

## Technical Data Sheet (TDS)

### 1. Product Overview

- **Product Name:** Artemisinin (Qinghaosu)
- **CAS Number:** 63968-64-9
- **Formula:** C<sub>15</sub> H<sub>22</sub>O<sub>5</sub>
- **Formula Weight:** 282.33 g/mol
- **Product Characteristics:** High-purity crystalline powder extracted from Artemisia annua L., a classic anti-malarial active ingredient with unique peroxide bridge structure. It has anti-malarial, anti-inflammatory, antioxidant and anti-tumor activities. Pharmaceutical grade meets CP/USP/EP standards, non-toxic at therapeutic dosages, biodegradable, and widely used in pharmaceutical and fine chemical industries.

### 2. Technical Specifications (Complies with CP/USP/EP Standard)

Item	Specification (Pharmaceutical Grade)
Appearance	White to off-white crystalline powder, slight characteristic bitter odor
Assay (Purity)	≥ 98.5% (HPLC)
Loss on Drying	≤ 0.5% (105°C, 2 hours)
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	150-153°C
Specific Rotation (25°C, CHCl <sub>3</sub> , 1%)	+75° to +85°
Related Substances	≤ 1.0% (HPLC)
Residual Solvents	Meets USP <467> limits (ethanol, chloroform)
Microbial Limit	Total Aerobic Count ≤ 100 CFU/g; Yeast/Mold ≤ 10 CFU/g
Pathogens	E. coli, Salmonella, Staphylococcus aureus: Negative
Solubility	Soluble in ethanol (1g/10mL); insoluble in water
Particle Size	100-200 mesh (pharmaceutical grade); 80-120 mesh (industrial grade)
Temperature Stability	Stable at 0-30°C (purity retention ≥98%)
Light Stability	Stable in dark condition; slight degradation under strong UV light

### 3. Product Advantages

1. **High Purity & Quality:** Pharmaceutical grade ≥98.5% assay, meets CP/USP/EP international pharmacopoeial standards, low impurity/heavy metal content
2. **Potent Biological Activity:** Unique peroxide bridge structure, high anti-malarial activity; also has anti-inflammatory, antioxidant and anti-tumor effects
3. **Safety:** Low toxicity (LD<sub>50</sub> >5000 mg/kg oral), no serious side effects at therapeutic dosages, suitable for pharmaceutical formulation
4. **Stability:** Good stability under cool/dry/dark storage conditions, 24-month long shelf life
5. **Customization:** Editable particle size, purity grade (98.5%/99.0%/99.5%) for pharmaceutical/industrial/research use
6. **Eco-friendly:** Fully biodegradable, no environmental pollution, compliant with global green chemical standards
7. **Reliable Source:** Standardized extraction process, consistent batch quality, complete quality control documents

### 4. Application Fields



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- **Pharmaceutical Industry:** Core raw material for anti-malarial drugs (artemisinin combination therapies, ACTs); production of artemether, artesunate and other derivatives; anti-inflammatory/anti-tumor drug R&D
- **Fine Chemicals:** Intermediate for synthesis of artemisinin derivatives (artemether, artesunate, dihydroartemisinin)
- **Research & Development:** Biomedical research reagent for anti-parasitic, anti-cancer and anti-inflammatory mechanism studies
- **Cosmetics Industry:** High-end skin care additive (antioxidant, anti-aging, anti-inflammatory) for serums, creams, masks
- **Veterinary Medicine:** Anti-parasitic drug for livestock/poultry (anti-malaria, anti-coccidiosis)

## 5. Usage Methods

- **Pharmaceutical Formulation:** Used to synthesize artemisinin derivatives (artemether/artesunate) via chemical modification; formulated into tablets, capsules, injections (dosage per pharmacopoeia/therapeutic guidelines)
- **Cosmetics Industry:** 0.1-0.5% addition in skin care products (serums/creams); mix with oil phase (soluble in ethanol/glycerin)
- **Research Use:** 0.01-10 mM concentration for in vitro cell experiments; dissolve in DMSO/ethanol for stock solution
- **Veterinary Medicine:** 5-20 mg/kg body weight for livestock/poultry; formulate into oral powder/solution
- **Note:** Avoid direct use of raw powder; must be formulated into finished products for medical/cosmetic use

## 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) available 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, strong 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, under specified storage conditions)
- 18 months (unopened, industrial grade, under 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: safety goggles (anti-dust), nitrile rubber gloves, dust mask (N95 for large-scale operation)
- Avoid dust inhalation and eye/skin contact; wash hands thoroughly with soap and water after handling

## 8. Quality Assurance

- Manufactured in accordance with **GMP (Good Manufacturing Practice)**, **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