

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Phenol Solution (50% in Water)
- English Name: Phenol Solution; Carbohic Acid Solution
- CAS Number: 108-95-2
- Formula: C₆ H₆ O (Aqueous Solution)
- Molecular Weight: 94.11 g/mol (Pure Substance)
- Product Characteristics: Colorless to pale pink clear liquid with a characteristic phenolic odor. 50% aqueous solution of phenol. Highly corrosive, toxic, and slightly flammable. Strong bactericidal and reactive properties, suitable for chemical synthesis, disinfection, and industrial processing.

2. Technical Specifications

Item	Specification
Appearance	Colorless to pale pink clear liquid
Concentration (HPLC)	50.0 ± 1.0%
pH Value (25°C)	4.0-5.0
Water Content	49.0-51.0%
Density (20°C)	1.070-1.075 g/cm ³
Boiling Range	181-183°C
Flash Point (Closed Cup)	79°C
Viscosity (20°C)	2.5 mPa·s
Heavy Metals (Pb)	≤ 0.5 ppm
Heavy Metals (As)	≤ 0.1 ppm
Non-Volatile Residue	≤ 0.05%
Corrosivity	Highly corrosive to metals and tissues

3. Product Advantages

1. Precise Concentration: 50% aqueous solution ensures consistent reactivity and disinfection efficiency.
2. High Purity: Low impurity content meets industrial synthesis standards.
3. Strong Reactivity: Ideal for substitution, condensation, and oxidation reactions.
4. Easy Handling: Aqueous formulation reduces volatility compared to pure phenol.

4. Application Fields

- Chemical Synthesis: Precursor for phenolic resins, pharmaceuticals, and dyes.
- Disinfection: Industrial and laboratory surface disinfection (diluted use).
- Laboratory Research: Analytical reagent and reaction intermediate.
- Industrial Processing: Rubber vulcanization accelerator, textile dyeing auxiliary.

5. Usage Methods

- Dosage: 10-50% concentration (dilute with water for low-corrosivity use).
- Application: Use in closed systems with corrosion-resistant equipment; avoid contact with oxidizers.
- Optimal Conditions: Operate in well-ventilated areas; avoid ignition sources and strong bases.

6. Packaging & Storage

- Packaging: 5L HDPE cans, 20L HDPE drums, 200L HDPE drums (UN-approved).
- Storage: Cool, dark, well-ventilated warehouse ($\leq 30^{\circ}\text{C}$); sealed, away from heat/sparks/oxidizers/bases.
- Shelf Life: 12 months (unopened, specified conditions).
- Transportation: Classified as corrosive and toxic hazardous goods; transport per regulations.

7. Safety & Protection

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