

## Technical Data Sheet (TDS)

### - Vitamin E-Oil ( $\alpha$ -Tocopherol)

**Revision Date:** 22 FEB 2026

#### Product Name

Vitamin E-Oil ( $\alpha$ -Tocopherol) 维生素 E 油 ( $\alpha$ -生育酚) **CAS Number:** 1406-66-2 **Formula:**  $C_{29}H_{50}O_2$  **Molecular Weight:** 430.71 g/mol **Form:** Pale yellow to amber clear viscous liquid (Food/Cosmetic/Pharmaceutical Grade) **Odor:** Faint characteristic mild nutty odor, no pungent odor

#### 1. Product Overview

Vitamin E-Oil ( $\alpha$ -Tocopherol) is a natural fat-soluble vitamin and a high-efficiency antioxidant, extracted and refined from natural vegetable oil raw materials (soybean oil, sunflower seed oil). It is the most biologically active isomer of vitamin E, with excellent antioxidant, anti-aging and lipid peroxidation inhibition properties. The pale yellow viscous liquid has good oil solubility and compatibility, is stable under normal storage conditions, and complies with food, cosmetic and pharmaceutical grade quality standards. It is widely used as an antioxidant, nutritional fortifier, moisturizer and anti-aging agent in food processing, cosmetic formulation, pharmaceutical production and feed additive fields, with high purity, low impurity content and no harmful microbial residues.

#### 2. Technical Specifications (Complies with Food/Cosmetic/Pharm Grade Standard)

Item	Specification
Appearance	Pale yellow to amber clear viscous liquid, no sediment/impurity
Assay ( $\alpha$ -Tocopherol)	$\geq 96.0\%$
Acid Value	$\leq 2.0$ mg KOH/g
Peroxide Value	$\leq 10.0$ meq/kg
Refractive Index (25°C)	1.494 ~ 1.498
Specific Gravity (25/25°C)	0.945 ~ 0.955
Solubility	Miscible with ethanol, ether, vegetable oil; insoluble in water
Heavy Metals (Pb)	$\leq 5$ ppm
Heavy Metals (As)	$\leq 1$ ppm
Heavy Metals (Hg)	$\leq 0.1$ ppm
Residue on Ignition	$\leq 0.1\%$
Total Bacterial Count	$\leq 100$ CFU/g
E. coli/Staphylococcus aureus	Negative
Storage Stability (25°C, 24 months)	No discoloration, peroxide value change $\leq 5$ meq/kg
Antioxidant Activity	Effective inhibition of lipid oxidation (oxidation induction time $\geq 12$ h)

#### 3. Product Advantages

- High Purity & Activity:**  $\alpha$ -Tocopherol content  $\geq 98\%$ , the most biologically active vitamin E isomer, high antioxidant efficiency.
- Multi-grade Available:** Food grade (GB 14756), cosmetic grade (Cosmetic Safety Technical Specifications 2021), pharmaceutical grade (Chinese Pharmacopoeia), meet different application requirements.
- Excellent Antioxidant:** Effectively scavenge free radicals, inhibit lipid peroxidation, extend the shelf life of oil-based products.
- Good Compatibility:** Miscible with all vegetable oils, mineral oils and organic solvents, easy to formulate, no adverse reaction with other ingredients.
- Safe & Non-toxic:** Natural source, no synthetic additives, compliant with international food/cosmetic/pharmaceutical safety standards, low heavy metal content.

6. **Stable Performance:** Good thermal and light stability (avoid strong light/ultraviolet), no easy oxidation under sealed storage conditions.

#### 4. Application Fields

- **Food Industry:** Antioxidant and nutritional fortifier for edible oil, dairy products, meat products, baked goods and health food; prevent oil oxidation and extend product shelf life.
- **Cosmetic Industry:** Moisturizer, anti-aging agent and antioxidant for skin care products, hair care products, lipsticks and body lotions; improve skin elasticity, reduce wrinkles, protect hair from oxidative damage.
- **Pharmaceutical Industry:** Excipient and active ingredient for vitamin E preparations, nutritional supplements and topical ointments; used for the treatment of vitamin E deficiency and antioxidant adjuvant therapy.
- **Feed Additive:** Nutritional fortifier and antioxidant for poultry, livestock and aquatic feed; improve animal immunity and product quality.
- **Industrial Field:** Antioxidant for synthetic rubber, plastics and lubricating oil; prevent polymer material aging and extend service life.

#### 5. Usage Methods

##### Dosage (Adjust according to application grade and scenario)

- **Food Industry:** 0.01~0.2% of the total formulation (edible oil/meat products); 0.5~2.0% (health food capsules).
- **Cosmetic Industry:** 0.1~5.0% of the total formulation (skin care/hair care products); 1~3% (anti-aging serums).
- **Pharmaceutical Industry:** According to pharmaceutical preparation process (0.1~10% for topical ointments; fixed dosage for oral preparations).
- **Feed Additive:** 0.005~0.02% of the total feed weight; mix evenly with other feed ingredients.

##### Key Preparation Tips

- **Oil-based Formulation:** Add directly and stir evenly at room temperature or low temperature ( $\leq 60^{\circ}\text{C}$ ) to avoid high temperature oxidation.

#### 6. Packaging & Storage

##### Packaging Specifications (Sealed, Light-proof)

- 100 mL/500 mL brown glass bottle (laboratory/R&D small-batch use)
- 5 kg/20 kg food-grade HDPE plastic drum (cosmetic/food small-scale use)
- 200 kg food-grade iron drum (industrial/bulk use)
- Custom packaging (1 L/2 L brown glass bottle) available for customer requirements.

#### 7. Safety & Protection

- The product is non-toxic, non-irritating and safe for human body; direct contact with skin has moisturizing effect, no adverse reaction.
- **Recommended PPE:** Nitrile rubber gloves (for large-scale handling), safety glasses (to avoid liquid splashing into eyes); no respiratory protection needed under normal conditions.
- **Accident Treatment:**
  - Skin Contact: No special treatment needed; rinse with water if necessary, the product can be absorbed by skin and has a moisturizing effect.
  - Eye Contact: Rinse eyes with plenty of clean running water for 5~10 minutes if splashed; consult an ophthalmologist if mild irritation persists (rare).

#### 8. Quality Assurance

- The product is manufactured in accordance with **ISO 9001 quality management system, ISO 14001 environmental management system** and **ISO 22000 food safety management system (for food grade)**.
- Comply with Chinese Pharmacopoeia, GB 14756 (food grade), Cosmetic Safety Technical Specifications 2021, EU REACH and US FDA standards; no banned ingredients.
- Each batch of product undergoes full-item physical, chemical and microbial testing; a detailed Certificate of Analysis (COA) is provided to ensure compliance with grade standards.
- Provide one-stop technical support for product application, including formulation optimization, dosage adjustment and antioxidant scheme design.