

## Nitric Acid

### SECTION 1. IDENTIFICATION

<b>Product Identifier</b>	Nitric Acid
<b>Other Means of Identification</b>	Hydrogen Nitrate, Nitral, Nitryl Hydroxide, Nitric Acid ACS, Nitric Acid 42 deg Be
<b>Product Code(s)</b>	NI7110, NI7120
<b>Product Family</b>	Inorganic Acid
<b>Recommended Use</b>	Laboratory and industrial use.
<b>Restrictions on Use</b>	None known.
<b>Supplier Identifier</b>	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
<b>Emergency Phone No.</b>	CANUTEC CANADA, 613-996-6666, 24 Hours
<b>SDS No.</b>	23

### SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

#### Classification

Oxidizing liquid - Category 2; Skin corrosion - Category 1; Serious eye damage - Category 1; Specific target organ toxicity (single exposure) - Category 3

#### Label Elements



Signal Word:  
Danger

#### Hazard Statement(s):

May intensify fire; oxidizer.  
Causes severe skin burns and eye damage.  
Harmful in contact with skin.  
Harmful if swallowed.  
Harmful if inhaled.

#### Precautionary Statement(s):

Wear protective gloves/protective clothing/eye protection/face protection.  
Keep away from clothing and other combustible materials.  
Wear protective gloves/protective clothing.  
IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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Continue rinsing.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of water.

Immediately call a POISON CENTRE or doctor.

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

Store in accordance with local, regional, national and international regulations.

#### Other Hazards

Hazardous to the environment.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Nitric acid	7697-37-2	65 - 70	Hydrogen Nitrate, Nitral, Nitryl Hydroxide	
Water	7732-18-5	30 - 35	Dihydrogen Oxide	

### SECTION 4. FIRST-AID MEASURES

#### First-aid Measures

##### Inhalation

Remove source of exposure or move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor.

##### Skin Contact

Immediately rinse skin with lukewarm, gently flowing water for at least 30 minutes. DO NOT INTERRUPT FLUSHING. If it can be done safely, continue flushing during transport to hospital.

##### Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face.

##### Ingestion

Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Rinse mouth with water. Immediately call a Poison Centre or doctor. Specific treatment is required.

##### First-aid Comments

Get medical advice or attention if you feel unwell or are concerned. Some of the first-aid procedures recommended here require advanced first-aid training.

#### Most Important Symptoms and Effects, Acute and Delayed

Can cause severe lung injury. Can cause severe irritation of the nose and throat. Repeated or prolonged exposure can irritate or burn the skin. Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

#### Immediate Medical Attention and Special Treatment

##### Special Instructions

General advice, consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### SECTION 5. FIRE-FIGHTING MEASURES

#### Extinguishing Media

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### Suitable Extinguishing Media

Use flooding quantities of water spray or fog.

### Unsuitable Extinguishing Media

DO NOT use carbon dioxide, sodium bicarbonate, halogenated compounds, foam or water.

### Specific Hazards Arising from the Product

Review Section 10 (Stability and Reactivity) for additional information.

Hazardous decomposition products formed under fire conditions - Nitrogen Oxides (NOx).

### Special Protective Equipment and Precautions for Fire-fighters

Use extreme caution. Evacuate area. Fight fire from a protected, explosion-resistant location or maximum distance possible. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Oxidizer. Prevent contact with flammable and combustible materials. Review Section 6 (Accidental Release Measures) for important information on responding to leaks/spills.

Fire-fighters should enter area wearing specialized protective equipment. (Bunker Gear will not provide adequate protection.) chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Evacuate downwind locations. Remove or isolate incompatible materials as well as other hazardous materials. Eliminate all ignition sources. Use grounded, explosion-proof equipment.

### Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

### Methods and Materials for Containment and Cleaning Up

Review Section 7 (Handling) of this safety data sheet before proceeding with clean-up. Contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal.

Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

## SECTION 7. HANDLING AND STORAGE

### Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Avoid release to the environment. Immediately report leaks, spills or failures of the safety equipment (e.g. ventilation system). Avoid generating dusts. In event of a spill or leak, immediately put on escape-type respirator and exit the area.

### Conditions for Safe Storage

Store in an area that is: cool, dry, well-ventilated. Protect from sunlight. Separate from incompatible materials (see Section 10: Stability and Reactivity). Store in the original, labelled, shipping container. Regularly inspect for physical changes or signs of crystallization, damage or leaks.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Nitric acid	2 ppm	4 ppm	2 ppm			
Water	Not established		Not established			

### Appropriate Engineering Controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

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## Individual Protection Measures

### Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

### Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Suitable materials are: butyl rubber, Barrier® (PE/PA/PE), Tychem® BR/LV, Tychem® Responder, Tychem® TK.

The following materials should NOT be used: nitrile rubber, polyethylene, polyvinyl alcohol, polyvinyl chloride.

### Respiratory Protection

Wear a full facepiece NIOSH approved air-purifying respirator with an acid gas cartridge.

Wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

Wear a NIOSH approved self-contained breathing apparatus (SCBA) or supplied air respirator.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### Basic Physical and Chemical Properties

<b>Appearance</b>	Colourless liquid.
<b>Odour</b>	Suffocating
<b>Odour Threshold</b>	0.29 - 2.5 mg/m <sup>3</sup> (detection)
<b>pH</b>	1.0 (0.1 M solution)
<b>Melting Point/Freezing Point</b>	-41 °C (-42 °F) (melting)
<b>Initial Boiling Point/Range</b>	120.5 °C (248.9 °F)
<b>Flash Point</b>	Not available
<b>Evaporation Rate</b>	Not available
<b>Flammability (solid, gas)</b>	Not available
<b>Upper/Lower Flammability or Explosive Limit</b>	Not available (upper); Not available (lower)
<b>Vapour Pressure</b>	0.37 - 0.40 kPa (2.78 - 3.00 mm Hg) at 20 °C
<b>Vapour Density (air = 1)</b>	2.17 (calculated)
<b>Relative Density (water = 1)</b>	1.41
<b>Solubility</b>	Soluble in all proportions in water; Not available (in other liquids)
<b>Partition Coefficient, n-Octanol/Water (Log Kow)</b>	0.21 (estimated)
<b>Auto-ignition Temperature</b>	Not available
<b>Decomposition Temperature</b>	Not available
<b>Viscosity</b>	Not available (kinematic); Not available (dynamic)
<b>Other Information</b>	
<b>Physical State</b>	Liquid

## SECTION 10. STABILITY AND REACTIVITY

### Reactivity

Oxidizer. May intensify fire.

### Chemical Stability

Normally stable.

### Possibility of Hazardous Reactions

Decomposes in the presence of light, increased temperature.

### Conditions to Avoid

Exposure to air. Light. High temperatures.

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## Incompatible Materials

Metals (e.g. aluminum), organic acids (e.g. acetic acid), reducing agents (e.g. hydroquinone), strong bases (e.g. sodium hydroxide), aldehydes (e.g. acetaldehyde), alcohols (e.g. ethanol), amines (e.g. triethylamine), acid anhydrides (e.g. acetic anhydride), ammonia, aromatic hydrocarbons (e.g. toluene), esters (e.g. amyl acetate), ethers (e.g. diethyl ether), nitriles (e.g. butyronitrile), saturated hydrocarbons (e.g. butane).

Carbon steel, aluminum alloys, cast iron, copper, copper alloys (e.g. brass and/or bronze), lead.

## Hazardous Decomposition Products

Corrosive, oxidizing nitrogen oxides.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

### Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Nitric acid	130 mg/m <sup>3</sup> (rat) (4-hour exposure)	no data available	no data available
Water	Not available	> 89840 mg/kg (rat)	Not available

### Skin Corrosion/Irritation

Corrosive based on information for closely related materials.

### Serious Eye Damage/Irritation

Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

### STOT (Specific Target Organ Toxicity) - Single Exposure

#### Inhalation

Causes nose and throat irritation, lung injury. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest.

#### Skin Absorption

No information was located.

#### Ingestion

Causes severe irritation or burns to the mouth, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

### Aspiration Hazard

No information was located.

### STOT (Specific Target Organ Toxicity) - Repeated Exposure

Causes irritation of the respiratory system. May cause respiratory tract injury.

At low concentrations causes dermatitis. Symptoms may include dry, red, cracked skin (dermatitis).

### Respiratory and/or Skin Sensitization

No information was located.

### Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Nitric acid	Not Listed	Not designated	Not Listed	Not Listed
Water	Not Listed	Not Listed	Not Listed	Not Listed

Conclusions cannot be drawn from the limited studies available.

### Key to Abbreviations

IARC = International Agency for Research on Cancer.

ACGIH® = American Conference of Governmental Industrial Hygienists.

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NTP = National Toxicology Program.  
OSHA = US Occupational Safety and Health Administration.

### Reproductive Toxicity

#### Development of Offspring

No information was located.

#### Sexual Function and Fertility

No information was located.

#### Effects on or via Lactation

No information was located.

### Germ Cell Mutagenicity

No information was located.

### Interactive Effects

No information was located.

## SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal Methods

Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction. Bury in a licensed landfill or burn in an approved incinerator according to federal, provincial/state, and local regulations.

## SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	UN2031	Nitric Acid	8	I
Canadian TDG	UN2031	Nitric Acid	8	II
IATA (Air)	UN2031	Nitric Acid	8	II
IMO (Marine)	UN2031	Nitric Acid	8	II

**Environmental Hazards** Environmentally Hazardous Substance

**Special Precautions** Not applicable

**Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable

## SECTION 15. REGULATORY INFORMATION

### Safety, Health and Environmental Regulations

#### Canada

##### Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

#### USA

##### Toxic Substances Control Act (TSCA) Section 8(b)

Listed on the TSCA Inventory.

## SECTION 16. OTHER INFORMATION

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<b>NFPA Rating</b>	<b>Health - 4    Flammability - 0    Instability - 0</b>
	<b>Special Hazard - Oxidizing</b>
<b>SDS Prepared By</b>	Alphachem Limited
<b>Phone No.</b>	(905)-821-2995
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<b>References</b>	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).
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