

Section 1 – Identification

Product Nitric Acid - 55% (Aqua Fortis, Hydrogen Nitrate)

Manufacturer TradeMark Nitrogen Corp.
Address 1216 Old Hopewell Road, Tampa, FL 33619
Phone (813) 626-1181
24 Hour Chemtrec
Emergency (800) 424-9300
Contact

Recommended Use:
Manufacture of inorganic and organic nitrates, dye intermediates and many different organic chemicals

Section 2 – Hazard Identification



GHS03



GHS05



GHS06

Signal Word: DANGER

Precautionary Statements:

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P220 Keep / store away from heat, sparks, open flames, hot surfaces - No smoking.

- P221 Take any precaution to avoid mixing with incompatible materials, ignition sources, combustible materials
- P234 Keep only in original container
- P260 Do not breathe vapors, mist or spray
- P262 Do not get in eyes, on skin, or on clothing
- P264 Wash hands, forearms and other exposed areas thoroughly after handling
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.

- P284 Wear respiratory protection.
- P301 IF SWALLOWED:
- P331 Do NOT induce vomiting.
- P313 Get medical advice/attention.
- P303 IF ON SKIN OR HAIR:
- P361 P353 Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

- P304 IF INHALED
- P340 Remove victim to fresh air and keep at rest in a position comfortable for breathing.

- P313 Get medical advice/attention.
- P305 IF IN EYES
- P351 P338 Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 P313 If eye irritation persists: Get medical advice/attention.
- P370 P378 In case of fire: Use water for extinction.
- P402 Store in a cool, dry place.
- P405 Store locked up
- P406 Store in corrosive resistant container with a resistant inner liner
- P501 Dispose of contents / container to local, regional, national, territorial, provincial and international regulations

Hazard Statements:

- H272 May intensify fire; oxidizer
- H290 May be corrosive to metals

- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H330 Fatal if inhaled

Section 3 – Composition

Ingredients	Component	CAS. No.	Percent by Weight
	Nitric Acid (HNO ₃)	7697-37-2	55.0%
	Water (H ₂ O)	7732-18-5	45.0%

Section 4 – First Aid Measures

Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Provide artificial respiration if necessary. Seek medical attention if necessary.
Skin Contact	If on skin (or hair): Immediately take off 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: Do NOT induce vomiting. Drink large amounts of water. Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER or doctor/physician.
Acute Health Hazards	Harmful if swallowed or inhaled. Irritating and corrosive. Irritation of tissue may occur. 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	Water spray, fog, carbon dioxide, foam, dry chemical. 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 or heavy 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	Nitrous Oxides may be present from vented or ruptured containers. If a solid water stream is added, violent splattering can occur and considerable heat may be generated. Protective equipment is recommended. Fight fires from upwind to avoid hazardous gases emitted from decomposition.
NFPA Rating	Health - 3 (Serious) Fire - 0 (Least) Reactivity - 0 (Least) OXY - Oxidizer
Other	Do not allow run-off from fire fighting to enter drains or water courses.



Section 6 – Accidental Release Measure

Personal Precautions	Do not breathe vapors, mists or sprays. Avoid splashing. 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	Absorb product with inert absorbent. Avoid splashing or spraying. Contain and pick up spill in diked area. Prevent discharge to sewers or water ways. Cautiously neutralize spilled liquid.

Section 7 – Safe Handling & Storage

Precautions for Safe Handling & 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. Keep / store away from extremely high or low temperatures, direct sunlight, heat, ignition sources, combustible materials, incompatible materials.
Incompatibility	Strong acids. Strong bases. Strong oxidizers. 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 (5 mg/m ³)	2 ppm (TWA)	4 ppm (10 mg/m ³)	25 ppm
	Water (H ₂ O)	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. Use explosive proof equipment.				
Personal Protective Equipment	Eyes	Chemical safety goggles and full face shield			
	Hands	Chemical resistant 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



Protective Clothing

Section 9 – Physical & Chemical Properties

Appearance and Odor	Under normal conditions, clear to light yellowish liquid with a pungent odor	Specific Gravity	1.3393 at 68°F
Boiling Point	> 245°F (>100°C) at 1 atmosphere	Molecular Weight	63.01
Freezing Point	-5.8°F (-21°C)	Solubility in Water	Highly soluble
Vapor Pressure	42 mmHg at 25°C (Low volatility)	Evaporative Rate	No Data Available
Weight per Gallon	11.17 lbs/gal	pH	< 1.0
Flash Point	No Data Available	Salt-Out Temp	No Data Available
Flammability Limits	No Data Available	Auto Ignition Temp	No Data Available
UEL	No Data Available	LEL	N/A

