

TECHNICAL DATA SHEET

12-Hydroxystearic Acid (12-HSA, Min 99.0%)

CAS No.: 106-14-9

EINECS No.: 203-366-1

IUPAC Name: 12-Hydroxyoctadecanoic acid

Molecular Formula: C₁₈H₃₆O₃

Molecular Weight: 300.48

HS Code: 2918199000

Supplier: Hefei TNJ Chemical Industry Co.,Ltd.

Document Revision Date: 2026-08-06

1. Product Overview

12-Hydroxystearic acid is a saturated long-chain fatty acid with both hydroxyl and carboxyl functional groups, derived from hydrogenated castor oil. It exhibits outstanding gelling, thickening and metal soap forming properties, widely used as core raw material for lithium grease, cosmetic thickener, plastic lubricant and fine chemical intermediates. This grade is high-purity export standard with assay ≥99.0%.

2. Physical & Chemical Properties

Item	Typical Value
Appearance	White to off-white flaky crystalline solid
Odor	Faint characteristic fatty odor
Melting Point	74.0 ~ 76.0 °C
Boiling Point	Decomposes at approx. 180 °C
Density (solid, 25°C)	1.0238 g/cm ³
Flash Point	231.8 °C
Solubility	Insoluble in water; soluble in ethanol, ether, chloroform, mineral oil and organic solvents
Refractive Index (liquid at 80°C)	~1.420
Thermal Stability	Good anti-oxidation, low tendency to rancidity under normal storage

3. Quality Specifications (Export Grade $\geq 99.0\%$)

Test Item	Standard Requirement	Typical Test Result	Test Standard
Assay (12-HSA), %	≥ 99.0	99.42	GC
Acid Value, mgKOH/g	178 ~ 188	183.6	AOCS Ca 5a-40
Hydroxyl Value, mgKOH/g	150 ~ 160	156.8	AOCS Cd 13-60
Saponification Value, mgKOH/g	180 ~ 190	185.2	AOCS Cd 3-25
Iodine Value, gI ₂ /100g	≤ 2.5	1.2	Wijs Method
Color (Gardner)	≤ 2.0	1.0	Colorimeter
Moisture & Volatiles, %	≤ 0.15	0.08	105°C oven drying
Residue on Ignition, %	≤ 0.05	0.02	Gravimetry
Hot Ethanol Insoluble Matter, %	≤ 0.03	<0.01	Gravimetry
Heavy Metals (as Pb), ppm	≤ 10	<2	AAS
Iron (Fe), ppm	≤ 5	<1	Colorimetry

4. Key Performance Advantages

1. Dual functional groups (-COOH & -OH), excellent capacity to form lithium soap, produce high drop-point lithium grease with superior water resistance & anti-wear performance.
2. Low color & low impurity, suitable for transparent cosmetic formulations (lipstick, balm, cream).
3. Low iodine value, excellent oxidation resistance, long service life for lubricants.
4. Good compatibility with mineral oil, synthetic base oil, waxes and polymer resins.
5. Non-toxic, mild irritation, compliant with general industrial & cosmetic raw material regulations.

5. Main Applications

Lubricant Industry (Major Usage)

Raw material for lithium-based grease, complex lithium grease, extreme pressure industrial & automotive bearing grease; anti-rust oil, metal drawing lubricant, metal processing oil thickener.

Cosmetic & Personal Care

Thickener, film-forming agent and shaping agent for lipstick, lip balm, foundation, wax skincare cream, solid perfume.

Fine Chemical Synthesis

Raw material for metal soaps, surfactants, ester derivatives; anti-settling dispersant for ink & coating.

Plastic & Rubber Additive

Internal lubricant, release agent, processing modifier for PVC, polyolefin and elastomers.

Pharmaceutical Excipient

Ointment matrix, sustained-release auxiliary material.

6. Handling, Storage & Transportation

Packaging

25kg net export fibre drum, lined with double sealed PE inner bags; outer drum printed with TNJ LOGO, product name, CAS No., batch number, N.W./G.W. Palletized with stretch film for sea shipment.

Storage Conditions

- Store in cool, dry, well-ventilated warehouse; tightly seal containers to prevent moisture absorption and agglomeration.
- Keep away from strong oxidants, high temperature, open flame and direct sunlight.
- Separated storage from strong alkaline substances.
- Shelf life: 24 months under intact original packaging.

Transportation Notes

Classified as general non-dangerous goods, no UN number required.

- Avoid heavy extrusion, falling and package breakage during loading/unloading.
- Cover cargo to prevent rain and dampness.
- Do not transport together with strong alkali, oxidants, food and feed.

Personal Protection

- Wear N95 dust mask, safety goggles and dust-proof work clothes when handling powder.
- Avoid long-term skin contact and dust inhalation.
- In case of eye contact, rinse thoroughly with running water.

7. Regulatory Compliance

- Compliant with general industrial chemical standards for export to EU, Southeast Asia, Middle East,

America.

- Raw material approved for cosmetic and lubricant industrial use.
- Not restricted hazardous substance under UN-GHS classification.

8. Contact Information

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