

## Technical Data Sheet (TDS)

### - Citral

**Revision Date:** 26 FEB 2026 **CAS Number:** 5392-40-5 **Formula:** C<sub>10</sub> H<sub>16</sub> O **Molecular Weight:** 152.23 g/mol

### 1. Product Overview

Citral is a high-purity natural/synthetic aldehyde with a **strong, characteristic lemon/citrus odor**, consisting of two isomers (geranial/cis-citral and neral/trans-citral). It is a key raw material in fragrance, flavor, cosmetic and pharmaceutical industries, renowned for its typical citrus note and excellent fragrance fixative properties. Compliant with international IFRA, FDA and EU REACH regulations, it is widely used in flavor formulation, cosmetic fragrance, essential oil blending and as an intermediate for synthesizing ionones, vitamin A and other fine chemicals. The product is supplied with BHT stabilizer to prevent oxidation and polymerization, ensuring long-term stability.

**Core Characteristics:** High purity (≥95% cis+trans); strong lemon citrus odor; excellent fragrance fixative; versatile application; supplied with stabilizer; compliant with global regulatory standards.

### 2. Technical Specifications (Complies with IFRA/Food/Cosmetic Industrial Standards)

Item	Specification	Test Method
Appearance	Colorless to pale yellow clear liquid	Visual Inspection
Assay (cis+trans)	≥ 95.0% (w/w)	Gas Chromatography (GC)
Odor	Strong characteristic lemon/citrus odor	Sensory Evaluation (IFRA Method)
Relative Density (20/20°C)	0.880-0.888 g/cm <sup>3</sup>	Hydrometer Method
Refractive Index (20°C)	1.486-1.492	- Abbe Refractometer
Boiling Point	228-230°C	Distillation Method
Flash Point (Closed Cup)	≥ 90°C	Pensky-Martens Method
Water Content	≤ 0.1% (w/w)	Karl Fischer Titration
Acid Value (as KOH)	≤ 1.0 mg/g	KOH Titration
Heavy Metals (Pb)	≤ 5 ppm	Atomic Absorption Spectrometry (AAS)
Residue on Evaporation	≤ 0.1% (w/w)	Gravimetric Method
Viscosity (25°C)	2.5-3.0 mPa s	Rotational Viscometer
Stabilizer Content	BHT 0.05-0.1% (w/w, optional)	GC
Solubility	Insoluble in water; miscible with ethanol, ether, essential oils and vegetable oils	Shake Flask Method

### 3. Product Advantages

- Authentic Citrus Odor:** Strong, natural lemon/citrus note, consistent with natural citrus essential oil, ideal for flavor and fragrance formulation requiring typical citrus characteristics.
- High Purity & Stability:** Assay ≥95% (cis+trans), supplied with BHT stabilizer to prevent oxidation/polymerization; consistent physical and odor properties across batches.
- Excellent Compatibility:** Miscible with all common fragrance raw materials (esters, alcohols, aldehydes, terpenes), cosmetic bases and essential oils; compatible with non-ionic/anionic/cationic surfactants (excluding strong oxidizers/acids/bases).
- Multi-Functional Application:** Serves as fragrance raw material, flavoring agent and chemical intermediate; acts as a fragrance fixative to enhance scent longevity in finished products.



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- Regulatory Compliance:** Meets IFRA fragrance standards, China GB 2760 (food flavor), EU REACH and US FDA regulations; specified maximum use level in cosmetics (IFRA) to avoid skin sensitization.
- Cost-Efficient:** Low effective dosage in formulations; synthetic grade offers cost advantage over natural citrus essential oil with higher citral purity.

## 4. Application Fields

### 4.1 Fragrance Industry

- Fine fragrances (perfumes, eau de toilette, cologne): Formulates citrus, fresh, floral and fruity fragrance profiles; acts as a top note and fragrance fixative.
- Functional fragrances (air fresheners, candles, incense, car fresheners): Adds strong lemon/citrus note to daily fragrance products.
- Household product fragrances (dish soap, laundry detergent, surface cleaner): Typical citrus scent for cleaning products, with long-lasting effect.

### 4.2 Flavor Industry

- Food flavoring: Used in fruit-flavored foods (lemon, orange, lime), beverages, baked goods, confectionery and dairy products (compliant with GB 2760/FDA, low dosage).
- Feed flavoring: Minor component in animal feed flavor to improve palatability (food-grade only).
- Essential oil blending: Blended with other essential oils (lavender, peppermint) to create citrus-scented essential oil products.

## 5. Usage Methods & Dosage

### 5.1 Recommended Dosage (w/w, adjust based on formulation type and odor/flavor intensity; IFRA compliant)

Application Field	Dosage Range	Key Function
Fine Fragrances (Perfume/EDT)	1.0-5.0%	Top note, fragrance fixative
Cosmetic Formulations	0.1-0.5%	Citrus scent additive (IFRA limit)
Household Product Fragrances	0.5-2.0%	Citrus fragrance raw material
Food Flavoring	0.001-0.05%	Lemon/citrus flavor enhancer
Essential Oil Blending	5.0-15.0%	Citrus note component
Chemical Synthesis	10.0-50.0%	Key intermediate

## 6. Packaging & Storage

### 6.1 Packaging Specifications

- 1 L / 5 L Sealed dark glass bottles (laboratory/small-scale fragrance/flavor use, with BHT stabilizer);
- 25 L HDPE plastic drums (industrial/cosmetic use, opaque, with BHT stabilizer);
- 200 L stainless steel drums (bulk industrial use, with BHT stabilizer);
- Custom packaging** (100 mL-1000 L) available upon request (food-grade packaging for flavor use, stabilizer-free option for synthesis).

## 7. Safety & Handling

- The product is a skin irritant/sensitizer, eye irritant and combustible liquid; avoid direct undiluted contact with skin/eyes, and keep away from open flame and high temperature.
- Routine Handling:** Wear nitrile rubber gloves and chemical safety goggles; operate in a well-ventilated area; wash hands thoroughly after use.
- Large-Scale Handling:** Wear a lab coat/protective clothing and a half-face respirator with organic vapor cartridge; use local exhaust ventilation.
- Emergency Measures:** In case of skin contact, wash with soap and water for 15-20 minutes; if allergic rash occurs, seek medical advice immediately. In case of eye contact, rinse with running water for 10-15 minutes and consult a doctor. In case of fire, use water spray, foam, CO<sub>2</sub> or dry powder to extinguish.
- Storage for Non-Professionals:** Keep out of reach of children and pets; store in a cool, dark place away from heat and flame; do not use undiluted on skin.