SAFETY DATA SHEET

Nitric Acid 42º Bé

SECTION 1: IDENTIFICATION

Product identifier used on a label:	Nitric Acid 42º Bé
Product code:	2071
HS Code:	28080010
CAS-No.:	7697-37-2
Synonyms:	Azotic acid, Engraver's acid, Aqua fortis
Recommended use of the chemical and restrictions on use:	Acidifying agent, oxidizer, etchant.
Chemical family:	Acid
Chemical formula:	HNO_3
Name, address and phone # of supplier:	Aqua Bond Inc. 440 Passmore Ave. Toronto, ON, M1V 5J8 (416) 754-7211
24 Hr. Emergency phone #:	**CANUTEC (613) 996-6666**

SECTION 2: HAZARDS IDENTIFICATION

Classification of the chemical: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification: GHS Classification

Oxidizing liquids: Category 3
Corrosive to Metals: Category 1
Acute toxicity (Inhalation): Category 3
Skin corrosion: Category 1A
Serious eye damage: Category 1

Label elements:



Signal word: DANGER

Hazard statements: H272 May intensify fire; oxidizer.
H314 Causes severe skin burns and eye damage.

Precautionary statements:	P220 Keep/Store away from clothing/combustible materials. P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/physician.
Other Hazards:	Not available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient name	Synonyms	CAS Number	Concentration (wt. %)
Nitric Acid	Azotic acid, Engraver's acid, Aqua fortis	7697-37-2	67 - 68 %
Water		7732-18-5	Balance

SECTION 4: FIRST-AID MEASURES
Description of first aid measures:

Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Call a physician immediately.
Eye contact	After eye contact: rinse out with plenty of water. Get medical attention immediately.
Ingestion	Do Not Induce Vomiting. Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed:
Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated.

Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media:	Use media appropriate for the surrounding fire.
Suitable:	Use alcohol-resistant foam, dry chemical, dry sand, carbon dioxide.
Unsuitable:	Not Available.
Flash point:	Not Available.
Autoignition Temperature:	Not Available.
Specific hazards arising from the substance:	Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).
Hazardous thermal decomposition products:	Nitrogen oxides (NOx) Thermal decomposition can lead to release of irritating gases and vapors
Special protective equipment and precautions for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Wear respiratory protection. In case of release, evacuate personnel to safe areas and isolate the hazard area. Keep unnecessary and unprotected personnel from entering.
Environmental precautions:	Should not be released into environment. Prevent from reaching drains, sewer, or waterway. Report releases as required by local and national authorities.
Methods and materials for containment and cleaning up:	Wear protective eyeware, gloves, and clothing. Refer to Section 8. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. Always obey

	local regulations. If necessary use trained response staff or contractor.
Special spill response procedures:	In case of transportation accident, contact CHEMTREC at 1-800-424-9300.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Do not ingest. Do not breathe vapors or spray mist. Keep away from clothing and other combustible materials. Use only under a chemical fume hood. Wear personal protective equipment.
Conditions for safe storage:	Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Do not store near combustible materials.
Incompatible materials:	Strong oxidizing agents, Organic peroxides, Explosives, Gases Alkali metals, acetic anhydride, acetonitrile, alcohols, acrylonitrile
Hazardous decomposition products:	Fire may cause formation of nitrogen oxides

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Ingredient	**Exposure limits**
Nitric Acid	2 ppm (5.2 mg/m^3) TLV, ACGIH 4 ppm (10 mg/m^3) STEL, ACGIH 2 ppm (5 mg/m^3) PEL, OSHA 2 ppm (5 mg/m^3) REL, NIOSH 4 ppm (10 mg/m^3) STEL, NIOSH 25 ppm IDLH, OSHA TLV: Threshold Limit Value over 8 hours of work. STEL: Short Term Exposure Limit during x minutes. IDLH: Immediately Dangerous to Life or Health REL: Recommended Exposure Limit PEL: Permissible Exposure Limit

Engineering controls:	Ensure adequate ventilation, especially in confined areas.

