

## Technical Data Sheet (TDS)

Issue Date: 20 FEB 2026 Version: V1.0

### 1. Product Overview

- **Product Name:** Trans-Anethole
- **Chemical Name:** trans-1-Methoxy-4-propenylbenzene; trans-p-Propenylanisole
- **CAS Number:** 104-46-1
- **Molecular Formula:** C<sub>10</sub> H<sub>12</sub>O
- **Molecular Weight:** 148.20 g/mol
- **Product Trait:** Colorless transparent liquid (crystallizes at <21 °C) with characteristic sweet anise/star anise fragrance; combustible liquid (Category 4); mild skin/eye irritation; high purity, good thermal stability; slightly soluble in water, miscible with most organic solvents and vegetable oils.
- **FOR FOOD, COSMETIC, PHARMACEUTICAL AND INDUSTRIAL USE ONLY.**
- **Core Properties:** High purity (≥99.0%, food/cosmetic grade ≥99.5%); pure natural fragrance, no off-flavor; stable under normal storage/use conditions; compliant with global food/cosmetic fragrance standards (GB 2760, FDA GRAS, IFRA); excellent compatibility with food/cosmetic/pharmaceutical raw materials.
- **Main Application:** Food additive (flavor and fragrance for candy, beverage, pastry, seasoning); cosmetic raw material (perfume for skin care, hair care, perfume products); pharmaceutical intermediate (synthesis of anti-inflammatory, digestive drugs); industrial aromatic chemical (flavor synthesis, daily chemical product fragrance); feed additive (flavor enhancer for animal feed).

### 2. Technical Specifications (Food/Cosmetic/Pharmaceutical/Industrial Grade)

Item	Specification (Industrial Grade)	Specification (Food/Cosmetic/Pharm Grade)
Appearance	Colorless to pale yellow transparent liquid	Colorless transparent liquid
Assay (Trans-Anethole)	≥99.0%	≥99.5% (GC)
Melting Point	21-23°C	21.5-22.5°C
Boiling Point	234-237°C	235-236°C
Refractive Index (n <sub>20</sub> <sup>D</sup> )	1.5570-1.5610	1.5580-1.5600
Relative Density (20/20°C)	0.988-0.992	0.989-0.991
Flash Point (Closed Cup)	≥90°C	92±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), clear	Miscible (1:20), clear
Fragrance	Anise fragrance, no off-flavor	Pure anise fragrance, no off-flavor
Stability	Stable at 0-40°C	Stable at 0-50°C (fragrance retention ≥95%)

### 3. Product Advantages

1. **High Purity & Consistent Quality:** Assay ≥99.0% (food/cosmetic grade ≥99.5%) with ultra-low impurities and heavy metals; batch-to-batch consistency (CV ≤0.2%) ensures stable fragrance and performance; meets strict global food/cosmetic/pharmaceutical quality standards.
2. **Natural & Pure Fragrance:** Authentic anise/star anise fragrance, no synthetic off-flavor; IFRA compliant for cosmetic use, FDA GRAS certified for food use; suitable for high-end food and cosmetic fragrance formulation.

3. **Excellent Stability & Compatibility:** Stable under normal storage/processing conditions ( $\leq 80^{\circ}\text{C}$ ); no fragrance loss or discoloration; compatible with most food/cosmetic/pharmaceutical raw materials (sugars, oils, humectants, excipients); stable in formulations with pH 5.0-8.0.

#### 4. Application Fields & Dosage Guide

##### 4.1 Main Application Fields

- **Food Industry:** Flavor and fragrance for candy, chewing gum, beverage, pastry, ice cream, pickles and condiments; flavor enhancer for anise/star anise flavored food; mask off-flavor for food products.
- **Cosmetic Industry:** Perfume raw material for skin care creams, lotions, shampoos, conditioners, perfumes and toiletries; fragrance fixative for cosmetic formulations; mild fragrance for baby care products (low dosage).

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

Application Field	Dosage (Industrial Grade)	Dosage (Food/Cosmetic/Pharm Grade)	Remarks
Food - Candy/Beverage/Pastry	0.1-1.0%	0.05-0.5%	Adjust by flavor type; no high-temperature ( $>180^{\circ}\text{C}$ ) processing
Cosmetic - Skin Care/Hair Care	0.05-0.5%	0.02-0.3%	Aromatic phase, mix with vegetable oil/ethanol
Cosmetic - Perfume	1-10%	0.5-8%	Main fragrance/auxiliary fragrance
Pharmaceutical - Intermediate Synthesis	10-99%	50-99%	Depending on reaction type; inert gas protection optional
Pharmaceutical - Oral Drug Flavoring	0.01-0.1%	0.005-0.05%	Mask drug odor; food grade only
Daily Chemicals - Detergent/Air Freshener	0.05-0.5%	0.02-0.3%	Mix with surfactant system
Feed - Poultry/Livestock/Aquatic	0.001-0.01%	0.0005-0.005%	Dilute with feed carrier first

#### 5. Usage & Formulation Guidelines

- **Food Formulation (Anise Flavored Candy):** Melt sugar and fat at  $80-90^{\circ}\text{C}$ ; cool to  $60-70^{\circ}\text{C}$ ; add Trans-Anethole (0.05-0.5%) and stir evenly; mold and cool; avoid high-temperature heating ( $>100^{\circ}\text{C}$ ) after addition to prevent fragrance loss.
- **Cosmetic Formulation (Anise Fragrance Lotion):** Add Trans-Anethole (0.02-0.3%) to the aromatic phase (vegetable oil/ethanol) and stir to dissolve; mix the aromatic phase with the aqueous phase (glycerol/hyaluronic acid) under homogenization (3000 rpm); adjust pH to 5.0-7.0; no high-temperature sterilization ( $>80^{\circ}\text{C}$ ).
- **Pharmaceutical Intermediate Synthesis:** Use pharmaceutical grade Trans-Anethole; react with other raw materials under normal temperature/pressure (or mild heating  $\leq 80^{\circ}\text{C}$ ); use closed reaction system to prevent vapor volatilization; eliminate ignition sources in the reaction area.

#### 6. Packaging & Storage

- **500mL/1L Amber glass bottle:** Food/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 gloves, chemical-resistant apron, organic vapor respirator).