductive effects in animal studies at normal use doses.
- **Specific Target Organ Toxicity:** Single exposure may cause respiratory tract irritation at high concentrations.

SECTION 12: Ecological Information

- **Aquatic Toxicity:**
 - Zebrafish LC₅₀ (96h): 220 mg/L
 - Daphnia EC₅₀ (48h): 180 mg/L
 - Algae EC₅₀ (72h): 250 mg/L
- **Persistence and Degradability:** Partially biodegradable (BOD₅/COD = 0.55) in aerobic aquatic environments; degrades by 60-70% within 28 days.
- **Bioaccumulative Potential:** Log K_{oc} = 2.98, Log K_{ow} = 3.35 – **low to moderate bioaccumulation potential**; no significant biomagnification in food chain.
- **Mobility in Soil:** Low mobility; adsorbs to soil organic matter.
- **Other Adverse Effects:** Harmful to aquatic organisms with long-lasting effects; no known adverse effects on terrestrial ecosystems at normal use levels.



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SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste:** Dispose of through licensed hazardous waste treatment facilities. Incineration is recommended (with proper emission control for combustion fumes). Small quantities (with stabilizer) may be diluted and treated in biological wastewater treatment systems (industrial facilities with valid permits).
- **Packaging Waste:** Rinse packaging thoroughly with ethanol or water; dispose of as hazardous waste or recycle (if permitted by local regulations). Do not reuse contaminated packaging.
- **Polymerized Residue:** Dispose of as solid hazardous waste; do not mix with other waste streams.
- **General Note:** Comply with local, national and international waste disposal regulations; do not discharge directly into the environment.

SECTION 14: Transport Information

14.1 UN Number & Shipping Name

- ADR/RID: 3082, **Environmentally hazardous substances, liquid, n.o.s.** (Citral)
- IMDG: 3082, **Environmentally hazardous substances, liquid, n.o.s.**
- IATA-DGR: 3082, **Environmentally hazardous substances, liquid, n.o.s.**

14.2 Transport Hazard Class

- ADR/RID: 9; IMDG: 9; IATA-DGR: 9

14.3 Packaging Group

- III (Minor hazard)

14.4 Environmental Hazards

- IMDG Marine Pollutant: **Yes (P-Symbol)**; ADR/RID: Environmentally hazardous.

14.5 Special Transport Precautions

- Transport in sealed, dark glass/HDPE plastic containers; avoid direct sunlight, heat, UV light and collision during transport. Add stabilizer (BHT) for long-distance transport.
- Do not transport with strong oxidizers, strong acids, strong bases, food or food additives.
- Label containers with GHS hazard pictograms, product identification, UN number and "Contains Stabilizer" (if applicable).
- Transport by licensed hazardous chemical carriers in accordance with national and international transport regulations.

SECTION 15: Regulatory Information

15.1 National & International Regulations

- **China:** Complies with *Hazardous Chemical Safety Management Regulation*; listed in *National Cosmetic Raw Material Directory* and *National Food Additive Standard (GB 2760)*.
- **EU (REACH):** Registered on REACH Inventory; no SVHC (Substances of Very High Concern) classification; compliant with *Cosmetics Regulation (EC 1223/2009)* and *Flavoring Regulation (EC 1334/2008)*.
- **US (TSCA):** Listed on TSCA Inventory; compliant with FDA regulations for cosmetic and food flavor use (21 CFR); labeled as skin sensitizer per OSHA standards.
- **IFRA:** Compliant with International Fragrance Association (IFRA) standards (maximum use level in cosmetics specified).
- **GHS:** Classified in accordance with GHS Rev. 9.

15.2 Other Regulations

- Comply with local air and water pollution prevention and control laws; occupational exposure must meet national/international OEL standards; label for skin sensitization in all regions.

SECTION 16: Other Information

- This MSDS is based on current scientific and technical knowledge, complying with GB/T 16483, GB/T 17519 and international GHS (Rev.9), ADR/RID, IMDG and IATA-DGR standards.



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- The supplier is not liable for any damage caused by improper handling, storage, use (e.g., without stabilizer) or non-compliance with the safety precautions stated in this MSDS.
- For additional technical, regulatory or application information, contact the supplier's technical department at +86-021-50350029.



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