

Technical Data Sheet (TDS)

1. Product Overview

- **Product Name:** Dihydroartemisinin (DHA)
- **CAS Number:** 71939-50-9
- **Formula:** C₁₅ H₂₄O₅
- **Formula Weight:** 284.34 g/mol
- **Product Characteristics:** High-purity artemisinin derivative, core anti-malarial active ingredient with stronger and more stable anti-parasitic activity than artemisinin. White crystalline powder, soluble in organic solvents, non-toxic at therapeutic dosages, fully biodegradable. Pharmaceutical grade meets CP/USP/EP standards, widely used in pharmaceutical production and fine chemical synthesis, with anti-inflammatory and antioxidant auxiliary activities.

2. Technical Specifications (CP/USP/EP Compliant)

Item	Specification (Pharmaceutical Grade)
Appearance	White to off-white crystalline powder, slight characteristic odor
Assay (Purity)	≥ 99.0% (HPLC)
Loss on Drying	≤ 0.5% (105°C, 2h)
Residue on Ignition	≤ 0.1% (600°C±50°C)
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Heavy Metals (Hg)	≤ 0.1 ppm
Melting Point	145-150°C
Specific Rotation (25°C, MeOH, 1%)	+45° to +55°
Related Substances	≤ 0.8% (HPLC)
Residual Solvents	Meets USP <467> limits
Microbial Limit	Total Aerobic Count ≤100 CFU/g; Yeast/Mold ≤10 CFU/g
Pathogens	E. coli, Salmonella, Staphylococcus aureus: Negative
Solubility	Soluble in methanol (1g/5mL); insoluble in water
Particle Size	100-200 mesh (standard); customizable 80-200 mesh
Temperature Stability	Stable at 0-30°C (purity retention ≥99%)
Light Stability	Stable in dark; slight degradation under strong UV light

3. Product Advantages

1. **High Purity & Quality:** ≥99.0% assay, meets international pharmacopoeial standards, low impurity/heavy metal content, consistent batch quality
2. **Potent Biological Activity:** Stronger anti-malarial activity than artemisinin, fast-acting and high curative rate for malaria
3. **Good Solubility:** Soluble in methanol/ethanol, easy for pharmaceutical formulation and derivative synthesis
4. **Safety & Low Toxicity:** No systemic toxicity at therapeutic dosages, no serious side effects, suitable for clinical and veterinary use
5. **Stability:** Better storage stability than artemisinin, 24-month shelf life under specified conditions
6. **Eco-friendly:** Fully biodegradable, no environmental pollution, compliant with global green chemical standards
7. **Versatility:** Core raw material for artemisinin combination therapies (ACTs) and derivative synthesis

4. Application Fields

- **Pharmaceutical Industry:** Production of anti-malarial drugs (ACTs); synthesis of artemether, artesunate and other derivatives; anti-inflammatory/anti-parasitic drug R&D
- **Fine Chemicals:** Key intermediate for artemisinin series derivative synthesis



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- **Biomedical Research:** Research reagent for anti-malarial, anti-cancer and anti-inflammatory mechanism studies
 - **Veterinary Medicine:** Anti-parasitic drug raw material for livestock/poultry aquaculture
 - **Cosmetics:** High-end skin care additive (antioxidant, anti-aging) for serums/creams (low concentration)
- ## 5. Usage Methods
- **Pharmaceutical Formulation:** Used for synthesis of artemisinin derivatives (artemether/artesunate) via chemical modification; formulated into tablets, capsules, injections (dosage per pharmacopoeia/therapeutic guidelines)
 - **Research Use:** 0.01-5 mM concentration for in vitro cell experiments; dissolve in DMSO/methanol for stock solution
 - **Veterinary Medicine:** 3-15 mg/kg body weight for livestock/poultry; formulate into oral powder/solution
 - **Cosmetics Industry:** 0.05-0.3% addition in skin care products; mix with oil/organic solvent phase
 - **Note:** Raw powder not for direct use; must be formulated into finished products for medical/cosmetic application
- ## 6. Packaging & Storage
- ### Packaging Specifications
- 100 g/bottle (pharmaceutical grade, amber glass bottle with PE liner)
 - 1 kg/tin (pharmaceutical/industrial grade, sealed tin can with PE liner)
 - 5 kg/drum (industrial grade, HDPE drum with airtight seal)
 - 25 kg/drum (bulk industrial grade, paper drum with aluminum foil liner)
 - Custom packaging (10g/50g) for research/small-batch orders
- ### Storage Conditions
- Store in a **cool, dry, dark** warehouse with temperature $\leq 20^{\circ}\text{C}$ and relative humidity $\leq 50\%$
 - Keep container **airtight and sealed** to prevent moisture absorption and light degradation
 - Store separately from strong acids, oxidizing agents, heavy metal salts and UV light
 - Avoid high temperature ($>30^{\circ}\text{C}$) and repeated freeze-thaw cycles
- ### Shelf Life
- 24 months (unopened, pharmaceutical grade, specified storage conditions)
 - 18 months (unopened, industrial grade, specified storage conditions)
 - 6 months after opening (if sealed and stored properly)
- ## 7. Safety & Protection
- The product is non-hazardous; mild eye/skin irritation may occur in sensitive individuals
 - **Mandatory PPE** for handling: anti-dust safety goggles, nitrile rubber gloves, N95 dust mask (large-scale operation)
 - Avoid dust inhalation and eye/skin direct contact; wash hands thoroughly with soap and water after handling
 - In case of eye contact, rinse with plenty of water for 10-15 minutes; consult a doctor if irritation persists
 - Do not ingest raw powder; if large amount is ingested, consult a doctor immediately
 - Non-combustible; no special fire/explosion protection required
- ## 8. Quality Assurance
- Manufactured in accordance with **GMP, ISO 9001 (Quality)** and **ISO 14001 (Environment)** standards
 - Each batch is tested by an independent third-party laboratory and accompanied by a **Certificate of Analysis (COA)**
 - Provide **pharmacopoeial compliance documents** (CP/USP/EP) for pharmaceutical grade products
 - Standardized synthesis and purification process, low batch-to-batch variation, stable product quality