

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Nitrobenzene
- English Name: Nitrobenzene; Nitrobenzol
- CAS Number:98-95-3
- Formula:C₆ H₅ NO₂
- Molecular Weight:123.11 g/mol
- Product Characteristics: Pale yellow clear liquid with a characteristic almond odor. High-purity aromatic nitro compound with strong reactivity. Toxic, flammable, and slightly soluble in water. Suitable for chemical synthesis, pharmaceuticals, and dyes.

2. Technical Specifications

Item	Specification
Appearance	Pale yellow to yellow clear liquid
Purity (GC)	≥ 99.0%
Water Content	≤ 0.1%
Density (20°C)	1.202-1.204 g/cm ³
Boiling Range	208-211°C
Refractive Index (20°C)	1.552-1.554
Flash Point (Closed Cup)	88°C
Viscosity (20°C)	2.1 mPa·s
Heavy Metals (Pb)	≤ 0.5 ppm
Heavy Metals (As)	≤ 0.1 ppm
Non-Volatile Residue	≤ 0.005%
Explosive Limits (v/v)	1.8-8.7%
Water Solubility	Slightly soluble (1.9 g/L at 25°C)

3. Product Advantages

1. High Purity: Low impurity content ensures stable reactivity in synthesis.
2. Strong Aromatic Reactivity: Ideal for reduction, substitution, and condensation reactions.
3. Versatile Application: Key intermediate for aniline, dyes, and pharmaceuticals.
4. Good Solubility: Soluble in most organic solvents, suitable for multi-component systems.

4. Application Fields

- Chemical Synthesis: Precursor for aniline, benzidine, and nitrobenzene derivatives.
- Dye Industry: Intermediate for azo dyes, anthraquinone dyes, and sulfur dyes.
- Pharmaceutical: Intermediate for antibiotics, analgesics, and antihistamines.
- Laboratory Research: Analytical reagent and reaction intermediate.

5. Usage Methods

- Dosage: 20-100% concentration (adjust by application).

- Application: Use in closed systems with corrosion-resistant equipment; avoid contact with oxidizers/reducers.
- Optimal Conditions: Operate in well-ventilated areas; avoid ignition sources and high temperature.

6. Packaging & Storage

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

7. Safety & Protection

- Toxic, flammable, 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, 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 safety operation.