SAFETY DATA SHEET

NITRIC ACID 42 DEG.
Product ID: AC004207
Revised: 08-28-2019
Replaces: 04-12-2017

1. IDENTIFICATION

Product Identifier:	NITRIC ACID 42 DEG.
Other Identifiers:	Nitric Acid; Hydrogen Nitrate; Azotic Acid; Aqua Fortis;
CAS Number:	MIXTURE
Recommended Use:	No data available.
Restrictions on Use:	No data available.

Hydrite Chemical Co.
300 N. Patrick Blvd.
Brookfield, WI 53008-0948
(262) 792-1450

EMERGENCY RESPONSE NUMBERS:
24 Hour Emergency #: (414) 277-1311
CHEMTREC Emergency #: (800) 424-9300

2. HAZARD(S) IDENTIFICATION

GHS Classification(s):
Substance or mixture corrosive to metals Category 1
Skin Corrosion/Irritation Category 1A
Serious Eye Damage/Eye Irritation Category 1
Oxidizing Liquid Category 3
Acute Toxicity - Inhalation Vapour Category 3

GHS Label Elements:

GHS Hazard Symbols:

Signal Word: Danger

Hazard Statements:
May intensify fire; oxidizer.
May be corrosive to metals.
Causes severe skin burns and eye damage.
Toxic if inhaled.

Precautionary Statements:

Prevention:
Keep away from heat, sparks, open flames and hot surfaces. – No smoking.
Keep away from clothing and other combustible materials.
Take any precaution to avoid mixing with combustibles.
Keep only in original container.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.

	Specific treatment (see First Aid on SDS or on this label). Wash contaminated clothing before reuse. In case of fire: Use water spray, water (flood with water) to extinguish. Absorb spillage to prevent material damage.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a secure manner. Store in corrosive resistant container with a resistant inner liner.
Disposal:	Dispose of in accordance with local, regional and international regulations.

Hazards Not Otherwise Classified: None known.

Percentage of Components with Unknown Acute Toxicity:
Oral: 67.2 %
Dermal: 67.2 %

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixtures:

Chemical or Common Name/Synonyms	CAS Number	% by Wt.
Nitric Acid	7697-37-2	67.2 %

Note: Any chemical identity and/or exact percentage not expressly stated is being withheld as a trade secret or is due to batch variation.

4. FIRST-AID MEASURES

Description of Necessary Measures:

Eye Contact: If in eyes: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention. Remove any contact lens at once. Extensive irrigation is required.

Skin Contact: If on skin: Immediately flush skin with plenty of water for at least 15 minutes but preferably 30 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Continue to rinse for at least 10 minutes.

Inhalation: If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY. Observe for possible delayed reaction.

Ingestion: If swallowed: Call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If vomiting occurs naturally, keep airway clear. Do not use chemical antidotes or neutralizers.

Most Important Symptoms/Effects, Acute and Delayed:

Eye Contact: CORROSIVE-Causes severe irritation and burns. May cause: conjunctivitis. corneal opacity. permanent eye damage. blindness. The eye is especially sensitive to the corrosive effects and can be destroyed.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated nitric acid chars the tissue with a characteristic yellow colouration. Severe and fatal skin burns can occur with necrosis and scarring.

Skin Absorption: No data available.

Inhalation: CORROSIVE-Causes severe irritation and burns. Gas, vapors or mist cause severe irritation or burns to the upper respiratory system including nose, mouth, throat and mucous membranes. Lung irritation, nitrogen oxide poisoning and pulmonary edema can occur at elevated concentrations (over 200 ppm). Symptoms may include: coughing. sneezing. bronchospasms. dyspnea. chemical pneumonitis. circulatory failure. death. Respiratory effects may be delayed in onset up to 30 hours. Chronic exposure to nitric acid can produce changes in pulmonary function and/or chronic bronchitis. Eye irritation and respiratory symptoms resembling frequent upper respiratory viral infections have also been associated with chronic exposure.

Ingestion: CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. esophagus. stomach. digestive tract. May cause: pain. nausea. vomiting. hemorrhaging. perforation of the digestive tract. necrosis. death. Erosion of teeth is possible.

Indication of Immediate Medical Attention and Special Treatment Needed: If inhaled, keep patient under observation for development of latent pulmonary damages (at least 30 hours).

5. FIRE-FIGHTING MEASURES

Extinguishing Media: For fires in area use appropriate media. For example: Water spray. Water (flood with water).

Specific Hazards Arising from the Chemical:

Fire and Explosion Hazards: STRONG OXIDIZER. May react with certain metals to form explosive/flammable Hydrogen gas. May react explosively with metallic powders, carbides, hydrogen sulfide and turpentine. Increases the flammability of combustible, organic and readily-oxidizable materials. Can ignite these and many organic materials such as wood, solvents, etc. Refer to NFPA 400 Hazardous Materials Code for further information on oxidizing liquids.

Hazardous Combustion Products: Nitrogen oxides.

