

Technical Data Sheet (TDS)

Issue Date: 28 FEB 2026 Version: V1.0

1. Product Overview

- **Product Name:** α -Methylcinnamaldehyde
- **Chemical Name:** 2-Methyl-3-phenylacrolein; α -Methyl trans-cinnamaldehyde
- **CAS Number:** 101-39-3
- **Molecular Formula:** C₁₀ H₁₀ O
- **Molecular Weight:** 146.19 g/mol
- **Product Trait:** Pale yellow to light orange clear liquid with characteristic cinnamon spicy and sweet aromatic odor; combustible liquid (Category 4); moderate skin irritation and serious eye irritation; high purity, good thermal stability; slightly soluble in water, miscible with most organic solvents and vegetable oils. **FOR FOOD, COSMETIC, FRAGRANCE, PHARMACEUTICAL AND INDUSTRIAL USE ONLY.**
- **Core Properties:** High purity ($\geq 98.0\%$, food/fragrance/cosmetic grade $\geq 99.0\%$); authentic cinnamon spicy fragrance, strong fragrance retention; stable under normal storage/use conditions; compliant with global food/cosmetic/fragrance standards (GB 2760, FDA GRAS, IFRA); excellent compatibility with most flavor/fragrance and pharmaceutical raw materials.
- **Main Application:** Food flavor/fragrance raw material (cinnamon, spicy, sweet flavor formulation); cosmetic/fragrance ingredient (perfume, skin care, hair care products); pharmaceutical intermediate (synthesis of anti-inflammatory, antibacterial drugs); industrial aromatic chemical (flavor/fragrance synthesis, daily chemical product fragrance); perfume formulation core component (spicy and woody notes).

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

Item	Specification (Industrial Grade)	Specification (Food/Fragrance/Cosmetic/Pharm Grade)
Appearance	Pale yellow clear liquid	Light yellow clear liquid
Assay (α -Methylcinnamaldehyde)	$\geq 98.0\%$ (GC)	$\geq 99.0\%$ (GC)
Boiling Point	250-255°C	252-254°C
Refractive Index (n ₂₀ /D)	1.5880-1.5920	1.5890-1.5910
Relative Density (20/20°C)	1.018-1.022	1.019-1.021
Flash Point (Closed Cup)	$\geq 110^\circ\text{C}$	115 \pm 1°C
Water Content	$\leq 0.1\%$	$\leq 0.05\%$ (Karl Fischer)
Residue on Ignition	$\leq 0.1\%$	$\leq 0.05\%$
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	Cinnamon spicy odor, no off-flavor	Pure cinnamon spicy sweet odor, no off-flavor
Stability	Stable at 0-40°C	Stable at 0-50°C (fragrance retention $\geq 95\%$)
pH Value (25°C)	6.8-7.2	6.9-7.1

3. Product Advantages

1. **High Purity & Consistent Quality:** Assay $\geq 98.0\%$ (food/fragrance grade $\geq 99.0\%$) with ultra-low impurities and heavy metals; batch-to-batch consistency (CV $\leq 0.2\%$) ensures stable fragrance and performance; meets strict global food/cosmetic/pharmaceutical quality standards.
2. **Unique & Pure Fragrance:** Authentic cinnamon spicy and sweet aromatic odor, strong fragrance retention ($\geq 95\%$ at 50°C); IFRA compliant for cosmetic/fragrance use, FDA GRAS certified for food use; ideal for high-end food flavor and perfume formulation.

4. Application Fields & Dosage Guide

4.1 Main Application Fields

- **Food Industry:** Flavor/fragrance for candy, bakery, beverage, ice cream, chocolate, seasoning and canned food; core raw material for cinnamon, spicy and sweet flavor formulation; flavor enhancer for baked food and condiments.
- **Cosmetic & Fragrance Industry:** Perfume raw material for perfume, eau de toilette, skin care creams, lotions, shampoos and conditioners; fragrance fixative for cosmetic formulations; spicy note component for men's perfume and woody fragrance system.

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

Application Field	Dosage (Industrial Grade)	Dosage (Food/Fragrance/Cosmetic/Pharm Grade)	Remarks
Food - Candy/Bakery/Beverage	0.05-0.5%	0.02-0.3%	Avoid high-temperature (>200°C) processing; add at low temperature
Fragrance - Perfume/Eau de Toilette	1-8%	0.5-6%	Main/auxiliary fragrance; mix with fragrance oil system
Cosmetic - Skin Care/Hair Care	0.02-0.2%	0.01-0.1%	Aromatic phase, mix with vegetable oil/propylene glycol
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; food grade only
Daily Chemicals - Detergent/Air Freshener	0.02-0.2%	0.01-0.1%	Mix with surfactant system; fragrance fixative added

5. Usage & Formulation Guidelines

- **Food Formulation (Cinnamon Flavored Cookie):** Melt butter and sugar at 60-70°C; cool to room temperature; add α -Methylcinnamaldehyde (0.02-0.3%) and other raw materials; knead dough and bake at 150-160°C; avoid adding at high temperature to prevent fragrance loss.
- **Fragrance Formulation (Cinnamon Woody Perfume):** Add α -Methylcinnamaldehyde (0.5-6%) to the fragrance oil system (including jasmine oil, sandalwood oil, vanilla extract); stir evenly at room temperature; age for 7-14 days in a cool and dark place for fragrance fusion.

6. Packaging & Storage

- **500mL/1L Amber glass bottle:** Food/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
- **25L HDPE plastic drum/amber glass drum:** Food/Pharm/Bulk industrial use, anti-static + nitrogen-filled packaging (for long-term storage)
- **200L Seamless steel drum:** Large-scale industrial use, anti-static lining + explosion-proof cap
- **Custom Packaging:** 10mL/50mL sample bottles (all grades); 50L/100L bulk drums; nitrogen-filled packaging for long-distance transport (available upon request)

7. Safety & Protection

- The product is a **Class 3 flammable liquid** with moderate skin irritation and serious 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).