	Use mechanical exhaust or laboratory fumehood to avoid exposure. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Individual protection measures:	**Eye Protection**: Use chemical safety goggles and / or a full face shield where splashing is possible. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Maintain eye wash fountain and quick-drench facilities in work area. **Skin Protection**: Wear appropriate protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Handle with gloves. Gloves must be inspected prior to use. **Respiratory protection:** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly. **Hygiene Measures:** Keep away from food, drink and animal feeding stuffs. When using, do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. For environmental protection remove and wash all contaminated protective equipment before re-use. Wear suitable gloves and eye/face protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear or light yellow liquid
Odour:	Strong acrid
Odour threshold:	No data available
pH:	< 1.0 (0.1 M)
Melting point/Freezing point:	-41 °C (-41.8 °F)
Initial boiling point/boiling range:	120 °C (248 °F)
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid; gas) :	No data available
Lower flammable/explosive limit:	No data available

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Upper flammable/explosive limit:	No data available
Vapour pressure:	11 hPa (8 mmHg) at 20°C (68°F)
Vapour density:	2.3 (air=1)
Density:	1.48 g/cm^3 at 20°C (68°F)
Solubility:	Soluble in water
Partition coefficient (n-octanol/water) :	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	Oxidizer: Contact with combustible/organic material may cause fire.
Chemical stability:	Oxidizer: Contact with combustible/organic material may cause fire.
Possibility of hazardous reactions:	
Conditions to avoid:	Incompatible products. Excess heat, exposure to air and moisture over prolonged time periods.
Incompatible materials:	Combustible materials, Strong bases, Reducing agents, Metals, Powdered metals, Organic materials, Aldehydes, Alcohols, Cyanides, Ammonia, Strong reducing agents
Hazardous decomposition products:	Fire may cause formation of nitrogen oxides. Thermal decomposition can lead to release of irritating gases and vapors

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicity data
Acute toxicity
Nitric Acid

Acute Inhalation Toxicity:	Toxic if inhaled. LC50 (Rat): > 2.65 mg/l Exposure time: 4 h Test atmosphere: vapor Method: OECD Test Guideline 403 Assessment: Corrosive to the respiratory tract.
Skin corrosion/irritation:	Causes severe burns. Corrosive after 3 minutes or less of exposure Remarks : Based on harmonised classification in EU regulation 1272/2008, Annex VI
Serious eye damage/eye irritation:	Causes serious eye damage.
Information on the likely routes	Skin, eye, inhalation, ingestion

of exposure:

	Toxic if inhaled. Causes severe burns. Causes serious eye damage
Potential health effects (acute):	Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated
Target organ effects:	No data available.
Carcinogenicity:	IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. ACGIH: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
Potential chronic health effects:	
	No data available.
Teratogenicity:	No data available.
Developmental effects:	No data available.
Fertility effects:	No data available.
Irritation/corrosion:	No data available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity	
Nitric Acid	
Toxicity to fish	LC50: = 72 mg/L, 96h (Gambusia affinis)
Toxicity to daphnia and other aquatic invertebrates	No data available.
Toxicity to microorganisms:	No data available.
Bioaccumulation:	No data available.
Biodegradation:	No data available.
Abiotic Degradation:	No data available.
Mobility in soil, water:	Will likely be mobile in the environment due to its water solubility.
Other adverse effects:	No data available.
Persistence and degradability:	

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods:	The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any

by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Do not flush to sewers.
Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Land transport (DOT)	
UN number	UN 2031
Proper shipping name	Nitric acid
Class	8
Packing group	II
Air transport (IATA)	
UN number	UN 2031
Proper shipping name	NITRIC ACID
Class	8
Packing group	II
Sea transport (IMDG)	
UN number	UN 2031
Proper shipping name	NITRIC ACID
Class	8
Packing group	II
EmS	F-A, S-B
Special precautions for user:	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident.

SECTION 15: REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

TSCA Inventory Status: All ingredients are listed on the TSCA inventory.
DSCL (EEC): All ingredients are listed on the DSCL inventory.
SARA 302 Listed: Nitric Acid
SARA 304 Listed: Nitric Acid
SARA 311 Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard
SARA 312 Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard
SARA 313 Listed: Nitric Acid

WHMIS Canada
Class C: Oxidizing material
Class E: Corrosive material

SECTION 16: OTHER INFORMATION

Revision date: January 23, 2020
UN = United Nations

Disclaimer

While the information and recommendations set forth are believed to be accurate as of data hereof, Aqua Bond Inc., makes no warranty with respect thereto and disclaims all liability from reliance thereon.