

NITRIC ACID MSDS

1. Product Identification

- **Product name:** Nitric Acid
 - **Chemical formula:** HNO₃
 - **Synonyms:** Aqua fortis, Spirit of nitre
 - **Recommended use:** Chemical manufacturing, fertilizers, metal treatment
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2. Hazard Identification

- **Classification:**
 - Oxidizing liquid
 - Corrosive to skin and eyes
 - Toxic if inhaled
 - **Hazards:**
 - Causes severe burns
 - Releases toxic nitrogen dioxide (NO₂) fumes
 - Strong oxidizer—may intensify fire
 - **Signal word:** **Danger**
 - **Key symptoms:** Coughing, breathing difficulty, skin burns, eye damage
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3. Composition / Information on Ingredients

Component	CAS Number	Concentration
Nitric Acid	7697-37-2	55–70% (typical commercial)

4. First Aid Measures

- **Inhalation:** Move to fresh air; give oxygen if needed; seek medical attention.
 - **Skin contact:** Remove contaminated clothing; wash with plenty of water for 15 minutes.
 - **Eye contact:** Rinse eyes for at least 15 minutes; get immediate medical help.
 - **Ingestion:** Do NOT induce vomiting; rinse mouth; seek medical care immediately.
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5. Fire-Fighting Measures

- **Suitable extinguishing media:** Water spray, carbon dioxide

- **Specific hazards:** Releases toxic fumes (NO₂) in heat
 - **Protective gear:** Full protective suit + self-contained breathing apparatus (SCBA)
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6. Accidental Release Measures

- Evacuate area
 - Wear acid-resistant PPE
 - Neutralize with lime/soda ash
 - Absorb with inert materials
 - Prevent entry into drains or soil
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7. Handling and Storage

- Handle in well-ventilated areas
 - Avoid heat sources and organic materials
 - Store in corrosion-resistant containers (HDPE or acid-proof tanks)
 - Keep away from bases, metals, reducing agents
 - Protect from sunlight
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8. Exposure Controls / Personal Protection

- **Exposure limits:**
 - OSHA: 2 ppm (TWA)
 - STEL: 4 ppm
 - **PPE:**
 - Acid-resistant gloves, goggles, face shield
 - Chemical apron, long sleeves
 - Respiratory protection if fumes present
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9. Physical and Chemical Properties

Property	Value
Appearance	Colorless to yellow liquid
Odor	Strong, acrid
Boiling point	~83°C (68% solution)
Melting point	-42°C
Density	~1.41 g/cm ³
Solubility	Completely miscible with water
pH	< 1

Property	Value
Oxidizing	Strong oxidizer

10. Stability and Reactivity

- **Stable** under recommended storage
 - **Reacts with:** Metals, bases, organics, reducing agents
 - **Decomposition products:** NO₂, NO, O₂
 - **Risk:** Violent reactions with combustibles
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11. Toxicological Information

- **Route of exposure:** Inhalation, skin, eyes, ingestion
 - **Effects:**
 - Severe burns
 - Respiratory irritation, pulmonary edema
 - Eye damage
 - **Long-term effects:** Chronic bronchitis, dental erosion
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12. Ecological Information

- Harmful to aquatic life
 - Acidifies soil and water
 - Highly mobile in water
 - Strong oxidizing effect on organic matter
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13. Disposal Considerations

- Neutralize with alkaline agents under controlled conditions
 - Dispose according to local hazardous waste regulations
 - Do not pour into drains or soil
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