

## Technical Data Sheet (TDS)

### 1. Product Overview

**Product Name:** Tocopherol (Vitamin E)

**English Name:** Tocopherol **CAS Number:** 1959-2-9 **Main Component Formula:** C<sub>29</sub>H<sub>50</sub>O<sub>2</sub> (α-Tocopherol) **Main Component Molecular Weight:** 430.71 g/mol **Product Characteristics:** Natural fat-soluble vitamin, pale yellow to amber oily liquid with a slight mild nutty odor. It is a powerful natural antioxidant, which can scavenge free radicals, inhibit lipid peroxidation, and is an essential nutrient for the human and animal body. Stable under normal storage conditions, sensitive to light, heat and oxygen, easy to oxidize and lose activity.

### 2. Technical Specifications

Total Tocopherol Assay: ≥95.0%; α-Tocopherol Content: ≥70.0%; Appearance: Pale yellow to amber oily liquid; Melting Point: -29 ~ -23°C; Solubility: Soluble in ethanol, ether, vegetable oil, insoluble in water; Loss on Drying: ≤0.5%; Residue on Ignition: ≤0.1%; Heavy Metals (Pb): ≤10 ppm; Heavy Metals (As): ≤2 ppm; Peroxide Value: ≤5.0 meq/kg; Related Substances: ≤3.0%.

### 3. Product Advantages

1. High Antioxidant Activity: High content of α-tocopherol (main active component), strong free radical scavenging ability, good antioxidant effect.
2. Natural Source: Derived from vegetable oil (soybean oil, sunflower seed oil), natural and safe, in line with green raw material demand.
3. Good Compatibility: Excellent solubility in organic solvents and vegetable oils, compatible with all fat-soluble raw material systems, easy to formulate.
4. Multi-functional Efficacy: With antioxidant, anti-aging, nutritional supplement effects, multi-scenario application value.
5. Stable Quality: Low peroxide value, low impurity content, stable efficacy under recommended storage conditions.

### 4. Application Fields

1. Pharmaceutical Industry: Raw material for vitamin E deficiency drugs, nutritional supplements, antioxidant drugs for cardiovascular and cerebrovascular diseases.
2. Food Industry: Natural antioxidant and food fortifier, added to vegetable oils, dairy products, meat products, baked foods to prevent lipid oxidation and supplement nutrition.
3. Cosmetic Industry: Core antioxidant and anti-aging ingredient in skin care products, anti-wrinkle, lighten spots, repair skin barrier, suitable for all skin types.
4. Feed Industry: Feed additive for livestock, poultry and aquatic products, improve animal immunity, promote growth and development, prevent oxidative deterioration of feed.
5. Industrial Field: Antioxidant for synthetic rubber, plastics and lubricating oil, prevent product aging and deterioration.

### 5. Usage Methods

1. Pharmaceutical Use: Formulated into soft capsules, tablets, oral liquids according to pharmaceutical preparation processes, dosage following national pharmacopoeia and drug standard requirements.
2. Food Application: As antioxidant: addition amount 0.01~0.05% (w/w) of fat content; as fortifier: addition amount 0.5~2 mg/100g (adjust according to national food fortification standards), added in the oil phase of food production.



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3. Cosmetic Formulation: Added to cream, lotion, serum, essence and hair care products, addition amount 0.1~2.0% (w/w), mixed evenly in the oil phase during preparation, avoid high temperature (>80°C) processing.
4. Feed Addition: Diluted with vegetable oil and added to feed, addition amount 10~50 mg/kg of feed, mixed uniformly; can also be added to feed premix directly.
5. Industrial Use: Added to rubber, plastic and lubricating oil production process, addition amount 0.05~0.5% (w/w), mixed evenly with raw materials.

### 6. Packaging & Storage

1. Packaging Specifications: 100mL brown glass bottle, 500mL brown glass bottle, 1L brown glass bottle, 5L brown glass drum, 20L stainless steel drum (custom packaging available upon request).
2. Storage Conditions: Store in a cool, dark, sealed container (brown glass or stainless steel), temperature  $\leq 25^{\circ}\text{C}$ , relative humidity  $\leq 60\%$ . Avoid direct sunlight, high temperature (>80°C), oxygen and metal ions (Fe, Cu). Add antioxidant synergist (e.g., citric acid) if long-term storage is needed.
3. Shelf Life: 24 months (unopened, under specified storage conditions); the product after opening should be used up within 3 months and sealed tightly after each use.
4. Transportation: Classified as non-hazardous goods for transportation, use sealed light-shielding packaging, avoid collision, sunlight exposure, high temperature and rain during transportation. Separate from strong oxidants and metal materials during transportation.

### 7. Safety & Protection

1. The product is a non-toxic natural nutrient, no acute toxicity in normal dosage, but avoid direct contact with eyes in large quantities.
2. Wear nitrile rubber gloves, safety glasses and light-shielding protective clothing during large-scale handling, pouring and formulation operations.
3. In case of eye contact, rinse thoroughly with plenty of running water for 5~10 minutes; consult a doctor if redness, pain or blurred vision persists.
4. Avoid ingestion in large quantities; if accidentally swallowed in large amounts and abdominal discomfort occurs, rinse mouth with water and seek medical advice if necessary.
5. The product is easy to oxidize, so the operation area should be away from open fire and strong oxidants.

### 8. Quality Assurance

1. The product is manufactured in accordance with ISO 9001 and ISO 14001 quality and environmental management system standards, with strict quality control in the whole production process.
2. Each batch of product is tested by a third-party professional laboratory and accompanied by a Certificate of Analysis (COA) to ensure that all indicators meet industrial standards.
3. Provide professional technical support, including product application formula design, dosage adjustment, antioxidant system matching and quality control guidance.
4. Accept customized production of different  $\alpha$ -tocopherol content and specifications according to customer requirements.