

## Technical Data Sheet (TDS)

### 1. Product Overview

- Product Name: Nitric Acid (68% Aqueous Solution)
- English Name: Nitric Acid; Aqua Fortis
- CAS Number:7697-37-2
- Formula:HNO<sub>3</sub> (Aqueous Solution)
- Molecular Weight:63.01 g/mol (Pure Substance)
- Product Characteristics: Colorless to pale yellow clear liquid with a pungent odor. High-purity strong acid with strong oxidizing and corrosive properties. Flammable when in contact with organic substances, toxic by inhalation. Suitable for chemical synthesis, metal processing, and laboratory research.

### 2. Technical Specifications

Item	Specification
Appearance	Colorless to pale yellow clear liquid
Concentration (w/w)	68.0 ± 1.0%
Free Sulfuric Acid (as H <sub>2</sub> SO <sub>4</sub> )	≤ 0.05%
Heavy Metals (Pb)	≤ 0.5 ppm
Heavy Metals (As)	≤ 0.1 ppm
Iron (Fe)	≤ 1 ppm
Non-Volatile Residue	≤ 0.05%
Density (20°C)	1.408-1.412 g/cm <sup>3</sup>
Boiling Range	120-122°C
Corrosivity	Highly corrosive to metals, skin, and tissues
Oxidizing Property	Strong oxidizer

### 3. Product Advantages

1. High Purity: Low impurity content ensures stable performance in oxidation and synthesis reactions.
2. Strong Oxidizing Power: Ideal for organic/inorganic oxidation reactions and metal etching.
3. Controlled Concentration: 68% aqueous solution balances reactivity and handling safety.
4. Reliable Quality: Strict control of heavy metals and impurities meets industrial standards.

### 4. Application Fields

- Chemical Synthesis: Precursor for nitrates, explosives, and pharmaceutical intermediates.
- Metal Processing: Etching and pickling of metals (steel, aluminum).
- Laboratory Research: Analytical reagent and oxidizing agent.
- Industrial Processing: Fertilizer production (ammonium nitrate) and chemical purification.

### 5. Usage Methods

- Dosage: 10-50% concentration (dilute with water for low-corrosivity use).
- Application: Use in corrosion-resistant equipment; add slowly to reactions to control heat release.



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- Optimal Conditions: Operate in well-ventilated areas; avoid contact with organic substances and reducing agents.

### 6. Packaging & Storage

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

### 7. Safety & Protection

- Highly corrosive, oxidizing, and toxic: No smoking near storage/use areas; prohibit open flames.
- Wear chemical safety goggles, face shield, nitrile rubber gloves, and chemical-resistant clothing.
- 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 safe application and corrosion control.

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