

Technical Data Sheet (TDS)

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1. Product Overview

- **Product Name:** Benzyl Phenylacetate
- **Chemical Name:** Benzyl 2-phenylacetate; Phenylacetic acid benzyl ester
- **CAS Number:** 102-16-9
- **Molecular Formula:** C₁₅ H₁₄O₂
- **Molecular Weight:** 226.27 g/mol
- **Product Trait:** Colorless clear liquid (crystallizes at <20°C) with characteristic sweet floral-musky, honey-like aromatic odor; combustible liquid (Category 4); mild skin/eye irritation; high purity, excellent fragrance retention, very low volatility; insoluble in water, miscible with most organic solvents and vegetable oils. **FOR FRAGRANCE, COSMETIC, PHARMACEUTICAL AND INDUSTRIAL USE ONLY.**
- **Core Properties:** High purity (≥98.5%, fragrance/cosmetic grade ≥99.0%); rich floral-musky fragrance with long-lasting effect; stable under normal storage/use conditions; compliant with global fragrance/cosmetic standards (IFRA, FDA CIR); excellent compatibility with most fragrance/cosmetic/pharmaceutical raw materials; very low volatility reduces fragrance loss.
- **Main Application:** Fragrance raw material (perfume, eau de toilette, cosmetic fragrance); cosmetic ingredient (skin care, hair care, body care products); pharmaceutical intermediate (synthesis of anti-inflammatory, analgesic drugs); industrial aromatic chemical (fragrance synthesis, daily chemical product fragrance); fragrance fixative for high-end fragrance formulations.

2. Technical Specifications (Fragrance/Cosmetic/Pharmaceutical/Industrial Grade)

Item	Specification (Industrial Grade)	Specification (Fragrance/Cosmetic/Pharm Grade)
Appearance	Colorless to pale yellow clear liquid	Colorless clear liquid
Assay (Benzyl Phenylacetate)	≥98.5% (GC)	≥99.0% (GC)
Boiling Point	320-325°C	322-324°C
Melting Point	20-22°C	20.5-21.5°C
Refractive Index (n _D ²⁰ /D)	1.5600-1.5640	1.5610-1.5630
Relative Density (20/20°C)	1.085-1.089	1.086-1.088
Flash Point (Closed Cup)	≥140°C	145±1°C
Water Content	≤0.1%	≤0.05% (Karl Fischer)
Residue on Ignition	≤0.1%	≤0.05%
Heavy Metals (Pb)	≤5 ppm	≤1 ppm (AAS)
Heavy Metals (As)	≤1 ppm	≤0.5 ppm (AFS)
Ethanol Solubility	Miscible (1:10 in 95% ethanol), clear	Miscible (1:20 in 95% ethanol), clear
Fragrance	Floral-musky odor, no off-flavor	Pure sweet floral-musky odor, no off-flavor
Stability	Stable at 0-40°C	Stable at 0-50°C (fragrance retention ≥98%)
pH Value (25°C)	6.9-7.3	7.0±0.1
Viscosity (25°C)	8.0-10.0 mPa·s	8.5-9.5 mPa·s

3. Product Advantages

1. **High Purity & Premium Fragrance:** Assay ≥98.5% (fragrance grade ≥99.0%) with ultra-low impurities and heavy metals; authentic sweet floral-musky honey-like fragrance, no synthetic off-flavor; IFRA compliant for fragrance/cosmetic use, ideal for high-end perfume and cosmetic formulation.

2. **Excellent Fragrance Retention:** Very low volatility and high thermal stability; fragrance retention $\geq 98\%$ at 50°C ; acts as an excellent fragrance fixative to prolong the fragrance duration of formulations (8-24 hours).
3. **Stable & Good Compatibility:** Stable under normal storage/processing conditions ($\leq 100^{\circ}\text{C}$); no fragrance loss or discoloration; compatible with most fragrance/cosmetic/pharmaceutical raw materials (fragrance oils, vegetable oils, humectants, excipients); stable in formulations with pH 5.0-8.5 for 12 months.
4. **Multi-Application & Versatile:** Core raw material for floral, musky, oriental and woody fragrance systems; ideal for cosmetic fragrance (skin care, hair care); high reactivity for pharmaceutical intermediate synthesis; suitable for daily chemical product fragrance (detergent, air freshener).

4. Application Fields & Dosage Guide

4.1 Main Application Fields

- **Fragrance Industry:** Core raw material for perfume, eau de toilette, cologne; fragrance fixative for floral, musky, oriental fragrance systems; key component for high-end designer fragrance formulations.
- **Cosmetic Industry:** Fragrance raw material for skin care creams, lotions, serums, shampoos, conditioners, body washes and hand creams; mild fragrance for high-end cosmetic products.

4.2 Recommended Dosage (w/w in formulation, adjust by fragrance intensity)

Application Field	Dosage (Industrial Grade)	Dosage (Fragrance/Cosmetic/Pharm Grade)	Remarks
Fragrance - Perfume/Eau de Toilette	2-10%	1-8%	Main/auxiliary fragrance/fixative; mix with fragrance oil system
Cosmetic - Skin Care/Hair Care	0.05-0.5%	0.02-0.3%	Aromatic phase, mix with vegetable oil/propylene glycol
Daily Chemicals - Detergent/Air Freshener	0.02-0.2%	0.01-0.1%	Mix with surfactant system; fragrance fixative added
Pharmaceutical - Intermediate Synthesis	10-99%	50-99%	Depending on reaction type; inert gas protection optional
Pharmaceutical - Oral Drug Flavoring	0.005-0.05%	0.002-0.02%	Mask drug odor; pharmaceutical grade only
Candles/Incense	0.5-3%	0.2-2%	Melt and mix with wax base at low temperature ($< 80^{\circ}\text{C}$)

5. Usage & Formulation Guidelines

- **Fragrance Formulation (Floral Musky Perfume):** Add Benzyl Phenylacetate (1-8%) to the fragrance oil system (including rose oil, jasmine oil, sandalwood oil); stir evenly at room temperature; age for 7-14 days in a cool and dark place for fragrance fusion and enhancement.

6. Packaging & Storage

- **500mL/1L Amber glass bottle:** Fragrance/Cosmetic/Pharm lab/R&D/small-batch use, sealed with anti-static screw cap + plastic plug
- **5L/10L HDPE plastic drum:** Cosmetic/Industrial medium-batch use, inner anti-static lining + double anti-leakage cap

7. Safety & Protection

- The product is a **Class 3 flammable liquid** with mild skin/eye irritation; all operations must be conducted by trained professional personnel with specified PPE (chemical-resistant goggles, nitrile rubber gloves, chemical-resistant apron, organic vapor respirator).