

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Ethylene Oxide Solution (10% in Ethanol)
- English Name: Ethylene Oxide Solution; Oxirane Solution
- CAS Number:75-21-8
- Formula:C₂H₄O (Solution in Ethanol)
- Molecular Weight:44.05 g/mol (Pure Substance)
- Product Characteristics: Colorless clear liquid with a faint sweet odor. 10% solution of ethylene oxide in ethanol. Highly flammable, toxic, and carcinogenic. Highly reactive (epoxidizing agent), suitable for chemical synthesis and sterilization.

2. Technical Specifications

Item	Specification
Appearance	Colorless clear liquid
Ethylene Oxide Content (GC)	10.0 ± 0.5%
Ethanol Content (GC)	89.0-91.0%
Water Content	≤ 0.3%
Density (20°C)	0.795-0.800 g/cm ³
Boiling Range	75-80°C
Flash Point (Closed Cup)	13°C (Ethanol-based)
Viscosity (20°C)	1.0 mPa·s
Peroxide Content (as H ₂ O ₂)	≤ 0.001%
Heavy Metals (Pb)	≤ 0.5 ppm
Heavy Metals (As)	≤ 0.1 ppm
Explosive Limits (v/v)	3.0-100% (Ethylene oxide vapor)
Stability	Stable under inert atmosphere (≤ 20°C)

3. Product Advantages

1. Controlled Concentration: 10% solution ensures safe handling vs. pure ethylene oxide gas.
2. High Epoxidizing Activity: Ideal for organic synthesis (hydroxylation, etherification).
3. Good Solubility: Compatible with organic solvents, suitable for multi-component reactions.
4. Sterilizing Property: Effective for low-temperature sterilization of sensitive materials.

4. Application Fields

- Chemical Synthesis: Intermediate for ethylene glycol, ethanolamines, and pharmaceuticals.
- Sterilization: Low-temperature sterilization of medical devices and laboratory equipment.
- Laboratory Research: Analytical reagent and epoxidizing agent.
- Industrial Processing: Surfactant and detergent synthesis.

5. Usage Methods

- Dosage: 10-50% concentration (adjust by application).
- Application: Use in closed inert atmosphere systems; avoid contact with oxidizers and acids.

- Optimal Conditions: Operate at 0-10°C in well-ventilated areas; strictly avoid ignition sources.

6. Packaging & Storage

- Packaging: 1L HDPE bottles, 5L HDPE cans (UN-approved).
- Storage: Cool, dark, well-ventilated warehouse ($\leq 20^{\circ}\text{C}$); sealed, under inert atmosphere.
- Shelf Life: 3 months (unopened, specified conditions).
- Transportation: Classified as flammable, toxic, and carcinogenic hazardous goods; transport per regulations.

7. Safety & Protection

- Highly flammable, toxic, and carcinogenic: No smoking near storage/use areas; prohibit open flames.
- Wear chemical safety goggles, nitrile rubber gloves, and organic vapor respirator (P100).
- Avoid inhalation and skin contact; ensure local exhaust ventilation.

8. Quality Assurance

- Manufactured under ISO 9001 quality management system.
- Each batch comes with a COA for compliance verification.
- Provide technical support for synthesis and sterilization process optimization.