Section 10 – Stability & 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. Direct sunlight. Extremely high or low temperatures. Heat, sparks, overheating, open flames. Adding water to acid should be avoided.
Incompatible Materials	Strong acids. Strong bases. Strong oxidizers. Amines. 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	Inhalation, ingestion or skin/eye absorption		
Symptoms and Signs of Exposure	Eyes	Causes Serious eye damage	
	Skin	Exposure causes severe irritations. Causes severe corrosive burns or irritation. May stain skin bright yellow.	
	Inhalation	of gases or mist causes irritation to the upper respiratory system, including the mucous membranes of the nose, mouth and throat. Coughing, fever, nausea, irritability, spasms, possible pneumonia, apathy, headaches, weakness and chemical burns if inhaled.	
	Ingestion	may cause upset stomach.	
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.		
Carcinogen	The International Agency for Research on Cancer has not classified Nitric Acid for its carcinogenic potential (IARC 1987).		
LD50 and LC50 Data:	Nitric Acid (HNO₃)	LC50 Inhalation Rat (mg/l):	0.13 mg/l (exposure time: 4h)
		LC50 Inhalation Rat (mg/l):	67 ppm / 4h
	Water (7732-18-5)	LD50 Oral Rat:	> 90,000 mg/kg

Section 12 – Ecological Information

Water	No Data Available
Ecotoxicity	No Data Available
Persistence and Degradability	No Data Available
Bioaccumulative Potential	No Data Available
Mobility in Soil	No Data Available
Other Adverse Effects	No Data Available

Section 13 – Disposal Considerations

Waste	Dispose of waste material in accordance with all local, regional, national, provincial, territorial, and international regulations. Do not dispose of waste into sewer.
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Section 14 – Transport Information

DOT:

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

UN ID Number UN2031
 Proper Shipping Name NITRIC ACID (Other than red fuming, with more than 20% and less than 65% nitric acid)
 Hazard Class 8
 Packing Group PG II
 Label Codes 8
 Emergency Response Guide Number 157



DOT Packaging Non Bulk (49 CFR 173.xxx): 158
 DOT Packaging Bulk (49 CFR 173.xxx) 242

DOT Special Provisions (49 CFR 172.102):

A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.

B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized.

B47 - Each tank may have a reclosing pressure relief device having a start-to-discharge pressure setting of 310 kPa (45 psig).

B53 - Packaging must be made of either aluminum or steel.

IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.

IP15 - For UN2031 with more than 55% nitric acid, rigid plastic IBCs and composite IBCs with a rigid plastic inner receptacle are authorized for two years from the date of IBC manufacture.

T8 - 4 178.274(d)(2) Normal..... Prohibited

TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: (tr) is the maximum mean bulk temperature during transport, (tf) is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx): None
 DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): Forbidden
 DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) 30 L

DOT Vessel Stowage Location: D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other: 44 - Stow "away from" oxidizers,66 - Stow "separated from" flammable solids,74 - Stow "separated from" oxidizers,89 - Segregation same as for oxidizers,90 - Stow "separated from" radioactive materials

IMDG:

This material is regulated as a Dangerous Good per the IMDG Code

UN ID Number UN2031
 Proper Shipping Name NITRIC ACID (Other than red fuming, with more than 20% and less than 65% nitric acid)
 Hazard Class 8
 Packing Group PG II
 Label Codes 8
 EmS-No. (Fire) F-A
 EmS-No. (Spillage) S-B



IATA:

This material is regulated as a Dangerous Good per the IATA Code

UN ID Number UN2031

Proper Shipping Name NITRIC ACID (Other than red fuming, with more than 20% and less than 65% nitric acid)

Hazard Class 8

Packing Group PG II

Label Codes 8 + CAO

ERG Code (IATA) 8L

Additional Information PAX FORBIDDEN

**TDG:**

This material is regulated as a Dangerous Good per the TDG code

Proper Shipping Name NITRIC ACID (Other than red fuming, with more than 20% and less than 65% nitric acid)

UN ID Number UN2031

Hazard Class 8

Label Codes 8

Packing Group PGII

**Authorized Packaging:** Rail: Stainless Steel DOT 103, 104, 105, 109, 111, 112, 114 or 115, 120
Trucks: Stainless Steel MC 307, 310, 311, 312, DOT 407, 412

Notes: MARKING: Nitric Acid (rail) If product exceed the CERCLA Reportable Quantity, the notation "RQ" shall be added before or after the basic shipping description.

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:

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.	CERCLA RQ (lbs.) ⁽¹⁾	SARA Reporting	302	311	312	313
Nitric Acid	7697-37-2	1,000 lbs (453.6 Kg) ⁽²⁾	Yes	Yes	Yes	Yes	Yes

⁽¹⁾ CERCLA Reportable Quantity for Nitric Acid is 1,000 pounds (100% basis)⁽²⁾ 164 gallons or 1,835 lbs @ 55% by weight

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 listed on the Active TSCA inventory list.

California Prop 65 Nitric acid is not listed on California's Prop 65 inventory list.

Section 16 – Other Information**Issue Date 12/10/2024**

Date of Revision December 2024 SDS updated to include freezing point data. 7/2/2024 SDS updated to include GHS06 skull and crossbones pictogram. 3-4-2021: Section 14 updated to include special provisions. November 2019 SDS section 14 format updated. June 2019 TSCA Statement revised to include the word 'Active'. May 2019 technical data, hazard statements and precautionary statements updated. January 2013 revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards.

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