

Technical Data Sheet (TDS)

- Anise Star Oil

Product Name: Anise Star Oil **English Name:** Anise Star Oil **CAS Number:** 8007-70-3 **MDL Number:** MFCD00148089 **Main Component:** Anethole (C₁₀ H₁₂O, CAS 104-46-1, ≥85%) **Molecular Weight:** Variable (natural essential oil mixture) **Revision Date:** 26 FEB 2026

1. Product Overview

Anise Star Oil (CAS 8007-70-3) is a natural essential oil extracted from the dried fruits of *Illicium verum* (star anise) by steam distillation, with anethole as the core active component (≥85%). It features a strong, sweet characteristic anise/licorice aromatic scent, and has excellent fragrance retention, thermal stability and natural flavoring properties. This product is manufactured in accordance with international essential oil industrial standards, with high anethole content, stable physical and chemical properties, and compliant with GB 2760, EU Cosmetics Regulation, IFRA and FDA standards. It is a classic raw material widely used in fragrance & flavor, food, cosmetics, pharmaceutical and oral care industries, with high application value and safety when used as directed.

Core Characteristics: High anethole content (≥91.2%); natural plant-sourced; strong sweet anise aroma; excellent thermal stability; good solubility in organic solvents; compliant with food/cosmetic/oral care safety standards; long shelf life.

2. Technical Specifications (Complies with Industrial Standard)

Item	Specification
Appearance	Colorless to pale yellow clear mobile liquid
Anethole Content	≥ 85.0% (GC), typical 91.2%
Refractive Index (20°C)	1.5520-1.5600
Relative Density (20/20°C)	0.978-0.988
Optical Rotation (20°C)	-2.0° to +1.0°
Acid Value	≤ 1.0 mg KOH/g
Water Content	≤ 0.5% (Karl Fischer)
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Solubility (90% Ethanol, 25°C)	1:3 soluble
Solubility in Water	<0.1g/100mL (25°C)
Viscosity (25°C)	10-20 mPa s
Flash Point	≥ 75°C (Closed Cup)
Odor	Strong sweet characteristic anise/licorice aroma (no off-odor)
Microbiological Index	Total bacterial count ≤ 100 CFU/mL, E. coli negative
Temperature Stability	Stable at 0-40°C (aroma retention ≥95%)

3. Product Advantages

- 1. Natural & High Purity:** Steam-distilled from natural star anise fruits, no artificial additives or synthetic fragrances; anethole content ≥85%, high active component ratio for strong aroma and efficacy.
- 2. Pleasant & Long-Lasting Aroma:** Classic sweet anise/licorice scent, slow volatilization rate, fragrance retention up to 12-24 hours in finished products, ideal for long-acting fragrance and flavor formulations.
- 3. Excellent Thermal Stability:** Resistant to high temperature (≤120°C) during processing, no fragrance loss or active component degradation, suitable for high-temperature production processes (baking, candy making, candle production).
- 4. Good Compatibility:** Soluble in most organic solvents (ethanol, propylene glycol, vegetable oil) and common fragrance/flavor/cosmetic raw materials, easy to compound with no adverse reactions.
- 5. Multi-Functional & Versatile:** Integrates fragrance, flavoring, and mild antibacterial properties; applicable to food, cosmetics, pharmaceuticals, oral care and household products, one material for multiple uses.



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6. **Safe & Compliant:** Complies with global food, cosmetic and oral care safety standards, non-toxic with normal diluted use, no skin sensitization potential.
7. **Stable Storage:** 24-month shelf life under specified conditions; nitrogen-filled packaging can further extend storage time without obvious quality degradation.

4. Application Fields

Fragrance Formulation: Perfume, eau de toilette, soap, candle, air freshener, laundry detergent (formulation ratio 0.2-5.0%); core raw material for sweet, spicy and oriental fragrance systems.

- **Food Flavor:** Bakery, candy, beverage, liquor, condiment, ice cream (compliant with GB 2760, formulation ratio 0.001-0.1%); enhances sweet and aromatic flavor, typical for anise/licuorice flavored foods.

5. Usage Methods & Dosage

5.1 General Usage Principles

- **Dilution Required:** No undiluted direct skin/eye/oral contact; dilute with organic solvent (ethanol/propylene glycol/vegetable oil) before use (dilution ratio 1:10 to 1:50 according to application scenario).
- **Avoid High Temperature:** Heating temperature during processing $\leq 120^{\circ}\text{C}$ to avoid fragrance loss and active component degradation; add at the final stage of high-temperature processing if possible.
- **Sealed Use:** Prepare formulated products on site; avoid long-term exposure to air to prevent oxidation and aroma loss.
- **Compatibility Test:** Conduct a small-scale compatibility test before large-scale use with other raw materials (especially for acidic/alkaline formulations).

5.2 Recommended Dosage (Diluted Formulation Ratio)

Industry	Application Scenario	Recommended Dosage
Fragrance	Perfume/soap/candle/air freshener	0.2-5.0%
Food Flavor	Bakery/candy/liquor/condiment	0.001-0.1% (GB 2760 compliant)
Cosmetics	Skin care/hair care/body wash	0.1-2.0%
Oral Care	Toothpaste/mouthwash	0.05-1.0%
Pharmaceuticals	Cough syrup/digestive drug excipient	0.01-0.5%
Household Products	Deodorant/fabric softener	0.1-3.0%
Feed Additive	Livestock/poultry feed	0.005-0.02%

6. Packaging & Storage

- **Food/Cosmetic/Oral Care Grade:** 100mL/500mL/1L brown glass bottles (sealed with teflon stopper); 5L/10L light-proof HDPE plastic drums (food-grade inner lining).
- **Industrial/Pharmaceutical Grade:** 25L/50L light-proof HDPE plastic drums; 200L iron drums with inner plastic lining (nitrogen-filled for bulk storage).
- **Sample Package:** 10mL/30mL brown glass vials (for formulation testing and trial use).
- **Custom Packaging:** Small/bulk package, nitrogen-filled packaging available upon customer request.

7. Safety & Protection

1. The product is a Class 3 flammable liquid; causes mild skin irritation and serious eye irritation; harmful to aquatic life with acute and long-term effects.
2. Wear **nitrile rubber gloves, chemical safety goggles and organic vapor cartridge respirator** during handling; avoid latex gloves and undiluted direct contact with skin/eyes.
3. Operate in a well-ventilated area; keep away from heat, sparks and open flames; prohibit smoking in the operation area.
4. In case of eye contact: Rinse thoroughly with running water for 15-20 minutes and consult a doctor immediately if irritation persists.