Special Protective Equipment and Precautions for Fire-Fighters: Evacuate area of unprotected personnel. Wear protective clothing including NIOSH-approved self-contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Use water spray to cool fire-exposed containers and disperse vapors. Use flooding amounts of water spray or other suitable agent for fires adjacent to non-leaking tanks or other containers of Nitric Acid. Do not use solid water streams near ruptured tanks or spills. Product generates heat upon addition of water, with possible spattering. Run-off from fire control may cause pollution. Neutralize run-off with Lime, Soda Ash, etc., to prevent corrosion of metals and formation of Hydrogen gas.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, Emergency Procedures: CORROSIVE MATERIAL. STRONG OXIDIZER. Eliminate all sources of ignition. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit.

Methods and Materials for Containment and Clean Up: Contain spill, place into drums for proper disposal. Flush remaining area with water and neutralize with Soda Ash, Lime or Limestone and dispose of properly. If soda ash, lime, or limestone is used, carbon dioxide will be emitted. Adequate ventilation required to eliminate any nitrogen oxides emitted. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residue (vapor, dust, or liquid) and can be dangerous. DO NOT pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other source of ignition. They may explode and cause injury or death. Ensure eyewash station and safety shower are near. Keep container dry. Keep away from incompatibles.

Conditions for Safe Storage, Including any Incompatibilities: CORROSIVE MATERIAL. STRONG OXIDIZER. Store in a cool, well ventilated area away from all sources of ignition and out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Diking of storage tanks is recommended. Avoid storage on wood floors or near wooden walls, etc..

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

Component	Limits
Nitric Acid	2 ppm TWA; 5 mg/m3 TWA

ACGIH Exposure Guidelines:

Component	Limits
Nitric Acid	2 ppm TWA; 4 ppm STEL

Engineering Controls: Local exhaust ventilation, process enclosures, or other engineering controls are imperative when handling or using this product to avoid overexposure. Avoid creating dust or mist. Do not use in closed or confined spaces. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

Individual Protection Measures:

Eye/Face Protection: Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.

Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Acid-proof. Impervious.

Respiratory Protection: Respiratory protection must be worn if ventilation does not eliminate symptoms or keep levels below recommended exposure limits. If exposure limits are exceeded, wear: NIOSH-Approved full face supplied air respirator for Nitric Acid or Nitrogen Oxide gases or mists. Note: Cartridge or cannister respirators are not suitable for Nitrogen Oxide use. DO NOT USE chemical cartridge respirators with oxidizable sorbants. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Protective clothing. Full-rubber acid suit.

General Hygiene Conditions: Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.
Color: Clear. Colorless to faint yellow.
Odor: Acrid.
Odor Threshold: N.D.
pH: < 1
Freezing Point (deg. F): -25
Melting Point (deg. F): N.D.
Initial Boiling Point or Boiling Range: 248 °F
Flash Point: N.A.
Flash Point Method: N.A.
Evaporation Rate (nBuAc = 1): N.D.
Flammability (solid, gas): N.D.
Lower Explosion Limit: N.A.
Upper Explosion Limit: N.A.
Vapor Pressure (mm Hg): 9.2 @ 25C
Vapor Density (air=1): N.D.
Specific Gravity or Relative Density: 1.4 @ 25C
Solubility in Water: Complete
Partition Coefficient (n-octanol/water): N.D.
Autoignition Temperature: N.A.
Decomposition Temperature: N.D.

Viscosity: N.D.
% Volatile (wt%): N.D.
VOC (wt%): 0
VOC (lbs/gal): 0
Fire Point: N.D.

10. STABILITY AND REACTIVITY

Reactivity: Oxidizer. Avoid other reducing agents, combustibles and organic materials. Corrosive to most metals.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions. May react with certain metals to form explosive/flammable Hydrogen gas. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, carbides, etc. Readily oxidizes combustible, organic or other readily oxidizable materials.

Conditions to Avoid: Unstable with heat; releases toxic gases. Contact with water may cause violent reaction with evolution of heat. To dilute: Add product slowly to lukewarm water; not water to product.

Incompatible Materials: Alkalies. Metals. Metallic powders. Turpentine. Readily-oxidized materials. Cyanides. Sulfides. Carbides. Combustible materials. Organic materials. Alcohols. Hydrogen sulfide. Reducing agents. Wood. Paper. Acids. Moisture.

Hazardous Decomposition Products: Nitrogen oxides. Hydrogen gas.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Eyes. Skin. Inhalation. Ingestion.

Symptoms/Effects: Acute, Delayed and Chronic:

Eye Contact: CORROSIVE-Causes severe irritation and burns. May cause: conjunctivitis. corneal opacity. permanent eye damage. blindness. The eye is especially sensitive to the corrosive effects and can be destroyed.

Skin Contact: CORROSIVE-Causes severe irritation and burns. Concentrated nitric acid chars the tissue with a characteristic yellow colouration. Severe and fatal skin burns can occur with necrosis and scarring.

