

Technical Data Sheet (TDS)

- Clove Bud Oil

Revision Date: 22 February 2026 **Product Number:** CBO-20260222 **CAS Number:** 8000-34-8 **Main Component:** Eugenol (C₁₀ H₁₂O₂, ≥85%) **Source:** Steam-distilled from *Syzygium aromaticum* bud

1. Product Overview

Clove Bud Oil is a natural essential oil extracted by steam distillation from clove buds, with eugenol as the core active component (≥85%). It features a strong, long-lasting characteristic clove aromatic scent, and has excellent antibacterial, antifungal and fragrance properties. It is widely used in cosmetics, perfumes, food flavors, daily chemicals, and pharmaceutical raw materials; also used as a natural preservative and flavor enhancer. The product is a pure natural plant extract, compliant with international essential oil quality standards, and suitable for various natural formulation systems.

2. Technical Specifications

Item	Specification
Appearance	Colorless to pale yellow clear mobile liquid
Eugenol Content (GC)	≥ 85.0%
Odor	Characteristic strong clove aromatic scent
Refractive Index (20°C)	1.5280-1.5380
Relative Density (20/20°C)	1.038-1.060
Optical Rotation (20°C)	-2° to +1°
Solubility	1:2 soluble in 70% ethanol (clear); miscible with organic solvents; slightly soluble in water
Flash Point (Closed Cup)	≥ 100°C
Water Content	≤ 0.5%
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Total Bacterial Count	≤ 100 CFU/mL
E. coli	Negative
Stability	Stable at 5-30°C (avoid light/heat/oxidation)

3. Product Advantages

- 100% Natural:** Steam-distilled from natural clove buds, no artificial additives, pure plant source.
- High Active Content:** Eugenol ≥85%, excellent antibacterial, antifungal and fragrance retention performance.
- Multi-functional:** Integrates fragrance, preservation and antibacterial effects, one material for multiple uses.
- Good Compatibility:** Miscible with most organic solvents, essential oils and cosmetic raw materials, easy to formulate.
- Wide Compliance:** Meets international essential oil standards, suitable for food, cosmetic and pharmaceutical grade formulations.

4. Application Fields

- Cosmetics & Skin Care:** Facial care, oral care (toothpaste/mouthwash), body wash, soap; natural antibacterial and fragrance ingredient.
- Food & Flavor:** Food flavor enhancer (bakery, candy, beverage); natural food preservative (non-alcoholic food).



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- **Perfumes & Daily Chemicals:** Perfume formulation, air freshener, laundry detergent, fabric softener; fixed fragrance and aroma enhancement.
 - **Pharmaceuticals:** Raw material for antibacterial/analgesic preparations; oral care pharmaceutical additives.
 - **Other:** Natural insect repellent, industrial deodorant, aromatherapy products.
- ### 5. Usage Methods
- **Dosage (adjust by scenario):**
 - Cosmetics/skin care: 0.1-2.0% (by weight)
 - Food flavor: 0.01-0.5% (by weight, food grade only)
 - Perfumes: 1.0-10.0% (by weight)
 - Antibacterial formulations: 0.5-3.0% (by weight)
 - **Mixing Method:** Dilute with vegetable oil/ethanol first (1:5-1:10) for water-based systems, then add to the formula and stir evenly; add directly to oil-based systems at room temperature (20-30°C).
 - **Optimal Conditions:** Avoid direct sunlight and high temperature (>40°C) during use; store diluted products in sealed brown glass containers.
- ### 6. Packaging & Storage
- #### Packaging Specifications
- 100 mL/500 mL brown glass bottle (household/small batch use)
 - 5 kg/20 kg brown glass drum (sample/industrial use)
 - 200 kg stainless steel drum (bulk use)
 - Custom packaging available upon request (food grade with food contact certification)
- #### Storage Conditions
- Store in a **cool, dark, well-ventilated warehouse at 5-25°C**; use brown glass/stainless steel containers, keep tightly sealed.
 - Avoid direct sunlight, high temperature (>30°C), open flame and contact with air (prevent oxidation).
 - Store separately from strong acids, strong bases, oxidizing agents and water-based materials.
 - **Shelf Life:** 18 months (unopened, under specified storage conditions); 6 months after opening (sealed and refrigerated).
- #### Transportation
- Classified as **non-hazardous goods** for transport; transport by ordinary closed vehicles.
 - Avoid collision, leakage, direct sunlight and high temperature during transportation; prevent mixing with incompatible materials.
- ### 7. Safety & Protection
- The product is mild, but undiluted oil may cause mild skin/eye irritation; avoid direct contact with undiluted oil for sensitive individuals.
 - Wear nitrile rubber gloves and safety glasses during large-scale handling and dispensing; avoid contact with mucous membranes.
 - In case of eye contact: rinse with plenty of running water for 5-10 minutes; consult a doctor if irritation persists.
 - In case of skin contact: rinse with soap and water; apply vegetable oil to relieve mild irritation if needed.
 - Do not ingest undiluted oil; if accidentally swallowed, rinse mouth with water and consult a doctor immediately.