

Material Safety Data Sheet

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MSDS # 1024
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SECTION I - PRODUCT IDENTIFICATION

Trade Name: Nitric Acid, Strong

Chemical Name/Product Class: Nitric Acid

Synonyms: 98% Low Oxide Nitric Acid, Aqua Fortis, Hydrogen Nitrate, (Not Red Fuming), HNO₃

Product Appearance & Odor: Light yellowish/brown-fuming liquid. Pungent, acrid odor.

DOT Hazard Shipping Description: UN2031 Nitric Acid 8 I RQ*
Label: Corrosive

* "RQ" required only if container (drum, rail tank car, etc.) has 1,000 pounds or more of Nitric Acid.

NFPA Hazard Classification: Health (Blue) = 4
Flammability (Red) = 0
Reactivity (Yellow) = 1
Specific Hazard (White) = Oxidizer

HMIS Classification: Health 4
Flammability 0
Reactivity 1
PPE K

SECTION II - HAZARDOUS INGREDIENTS

Ingredients:	CAS#	% (Range)	Occupational Exposure Limits	
			ACGIH TLV-TWA	OSHA PEL-TWA
Nitric Acid	7697-37-2	98 – 100	5 mg/m ³ 10 mg/m ³ (STEL)	5 mg/m ³

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in de minimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

SECTION III - PHYSICAL DATA

Boiling Point: 86°C (187°F)

Vapor Pressure: 38 mm Hg at 20°C

Vapor Density: (Air=1) 2.2

Density: 1.51 g/cc @ 20°C

Percent Volatile by Volume: 100% at 122°C

Solubility in Water: Complete

Evaporation Rate (Butyl Acetate = 1): >1

Melting Point: - 42°C (- 44°F)

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable

Flammable Limits: Not Applicable

Extinguishing Media: Water

Special Fire Fighting Procedures: Soak with water. Use water spray to cool containers and reduce and knock down vapors. Apply water from as far away as possible and avoid directing water into the acid. Neutralize small amounts of spilled acid with crushed limestone, soda ash or lime. Wear self-contained breathing apparatus and full fire fighting protective gear.

Unusual Fire and Explosion Hazards: Will emit oxides of nitrogen upon heating. Strong oxidizer. May cause spontaneous combustion or explosion when in contact with organic or combustible materials. Reacts vigorously with water to liberate heat, fumes of nitric acid or nitrogen oxides.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Eyes: Will produce severe, immediate damage and may result in permanent damage or loss.

Skin: Will produce immediate, penetrating chemical burns, with a characteristic yellow coloration. Severe and fatal skin burns can occur with necrosis and scarring.

Ingestion: Will cause immediate irritation, chemical burns to mouth and throat, and may cause hemorrhaging, necrosis and perforation of the gastrointestinal tract. Based on toxicity data for other acids, not expected to be toxic by oral exposure as defined by OSHA.

Inhalation: Highly toxic by inhalation as defined by OSHA. Mild exposure may cause irritation and burning of the nose and throat. Extreme inhalation may cause difficult breathing, loss of consciousness, pulmonary edema or death. Lung damage may appear after a delay of up to 48 hours after exposure.

Emergency and First Aid Procedures

Eyes: Irrigate with running water for at least fifteen minutes. Seek immediate medical attention.

Skin: Immediately remove contaminated clothing. Flush with running stream of water for at least fifteen minutes. Wash with soap. Seek medical attention.

Ingestion: Do not induce vomiting. Drink three or more glasses of water or milk to dilute acid. Seek immediate medical attention.

Inhalation: Remove from exposure immediately. Restore or support respiration. Seek immediate medical attention for unprotected exposures beyond exposure limits.

Special Considerations: If exposure to Nitric Acid vapor occurs, medical observation should continue for 24 - 48 hours after exposure. Delayed reactions may cause pulmonary edema.

SECTION VI - REACTIVITY DATA

Stability: Stable under normal conditions.

Conditions to Avoid: Avoid exposure to sunlight, which promotes oxide formation.

Materials to Avoid (Incompatibility): Bases. Organic and combustible materials. Will corrode most metals. Beware of containers, pumps, and hoses of inadequate construction and/or contamination by incompatible chemicals.

Hazardous Decomposition Products: Nitrogen Oxides (NO_x)

Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Evacuate unnecessary personnel to safe area upwind of spill. Nitric Acid vapor is denser than air and will concentrate in low spots. If necessary to enter spill area, wear full protective clothing including boots and proper breathing apparatus. Dike large spills and pump to salvage. If not possible

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to salvage, neutralize with soda ash or lime. If possible, carefully dilute the neutralizing material with water to slow down exceedingly vigorous neutralization reactions. Water spray can be used to reduce and knock down the vapors. Apply water from as far away as possible and avoid directing it into the acid. Do not get water in salvage containers since a violent reaction may occur. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. Follow Federal, State and local spill reporting requirements.

Waste Disposal Method: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any hazardous material.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Mechanical ventilation and/or local exhaust is recommended where needed to meet the TLV requirement.

Respiratory Protection: For concentrations above the exposure limits, use full face supplied air respirator approved by NIOSH for nitric acid or nitrogen oxide gases or mists. **Chemical cartridge or canister respirators are not suitable for nitric acid or nitrogen oxide use.**

Protective Clothing: PVC gloves are required. Where spill or splash potential exists, chemical resistant PVC suits are strongly recommended.

Eye Protection: Acid proof goggles and face shield should be required where acid is transferred, sampled, or where persons are otherwise potentially exposed. Eye baths should be provided when direct contact is possible.

Other Precautions Required: Provide safety showers and eyewash in immediate vicinity.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage: Store in clean, cool, well-ventilated area away from organic chemicals, bases, and metal powders.

Other Precautions: Avoid hydrocarbon lubricants and packing materials. Aluminum storage tanks are required. Dilution of 98% Nitric Acid with water will subject aluminum storage tanks to excessive corrosion.

SECTION X - SPECIAL INFORMATION

This product contains the following substances that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Chemical Name	CAS Number	% By Weight
Nitric Acid	7697-37-2	98 – 100%

Moderately toxic to aquatic organisms based on algae data and on fish data for other acids as defined by USEPA.

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