SAFETY DATA SHEET

NITRIC ACID

Section 1 – Identification

Product	Nitric Acid (aqua fortis, hydrogen nitrate)	Recommended Use:
Manufacturer	TradeMark Nitrogen Corp.	Used in the production of fertilizers and other chemicals.
Address	1216 Old Hopewell Road, Tampa, FL 33619	
Phone	(813) 626-1181 (800) 452-3107	
24 Hour Emergency Contact	Chemtrec (800) 424-9300	

Section 2 – Hazard Identification

Corrosive

Danger: Causes severe skin burns and eye damage.

Wear protective clothing.

Wash thoroughly after handling.

Respiratory Irritation

Warning: May cause respiratory irritation.

Avoid breathing vapors.

Use only in a well ventilated area.

Nitric Acid is corrosive to the skin, eyes and respiratory system. The point of contact may be stained yellow. Damage from inhalation may be delayed.

Section 3 – Composition

Ingredients	Component	CAS. No.	Percent by Weight
	Nitric Acid (HNO_3)	7697-37-2	54.5%
	Water (H_20)	7732-18-5	45.5%

Section 4 – First Aid Measures

Emergency First Aid: Seek prompt medical attention. Take Safety Data Sheet to health professional with contaminated individual.

Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Provide artificial respiration if necessary. Seek prompt medical attention.
Skin Contact	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water for at least 15 minutes. May cause severe burns. Seek prompt medical attention.
Eye Contact	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Seek prompt medical attention.
Ingestion	If swallowed: Rinse mouth. **Do NOT induce vomiting.** Drink large amounts of water (or milk if available) to dilute acid. Never give anything by mouth to an unconscious person. Do not use chemical antidotes or neutralizers. Seek prompt medical attention.
Acute Health Hazards	Irritating and corrosive. May cause skin and eye burns, ulcers, breathing problems, lung irritation/damage or pneumonia. Delayed pulmonary edema may result.
Chronic Health Hazards	Symptoms from inhalations of Nitric Acid vapor and Nitrogen Oxides may be delayed. Do not breath these gases. May be corrosive to eyes, teeth, mouth, respiratory tract and stomach.

Section 5 – Fire Fighting Measures

Suitable Extinguishing Techniques & Equipment	Cautiously use flooding quantities of water spray or other suitable agent for fires adjacent to non-leaking tanks or other containers of nitric acid. Fight fires from upwind to avoid hazardous gases emitted from decomposition. Do not use solid water stream near ruptured tanks or spills of nitric acid. Acid reacts violently with water and can splatter acid onto personnel.
Chemical hazards From Fire	Nitric Acid is an oxidizer and can self-ignite certain combustible and organic materials. Nitration of wood and organics increases their flammability. Can react explosively with metallic powders, carbides, hydrogen sulfide and turpentine. Nitrogen oxides and/or hydrogen may be present.
Special Fire Fighting Procedures	Nitric Acid will act as an oxidizer. Nitrous oxides may be present from vented or ruptured containers. Considerable heat may be generated when adding water. Fight fire from upwind to avoid hazardous gases emitted from decomposition.

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Section 5 – Fire Fighting Measures Continued

NFPA Rating	Health - 3 (Serious), Fire - 0 (Least), Reactivity - 0 (Least) OX - Oxidizes organic materials

Section 6 – Accidental Release Measure

Personal Precautions	Nitric Acid is corrosive. Prevent exposure to spilled material with the use of proper PPE.
Protective Equipment	PPE should include gloves, goggles, face shield and level C protective suit.
Containment	Control the flow of product using dikes of soil, sand bags or other commercially available inert sorbent socks or booms.
In Case of Spill	Dilute small spills or leaks with plenty of water spray. For large leaks, neutralize residue with alkali such as soda ash, lime or limestone. Adequate ventilation required to eliminate any nitrogen oxides released. If soda ash or limestone is used, carbon dioxide will be emitted.

Section 7 – Safe Handling and Storage

Precautions for Safe Handling and Storage	Store in a well ventilated cool dry place. Containers should be kept closed and labeled properly. Liquid is an oxidizer and may cause fire with combustibles. A safety shower and eyewash must be located nearby.
Incompatibility	Avoid contact with most metals, metallic powders, carbides, hydrogen sulfide, turpentine, organic acids, combustibles (wood, paper, cotton) and other organics and readily oxidized materials.

Section 8 – Exposure Controls / Personal Protection

Exposure Limits

Component	Permissible Exposure Limit	Threshold Limit Value	Short Term Exposure Limit	Immediately Dangerous to Life or Health
Nitric Acid (HNO_3)	2 ppm	2 ppm (TWA)	4 ppm	25 ppm
Water (H_20)	Not Established	Not Established	Not Established	Not Established

Engineering Controls

Provide ventilation sufficient to maintain exposure below PEL/TWA/TLV. Provide sufficient ventilation to reduce acid mists and nitrogen oxide concentrations below permissible limits. Safety showers and eyewash facilities should be available near all nitric acid handling equipment.

Personal Protective Equipment

Eyes - Chemical safety goggles and full face shield. No contact lenses.