Skin Absorption: No data available.

Inhalation: CORROSIVE-Causes severe irritation and burns. Gas, vapors or mist cause severe irritation or burns to the upper respiratory system including nose, mouth, throat and mucous membranes. Lung irritation, nitrogen oxide poisoning and pulmonary edema can occur at elevated concentrations (over 200 ppm). Symptoms may include: coughing. sneezing. bronchospasms. dyspnea. chemical pneumonitis. circulatory failure. death. Respiratory effects may be delayed in onset up to 30 hours. Chronic exposure to nitric acid can produce changes in pulmonary function and/or chronic bronchitis. Eye irritation and respiratory symptoms resembling frequent upper respiratory viral infections have also been associated with chronic exposure.

Ingestion: CORROSIVE-Causes severe irritation and burns. May cause damage to the: mouth. throat. esophagus. stomach. digestive tract. May cause: pain. nausea. vomiting. hemorrhaging. perforation of the digestive tract. necrosis. death. Erosion of teeth is possible.

Numerical Measures of Toxicity:

Component	Oral LD50	Dermal LD50	Inhalation LC50
Nitric Acid	No Data	No Data	30Min Rat: 138 ppm

Acute Toxicity Estimate (ATE):
Inhalation Vapor: 2.567 mg/L

Cancer Information:
This product contains 0.1% or more of the following chemicals listed by NTP, IARC or OSHA as known or

possible carcinogens:
Acid mists, strong inorganic

Medical Conditions Aggravated by Exposure to Product: Lung disorders. Skin disorders.

Other: Milder exposures can cause irritation of the eyes, skin, mucous membranes and respiratory and digestive tracts. Death due to breathing failure may occur almost immediately or may be delayed several hours to several days depending on severity of exposure. Nitrogen oxide gas may be released if this material is overheated or placed in contact with oxidizing agents. Nitrogen oxides (especially nitrogen dioxide) are toxic by inhalation. Death may be from sudden circulatory collapse, glottic or esophageal edema, perforation of the stomach, gastric hemorrhage, or delayed stricture.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: NITRIC ACID:
Acute Toxicity to Fish: (A. dispar (freshwater fish)) 96-hr. semistatic - LC50=pH 3.71, (S. gairdneri (rainbow trout) 7-day semistatic LC50=pH - 4.0

Acute Toxicity to Aquatic Plants: (N. palea (diatom)) 28-day growth in lab culture tube - Inhibited growth of diatoms at 6.3 mg/L.

Toxicity to Bacteria: Subartic field study - Total biomass was dependant on pH. Moderately toxic to aquatic organisms based on algae data and on fish data for other acids (i.e., sulfuric acid, phosphoric acid) as defined by USEPA.

Toxicity: Inorganic material. Dangerous to aquatic life in high concentrations. May promote eutrophication in waterways.

Chemical Fate Information: NITRIC ACID:
Environmental Fate:
Stability in Water: Dissociates into its respective ions (H+; NO3-)
Stability in Soil: No data available.
Transport and Distribution: Transportation: Dissolves carbonates; nitrate ions taken up by plants stimulate growth.

Degradation Products:
Biodegradation: No data available.
Photodegradation: Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Hazardous Waste Number: D002

Disposal Method: Dispose of in a permitted hazardous waste management facility following all local, state and federal regulations. If approved, neutralize material and flush to sewer. Neutralized waste must be disposed of in accordance with applicable federal, state and local disposal regulations. Waste may have to be disposed of by an approved contractor. If neutralized waste contains water dissociable nitrate compounds in aqueous solution, it is subject to the reporting requirements of SARA Section 313. DO NOT pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, flame, sparks or other sources of ignition.

14. TRANSPORT INFORMATION

DOT (Department of Transportation):

Identification Number:	UN2031
Proper Shipping Name:	NITRIC ACID
Hazard Class:	8 (5.1)
Packing Group:	II

Label Required: CORROSIVE; OXIDIZER
Reportable Quantity (RQ): 1000# (Nitric Acid).

15. REGULATORY INFORMATION

TSCA Inventory Status: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.

SARA Title III Section 311/312 Category Hazards: Please see Section 2 of this SDS.

Regulated Components: Component	CAS Number	CERCLA RQ	SARA EHS	SARA 313	U.S. HAP	WI HAP	Prop 65
Nitric Acid	7697-37-2	Yes	Yes	Yes	No	Yes	No

16. OTHER INFORMATION

Hazard Rating System
Health: 3*
Flammability: 0
Reactivity: 1
* = Chronic Health Hazard

NFPA Rating System
Health: 4
Flammability: 0
Reactivity: 0
Special Hazard: OX

SDS Abbreviations
N.A. = Not Applicable
N.D. = Not Determined
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
C = Ceiling Limit
N.E./Not Estab. = Not Established

SDS Prepared by: JAK

Reason for Revision: Change(s) made in Section 2.

Revised: 08-28-2019
Replaces: 04-12-2017