

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Trimethylamine Solution (40% in Water)
- English Name: Trimethylamine Solution; TMA Solution
- CAS Number: 75-50-3
- Formula: C_3H_9N (Aqueous Solution)
- Molecular Weight: 59.11 g/mol (Pure Substance)
- Product Characteristics: Colorless clear liquid with a strong fishy ammonia-like odor. 40% aqueous solution of trimethylamine. Highly corrosive, flammable, and toxic. Chemically reactive, suitable for chemical synthesis, catalysts, and ion exchange resins.

2. Technical Specifications

| Item | Specification |
|--------------------------|---------------------------------------|
| Appearance | Colorless to pale yellow clear liquid |
| Concentration (GC) | 40.0 ± 1.0% |
| pH Value (25°C) | 11.5-12.5 |
| Water Content | 59.0-61.0% |
| Density (20°C) | 0.810-0.815 g/cm ³ |
| Boiling Range | 40-45°C |
| Flash Point (Closed Cup) | -10°C |
| Viscosity (20°C) | 1.0 mPa·s |
| Heavy Metals (Pb) | ≤ 0.5 ppm |
| Heavy Metals (As) | ≤ 0.1 ppm |
| Non-Volatile Residue | ≤ 0.05% |
| Explosive Limits (v/v) | 2.0-11.6% |

3. Product Advantages

1. Precise Concentration: 40% aqueous solution ensures consistent reactivity.
2. High Purity: Low impurity content meets industrial synthesis standards.
3. Strong Basicity: Ideal for neutralization and catalytic reactions.
4. Easy Handling: Aqueous formulation reduces volatility compared to pure trimethylamine.

4. Application Fields

- Chemical Synthesis: Precursor for pharmaceuticals, agrochemicals, and quaternary ammonium salts.
- Catalysis: Catalyst for esterification, polymerization, and organic reactions.
- Ion Exchange Resins: Monomer for ion exchange resin synthesis.
- Laboratory Research: Analytical reagent and reaction intermediate.

5. Usage Methods

- Dosage: 10-50% concentration (dilute with water for low-corrosivity use).

- Application: Use in closed systems with corrosion-resistant equipment; add slowly to control heat release.
- Optimal Conditions: Operate in well-ventilated areas; avoid ignition sources and acids.

6. Packaging & Storage

- Packaging: 5L HDPE cans, 20L HDPE drums, 200L HDPE drums (UN-approved).
- Storage: Cool, dry, well-ventilated warehouse ($\leq 25^{\circ}\text{C}$); sealed, away from heat/sparks/oxidizers/acids.
- Shelf Life: 12 months (unopened, specified conditions).
- Transportation: Classified as flammable and corrosive hazardous goods; transport per regulations.

7. Safety & Protection

- Highly corrosive, flammable, and toxic: No smoking near storage/use areas; prohibit open flames.
- Wear chemical safety goggles, face shield, nitrile rubber gloves, and organic vapor respirator.
- Avoid inhalation, skin contact, and contact with acids; 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 optimization and corrosion control.