

## Technical Data Sheet (TDS)

### 1. Product Overview

- Product Name: Oleic Acid
- English Name: Oleic Acid
- CAS Number: 112-80-1
- Formula: C<sub>18</sub> H<sub>34</sub>O<sub>2</sub>
- Molecular Weight: 282.47 g/mol
- Product Characteristics: Unsaturated fatty acid (cis-9-octadecenoic acid); pale yellow clear liquid at room temperature, insoluble in water, soluble in organic solvents/oils; combustible, mild fatty odor; excellent emulsifying, lubricating and plasticizing properties; saponifies with strong alkalis to form oleates (soap); oxidizes at high temperature. Technical grade contains minor linoleic/palmitic acid impurities; food/cosmetic grades available with high purification.

### 2. Technical Specifications

Item	Specification
Appearance	Pale yellow clear liquid (25°C)
Acid Value	190–200 mg KOH/g
Iodine Value	80–100 g I <sub>2</sub> /100g
Saponification Value	192–202 mg KOH/g
Freezing Point	≤ 10°C
Moisture Content	≤ 0.5%
Ash Content	≤ 0.1%
Heavy Metals (Pb)	≤ 5 ppm
Iron (Fe)	≤ 5 ppm
Oleic Acid Content	≥ 80.0%
Density (25°C)	0.89 g/cm <sup>3</sup>
Viscosity (25°C)	20–30 mPa·s
Flash Point (Closed Cup)	189°C

### 3. Product Advantages

1. **Excellent Lubricity/Plasticity:** Reduces friction in plastics/rubber; improves processability and product flexibility.
2. **Natural Emollient:** Softens and moisturizes skin (cosmetic use); FDA approved for personal care products.
3. **Multi-functional Raw Material:** Precursor for surfactants, oleates and biodiesel; wide industrial applicability.
4. **Good Emulsification:** Forms stable oil-in-water emulsions; suitable for food/cosmetic formulations.
5. **Biodegradable:** Eco-friendly, no environmental pollution; meets global green chemical standards.
6. **Customizable Grades:** Food, Cosmetic and Industrial grades available for different application scenarios.

### 4. Application Fields

- **Cosmetics & Personal Care:** Emollient for creams/lotions, lipsticks, hair conditioners; raw material for fatty alcohol/ester production.



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- **Plastics & Rubber:** Plasticizer/lubricant for PVC/PE/PP and rubber products; improves mold release and product flexibility.
- **Surfactant Production:** Main raw material for anionic/cationic surfactants (detergents, emulsifiers).
- **Paint & Ink:** Drying agent for alkyd resins; improves film-forming and adhesion of paint/ink.
- **Food Industry (Food Grade):** Emulsifier for dairy products, salad dressings and baked goods (comply with FDA dosage limits).
- **Other:** Biodiesel raw material, metal working fluid (lubricant), textile softener, pesticide emulsifier.

## 5. Usage Methods

- **Cosmetic Emollient:** Add 5–15% (mass ratio) to oil phase; melt with other oils (60–70°C); mix with water phase and stir to emulsify.
- **Plastic Lubricant:** Add 0.5–3% to plastic resin (PVC/PE/PP); mix evenly before extrusion/injection molding.
- **Surfactant Production:** React with NaOH/KOH (1:1 molar ratio) at 80–90°C for saponification; or esterify with alcohols for non-ionic surfactants.
- **Paint Drying Agent:** Add 1–5% to alkyd resin paint; mix evenly (accelerates film drying and hardening).
- **Optimal Conditions:** Use at 20–80°C; avoid heating to >200°C (oxidation); eliminate ignition sources (combustible); store in sealed containers to prevent air contact.

## 6. Packaging & Storage

- **Packaging:** 5 kg/HDPE bottle (cosmetic grade), 25 kg/HDPE drum, 200 kg/steel drum (industrial grade), 1000 kg/IBC tote (bulk use); nitrogen-filled packaging available for anti-oxidation.
- **Storage:** Cool, dry, well-ventilated warehouse ( $\leq 30^{\circ}\text{C}$ ); store in sealed drums; keep away from open flames, heat sources and strong oxidizing agents; avoid direct sunlight (prevents oxidation/darkening).
- **Shelf Life:** 18 months (unopened, standard packaging); 24–30 months (nitrogen-filled packaging).
- **Transportation:** Non-dangerous goods; avoid open flames, heat sources and collision during transport; ground/bond drums for bulk transfer (static prevention).

## 7. Safety & Protection

- Wear nitrile gloves, chemical splash goggles and fire-resistant lab coat during handling; eliminate all ignition sources in work area.
- Avoid skin/eye contact and vapor inhalation; rinse skin/eyes with plenty of water immediately if contact occurs; moisturize skin after rinsing (prevents dryness).
- Do not heat to >200°C (oxidation to acrid fumes); use local exhaust ventilation for heating operations.
- Food/cosmetic grade and industrial grade must be stored separately (dedicated areas).

## 8. Quality Assurance

- Manufactured under ISO 9001 quality management system, GMP (cosmetic/food grade) and HACCP (food grade).
- Each batch is strictly tested for acid value, iodine value and heavy metals; accompanied by a Certificate of Analysis (COA).
- Provide technical support for formulation optimization (e.g., cosmetic emulsification, plastic lubrication) and process design.
- Customized purification and packaging available upon customer request.