

## Technical Data Sheet (TDS)

### - Benzyl Alcohol

**Revision Date:** 20 FEB 2026 **CAS Number:** 100-51-6 **Formula:** C<sub>7</sub> H<sub>8</sub> O **Molecular Weight:** 108.14 g/mol

#### 1. Product Overview

Benzyl Alcohol is a high-purity, colorless aromatic alcohol with a mild floral scent, widely used as a **cosmetic preservative, solvent, pharmaceutical intermediate and fragrance raw material**. It features excellent solvency for organic and inorganic substances, good chemical stability under normal use conditions, and low toxicity (for intended applications). Compliant with international cosmetic, food and pharmaceutical industry standards, it is a versatile fine chemical raw material suitable for cosmetic formulation, pharmaceutical synthesis, industrial coating and fragrance manufacturing.

**Core Characteristics:** High purity (≥99.5%); mild aromatic odor; excellent solvency; good chemical stability; multi-industry applicability; compliant with global regulatory standards.

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

Item	Specification	Test Method
Appearance	Colorless clear liquid	Visual Inspection
Assay (Purity)	≥ 99.5% (w/w)	Gas Chromatography (GC)
Odor	Mild aromatic, floral odor	Sensory Evaluation
Relative Density (20/20°C)	1.043-1.046 g/cm <sup>3</sup>	Hydrometer Method
Refractive Index (20°C)	1.538-1.540	- Abbe Refractometer
Boiling Point	203-205°C	Distillation Method
Flash Point (Closed Cup)	≥ 90°C	Pensky-Martens Method
Melting Point	-15 to -13°C	Differential Scanning Calorimetry (DSC)
Water Content	≤ 0.1% (w/w)	Karl Fischer Titration
Acidity (as benzoic acid)	≤ 0.01% (w/w)	NaOH Titration
Heavy Metals (Pb)	≤ 5 ppm	Atomic Absorption Spectrometry (AAS)
Residue on Evaporation	≤ 0.005% (w/w)	Gravimetric Method
Viscosity (25°C)	5.5-6.0 mPa·s	Rotational Viscometer
Water Solubility	42 g/L (20°C)	Shake Flask Method

#### 3. Product Advantages

- High Purity & Consistency:** Assay ≥99.5%, low impurity content, consistent physical and chemical properties across batches, ensuring stable product performance in formulations.
- Versatile Solvency:** Miscible with most organic solvents (ethanol, ether, acetone) and partially soluble in water; excellent solvency for cosmetic actives, fragrances and pharmaceutical intermediates.
- Multi-Functional Application:** Serves as a preservative, solvent and fragrance fixative in cosmetics; acts as a key intermediate in pharmaceutical synthesis; functions as a solvent and coalescing agent in industrial coatings/inks.
- Regulatory Compliance:** Meets China GB 2760 (food additive), EU EC 1223/2009 (cosmetics) and US FDA 21 CFR standards; compliant with IFRA fragrance regulations, suitable for global market applications.

5. **Good Stability:** Chemically stable under normal storage and use conditions; no hazardous polymerization; compatible with most cosmetic/pharmaceutical raw materials (excluding strong oxidizers/acids/bases).
6. **Mild Properties:** Low irritation for intended use; no sensitization potential; safe for use in cosmetic formulations for normal skin (at recommended doses).

#### 4. Application Fields

##### 4.1 Cosmetic & Personal Care Industry

- **Preservative:** 0.5-2.0% (w/w) in creams, lotions, shampoos, conditioners and body washes (antimicrobial effect).
- **Solvent:** Dissolves lipophilic actives, fragrances and essential oils in water-based and oil-based formulations.
- **Fragrance Fixative:** Enhances fragrance longevity in perfumes, colognes and cosmetic fragrances.
- **Skin Care:** Mild humectant and emollient in low concentrations ( $\leq 1\%$ ).

##### 4.2 Pharmaceutical Industry

- **Pharmaceutical Intermediate:** Synthesis of antibiotics, analgesics and other pharmaceutical products (e.g., benzyl penicillin, lidocaine).
- **Topical Formulations:** Solvent and preservative in ointments, creams and eye drops (pharmaceutical grade).
- **Injectable Formulations:** Diluent for water-insoluble drugs (sterile grade).

##### 4.3 Fragrance & Flavor Industry

- **Fragrance Raw Material:** Used in floral (jasmine, rose) and aromatic fragrance formulations for perfumes, air fresheners and candles.
- **Food Flavoring Agent:** Minor component in fruit and floral food flavors (compliant with GB 2760/FDA standards, dosage  $\leq 0.01\%$ ).

#### 5. Usage Methods & Dosage

Application Field	Dosage Range	Key Function
Cosmetic Preservative	0.5-2.0%	Antimicrobial, preservative
Cosmetic Solvent/Fragrance	0.1-1.0%	Solubilizer, fragrance fixative
Pharmaceutical Intermediate	5.0-50.0%	Synthesis raw material
Industrial Coating Solvent	2.0-10.0%	Coalescing agent, solvent
Fragrance Formulation	0.5-3.0%	Fragrance raw material
Food Flavoring	$\leq 0.01\%$	Flavor enhancer

#### 6. Packaging & Storage

##### 6.1 Packaging Specifications

- 500 mL / 1 L Sealed glass bottles (laboratory/small-scale cosmetic/pharmaceutical use);
- 5 L / 25 L HDPE plastic drums (industrial/cosmetic use);
- 200 L Stainless steel drums (bulk industrial use);
- 1000 L IBC totes (large-scale industrial projects);
- **Custom packaging** (100 mL-1000 L) available upon request (sterile grade for pharmaceutical use).

#### 7. Safety & Handling

- The product is a mild skin/eye irritant and combustible liquid; avoid direct contact with skin, eyes and respiratory tract, 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.
- **Large-Scale Handling:** Wear a lab coat/protective clothing and a half-face respirator with organic vapor cartridge (if vapor concentration is high); use explosion-proof equipment.
- **Emergency Measures:** In case of skin/eye contact, rinse thoroughly with running water for 10-15 minutes; seek medical advice if irritation persists. 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, dry place away from heat and flame.