Hands - Impervious gloves with gauntlet

Respiratory - For concentrations above exposure limits use full-face supplied air respirator approved by NIOSH for nitric acid or nitrogen oxide gases or mists. Vapors/mists cause eye irritation or damage. Note - cartridge or canister respirators are not suitable for nitrogen oxide use.


Gloves


Goggles


Face Shield


Apron

Section 9 – Physical and Chemical Properties

Appearance and Odor	Under normal conditions, colorless to light yellow with a pungent odor		
Boiling Point	245°F at 1 atmosphere	Specific Gravity	1.3426 at 59°F(15°C)
Vapor Pressure	42 mmHg at 25°C (Low volatility)	Baume	37B°
Vapor Density	2.2 (Air=1.0)	Evaporative Rate	N/A
Solubility In Water	Highly soluble	pH	<1.0
Density	11.19 pounds per gallon at 60°F	Freezing Point	N/A
Odor Threshold	0.27 - 0.98 ppm		

Flash Point N/A Auto Ignition Temp N/A Flammability Limits N/A LEL N/A UEL N/A

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Section 10 – Stability and Reactivity

Reactivity	Product is a strong inorganic acid and may act as an oxidizer.
Stability	Product is stable under normal conditions.
Hazardous Reactions	Will react violently with alcohol, turpentine, charcoal and organic refuse.
Conditions to Avoid	Elevated temperatures may cause container to rupture.
Incompatible Materials	Avoid contact with most metals, metallic powders, carbides, hydrogen sulfide, turpentine, organic acids, combustibles (wood, paper, cotton) and other organics and readily oxidized materials.
Hazardous Decomposition Products	Nitrogen Oxides and possibly Hydrogen under certain conditions of contact with metals. When exposed to air, may give off small amounts of reddish-brown vapors of nitrogen dioxide - an inhalation hazard.

Section 11 – Toxicology Information

Routes of Exposure	Exposure to liquid Nitric Acid is most commonly caused by splash. Vapor inhalation may occur because of poor ventilation.
Symptoms and Signs of Exposure	**Eyes & Skin** exposure causes severe irritations, corneal burns and conjunctivitis. Causes severe corrosive burns or irritation. May stain skin bright yellow. **Inhalation** of gases or acid mist causes irritation or corrosive burns to the upper respiratory system, including the mucous membranes of the nose, mouth and throat. Cough, dyspnea, delayed pulmonary edema, pneumonitis and bronchitis are possible. I**ngestion** is irritating and corrosive to mouth, teeth, throat, respiratory tract and stomach. Abdominal pain, burning sensation and shock may occur.
Long Term Effects	Repeated liquid contact may cause skin rash, pain, redness and ulceration. Repeated exposure to vapors may cause bronchitis with coughing, phlegm and shortness of breath. May also cause erosion of the teeth.
Toxicity	25 ppm is Immediately Dangerous to Life and Health. 15 ppm may be deadly after an exposure of as little as 3 minutes do to bronchoconstriction. Inhalation RAT LC_{50} 244ppm/ $^1/_2$ hr
Carcinogen	The International Agency for Research on Cancer has not classified nitric acid for its carcinogenic potential (IARC 1987).

Section 12 – Ecological Information

Water	Low concentrations are harmful to fish and other aquatic organisms.

Section 13 – Disposal Considerations

Waste	Disposal must be done in accordance with local, state and federal environmental regulations. Place waste in an appropriate container with correct labeling.

Section 14 – Transport Information

This material is hazardous as defined by 49 CFR 172.101 by the US Department of Transportation

UN ID Number	UN 2031
Proper Shipping Name	Nitric Acid other than red fuming, with more than 20 percent and less than 65 percent Nitric Acid.
Hazard Class	8
Packing Group	PG II
US DOT Label	Corrosive
Authorized Packaging	Trucks: Stainless steel MC 307, 310, 311, 312, DOT 407, 412 Rail: Stainless steel DOT 103, 104, 105, 109, 111, 112, 114, 115, 12
Marine Pollutant	Dangerous to aquatic life in high concentrations.
Emergency Response Guide Number	157

Section 15 – Regulatory Information

United States - SARA Hazard Category	This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (SARA) and is considered, under applicable definitions, to meet the following categories: Fire - No Pressure - No Reactive - No Acute - Yes Chronic - No 40 CFR Part 355 - Extremely Hazardous Substance: Nitric Acid 40 CFR Part 370 - Hazardous Chemical Reporting: Applicable

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Section 15 – Regulatory Information Continued

SARA Title III Information

This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical	CAS No.	% by weight	CERCLA RQ (pounds)[1]	SARA Reporting		
				311	312	313
Nitric Acid	7697-37-2	54.5%	1,835 [2]	Yes	Yes	Yes

[1] CERCLA Reportable Quantity for Nitric Acid is 1,000 pounds (100% basis). [2] 164 gallons

CERCLA / Superfund, 40 CFR Part 117, 302

If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National Response Center, Washington DC (800-424-8802) is required.

TSCA

Nitric Acid is on the TSCA inventory list.

Section 16 – Other Information

Date of Revision

September 2014: Updated sections 5, 9, 11, 14 and the TSCA statement. July 2014 TSCA statement revised. January 2013 revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards.

Disclaimer

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