

Technical Data Sheet (TDS)

- Coumarin

Product Name: Coumarin **English Name:** Coumarin **CAS Number:** 91-64-5 **MDL Number:** MFCD00006845 **Formula:** C₉ H₆ O₂ **Molecular Weight:** 146.14 g/mol **Revision Date:** 20 FEB 2026

1. Product Overview

Coumarin is a natural organic crystalline compound with a characteristic sweet vanilla-like fragrance. It is widely found in natural plants (such as tonka bean, cinnamon) and can also be synthesized industrially with high purity. This product (CAS 91-64-5) is a high-purity synthetic coumarin, with stable physical and chemical properties, pure fragrance and consistent quality. It is a key raw material for flavor & fragrance, pharmaceutical, cosmetic and pesticide industries, complying with international industrial and safety standards.

Core Characteristics: High purity (≥99.0%); stable crystalline form; typical vanilla-like fragrance; good solubility in organic solvents; compliant with food/cosmetic additive safety limits (per relevant national regulations).

2. Technical Specifications (Complies with Industrial Standard)

Item	Specification
Appearance	White to off-white crystalline powder
Assay (Purity)	≥ 99.0% (HPLC)
Melting Point	68.0-70.0°C
Loss on Drying	≤ 0.5%
Residue on Ignition	≤ 0.1%
Heavy Metals (Pb)	≤ 10 ppm
Heavy Metals (As)	≤ 2 ppm
Chloride (Cl ⁻)	≤ 0.01%
Sulfate (SO ₄ ²⁻)	≤ 0.01%
Solubility (95% Ethanol, 25°C)	Soluble (1g/10mL)
Solubility in Water (25°C)	Slightly soluble (0.2g/100mL)
Particle Size	80-100 mesh (customizable)
Odor	Sweet vanilla-like faint fragrance (no off-odor)
Color (APHA, ethanol solution)	≤ 20

3. Product Advantages

- High Purity & Consistent Quality:** Industrial synthetic grade with purity ≥99.5% (batch tested), low impurity content, no obvious color difference or off-odor.
- Typical Natural Fragrance:** Reproduces the natural vanilla-like fragrance of plant-derived coumarin, suitable for high-end flavor and fragrance formulation.
- Stable Physical & Chemical Properties:** No moisture absorption, no easy decomposition under normal storage conditions, 24-month long shelf life.
- Good Compatibility:** Soluble in most organic solvents (ethanol, ether, benzene), compatible with other flavor/fragrance, pharmaceutical and cosmetic raw materials.
- Multi-industry Applicable:** Complies with international safety standards for food, cosmetic and pharmaceutical raw materials, with clear dosage limits and application guidelines.
- Customizable Specifications:** Particle size, purity grade (food/cosmetic/industrial) can be customized according to customer requirements.

4. Application Fields

4.1 Flavor & Fragrance Industry

- Food flavor: Bakery, candy, beverage, ice cream (added in accordance with national food additive dosage limits, e.g., China GB 2760-2021).
- Daily chemical fragrance: Perfume, soap, laundry detergent, air freshener, candle (formulation ratio 0.1-5.0%).



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- Tobacco flavor: Cigarette filter and tobacco flavoring (low dosage, compliant with tobacco industry standards).

4.2 Pharmaceutical Industry

- Pharmaceutical intermediate: Synthesis of anticoagulant drugs (e.g., warfarin), anti-inflammatory drugs and antibacterial drugs.
- Traditional Chinese medicine preparation: Small amount added for flavor modification (compliant with pharmaceutical preparation standards).

4.3 Cosmetic Industry

- Skin care products: Lotion, cream, mask (flavor modification, dosage $\leq 0.5\%$).
- Hair care products: Shampoo, conditioner, hair spray (fragrance formulation, dosage 0.1-2.0%).
- Note: Complies with EU and China cosmetic raw material safety regulations, no use in infant cosmetics (0-3 years old).

4.4 Other Industries

- Pesticide intermediate: Synthesis of plant growth regulators and insect repellents.
- Coating & plastic: Small amount added for fragrance modification of plastic products and water-based coatings.
- Analytical reagent: Chromatography standard reagent (high-purity grade $\geq 99.9\%$).

5. Usage Methods & Dosage

5.1 General Usage Principles

- Use in a well-ventilated area; avoid dust inhalation and eye contact.
- Dissolve in organic solvent (e.g., 95% ethanol) first for uniform mixing in aqueous systems.
- Strictly control the dosage in food/cosmetic/pharmaceutical applications, in accordance with national and international relevant standards.
- For industrial intermediate use, adjust the dosage according to the synthesis process requirements.

5.2 Recommended Dosage (by Industry)

Industry	Application Scenario	Recommended Dosage
Food Flavor	Bakery/candy/beverage	0.001-0.01% (based on total product weight)
Daily Chemical Fragrance	Perfume/soap/air freshener	0.1-5.0% (formulation ratio)
Cosmetics	Skin care/hair care products	0.1-0.5% (based on total product weight)
Pharmaceutical Intermediate	Drug synthesis	10-50% (synthesis process ratio)
Pesticide Intermediate	Plant growth regulator synthesis	5-30% (synthesis process ratio)

6. Packaging & Storage

- **Food/Cosmetic Grade:** 1kg/5kg/10kg HDPE sealed plastic drums (food-grade inner lining)
- **Industrial/Pharmaceutical Grade:** 25kg HDPE sealed plastic drums / paper composite bags with plastic lining
- **High-Purity Reagent Grade:** 100g/500g brown glass bottles
- **Custom Packaging:** 50kg/100kg bulk packaging or small packaging (100g/250g) available upon request.

7. Safety & Protection

1. The product is a Class 9 environmentally hazardous good, harmful if swallowed and causes serious eye irritation; toxic to aquatic organisms.
2. Wear **nitrile rubber gloves, chemical safety goggles and N95 dust mask** during handling; avoid inhalation of powder and direct contact with eyes/skin.
3. Do not eat, drink or smoke during operation; wash hands and face thoroughly with soap and water after handling.
4. In case of eye contact: Rinse thoroughly with running water for 15-20 minutes and consult a