

Technical Data Sheet (TDS)

- Isobornyl Acetate

Revision Date: 28 FEB 2026

1. Product Overview

- **Product Name:** Isobornyl Acetate (异龙脑乙酸酯)
 - **English Synonyms:** 1,7,7-Trimethylbicyclo[2.2.1]hept-2-yl acetate; Borneyl acetate isomer
 - **CAS Number:** 125-12-2
 - **Molecular Formula:** C₁₂H₂₀ O₂
 - **Molecular Weight:** 196.29 g/mol
 - **Form:** Colorless transparent liquid with a fresh camphoraceous, woody and pine-like aromatic odor
 - **Grade:** Food/Flavor Grade | Cosmetic Grade | Daily Chemical Grade | Industrial Grade
- Isobornyl Acetate is a high-purity monoterpene ester, a key raw material in the flavor & fragrance industry, naturally present in pine, camphor and lavender essential oils. It complies with EU REACH, US FDA GRAS, FEMA 2156 and IFRA standards, featuring a unique fresh woody-camphor aroma, excellent thermal stability, low volatility and good compatibility with various organic solvents. It is widely used as a fragrance ingredient and fixative in flavor, cosmetic and daily chemical formulations, and also serves as a mild solvent in fine chemical manufacturing.

2. Technical Specifications (Complies with Flavor/Cosmetic/Industrial Standard)

Item	Specification
Appearance	Colorless clear liquid, camphoraceous-woody aroma
Assay (Isobornyl Acetate)	≥ 99.0%
Refractive Index (n ₂₀ ^D)	1.460 ~ 1.464
Relative Density (25/25°C)	0.970 ~ 0.974 g/cm ³
Boiling Point	220 ~ 222°C
Flash Point (Closed Cup)	≥ 88°C
Melting Point	-50 ~ -45°C
Acid Value (as KOH)	≤ 1.0 mg KOH/g
Water Content	≤ 0.1%
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Ethanol Solubility (1:5, 95% EtOH)	Clear, no turbidity
Total Bacterial Count (Food/Cosmetic Grade)	≤ 100 CFU/mL
E. coli (Food/Cosmetic Grade)	Negative
Temperature Stability	Stable at -10 ~ 60°C (purity/aroma retention ≥ 99%)
Storage Stability	24 months unopened (under specified conditions), no discoloration/odor change

3. Product Advantages

1. **High Purity & Authentic Aroma:** Assay ≥99.0%, no off-flavor, fresh camphoraceous-woody note, ideal for fragrance blending and fixing in flavor/cosmetic formulations.
2. **Excellent Stability:** Good thermal and chemical stability, low volatility, no easy hydrolysis/decomposition under normal use conditions, long fragrance retention time.
3. **Wide Compatibility:** Miscible with ethanol, ether, acetone, essential oils, vegetable oils and most organic solvents, compatible with all flavor/fragrance and cosmetic bases.
4. **Multi-grade Compliance:** Food grade meets FEMA 2156 & FDA GRAS; cosmetic grade complies with IFRA and EU Cosmetic Regulation; low toxicity and safe for daily use.
5. **Natural Source Traceable:** Exists in natural aromatic plants, suitable for natural flavor and cosmetic formulation needs.

6. **Dual Function:** Serves as both a fragrance ingredient/fixative and a mild organic solvent, with diversified application scenarios in daily chemical and fine chemical fields.

4. Application Fields

- **Flavor & Fragrance Industry:** Core raw material for blending woody, pine, camphor and fresh citrus flavors; fragrance fixative for fine fragrances, daily chemical fragrances and food flavors, improves aroma layering and persistence.
- **Food & Beverage:** Flavoring agent for candy, pastry, beverage, chewing gum and baked food; adds fresh woody-camphor note (low dosage), follows FEMA maximum use level.
- **Cosmetic & Personal Care:** Fragrance ingredient for perfume, shampoo, body wash, soap, lotion and candle; enhances the fresh natural note of cosmetic formulations.
- **Daily Chemical:** Aroma additive for household cleaners, air fresheners and fabric softeners; mild solvent for nail polish and hair care product formulations.
- **Industrial Field:** Intermediate for synthetic monoterpene derivatives; solvent for industrial coatings and inks with low odor.

5. Usage Methods

Recommended Dosage (Adjust according to grade and application scenario)

- **Fine Fragrance & Perfume:** 2 ~ 15% of total formulation (fragrance ingredient/fixative).
- **Cosmetic & Daily Chemical:** 0.5 ~ 5% of total formulation (shampoo/soap/air freshener).
- **Food & Beverage:** 0.0001 ~ 0.01% of total formulation; strictly follow FEMA 2156 maximum use level.
- **Industrial Use:** 5 ~ 30% of total system (solvent/intermediate), adjust according to production process.

Key Application Tips

1. **Mixing & Addition:** At room temperature, can be directly mixed with organic solvents/essential oils/oil-based formulations; dilute with ethanol/propylene glycol for water-based formulations to avoid phase separation.
2. **Compatibility Note:** Stable in neutral/weak acidic/weak alkaline systems (pH 4.0 ~ 8.5); avoid strong acidic/strong alkaline (pH <3.0 or pH >9.0) high-temperature (>200°C) environments to prevent hydrolysis.
3. **Fragrance Blending:** Blends well with linalool, limonene, pine oil, lavender oil and citrus essential oils, enhancing the fresh and natural note of formulations.
4. **Storage Tip:** Add trace antioxidant (e.g., BHT) in case of long-term storage after opening to prevent slight oxidation.

6. Packaging & Storage

Packaging Specifications (Sealed Food/Cosmetic/Industrial Grade Packaging)

- 500 mL brown glass bottle (inner) + carton (outer) (laboratory/R&D/small-batch use)
- 25 kg HDPE plastic drum (cosmetic/daily chemical grade use)
- 200 kg galvanized iron drum (flavor/food grade bulk use)
- 1000 kg IBC tote (large-scale chemical/fragrance production use)
- Custom packaging available (100g/250g small glass bottle for flavor formulation).

Storage Conditions

1. Store in a **cool, dark, well-ventilated warehouse** at 5 ~ 30°C; avoid direct sunlight, high temperature (>35°C) and open fire.
2. Keep the container tightly sealed with an airtight cover to prevent product volatilization and slight oxidation.
3. Store separately from strong oxidants, strong acids, strong alkalis and halogens; isolation distance ≥1.5m; no smoking in the storage area.

7. Safety & Protection

1. The product is low-toxic and slightly irritating; a small number of sensitive individuals may have mild skin/eye irritation after direct contact; avoid prolonged contact and inhalation of high-concentration vapor.
2. **Recommended PPE:** Wear nitrile rubber gloves and safety glasses for large-scale handling/pouring; a dust/mist mask is optional for operation in poor ventilation; no special PPE for small-batch formulation.