

Material Safety Data Sheet

NITRIC ACID

Print Date: March 2004

SECTION 1 – Chemical Product and Company Identification

MSDS Name: NITRIC ACID

MSDS Preparation Date: 02-2004, Supersedes 02-2001, 02-98

Synonyms: Acide nitrique, Aqua fortis, Azotic acid, Hydrogen nitrate

Product numbers: BA-01-0250, BA-01-0500, BA-01-1000, BA-01-2000, IQ-01-0500, IQ-01-0500S, IQ-01-1000, IQ-01-1000R, IQ-01-2000, IQ-01-2000T, IQ-01-2500, IQ-01-2500-S, IQ-01-2500-6, IQ-01-2500-PVC, IQ-01-25SK, IQ-01-25SKS, IQ-01-25SK6, IQ-01-200L, CP01-2000F410, CP01-2000F620, OVERFLOW-01, OVF-01-TOTE, FS-01-200L

Canadian TDG Classification: 8 PKG Gr II

Formula: HNO₃

PIN (UN# / NA#): UN2031

Molecular Wt: 63.01

WHMIS Classification: Class C (Oxidizing material), Class D Division 1 Subcategory A (Materials Causing Immediate and Serious Toxic Effects), Class E (Corrosive material).

Supplier: Seastar Chemicals Inc, PO Box 2219, 2045 Mills Road West, Sidney, BC, Canada

V8L 3S8

Tel: (250) 655-5880, **Fax:** (250) 655-5888

CANUTEC (CAN): (613)-996-6666

SECTION 2 – Composition/Information on Ingredients

CAS #	Chemical Name	Percent	EINECS/ELINCS	TLV	Hazard
7697-37-2	Nitric acid	60-71%	231-714-2	(TWA) 2 ppm*	Corrosive
7732-18-5	Water	Balance	231-791-2	None	None

Hazard Symbols: O C

Risk Phrases: 35 8

SECTION 3 – Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear to yellow. **Danger!** Corrosive. Strong oxidizer. Contact with other material may cause a fire. Causes eye and skin burns. Causes digestive and respiratory tract burns.

Target Organs: None.

Potential Health Effects

Primary Route(s) of Entry: Skin contact. Eye contact. Inhalation and Ingestion.

Effects of Acute Exposure: May be fatal by ingestion, inhalation or skin absorption. Corrosive. LDLo: ORAN-human 430 mg/kg.

LD50/LC50: CAS# 7697-37-2: Inhalation, rat: LC50 = 67 ppm (NO₂)/4H. CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg. Inhalation, rate: LC50 = 1276 ppm/1H.

Eyes: Causes severe eye burns and loss of vision. May cause permanent damage.

Skin: May cause severe skin irritation. Causes skin burns. May cause deep, penetrating ulcers of the skin.

Ingestion: Causes gastrointestinal tract burns. May cause perforation of the digestive tract. Burns in mouth, pharynx and gastrointestinal tract. Vomiting, nausea, diarrhea, abdominal pain, kidney damage and death.

Inhalation: May be fatal if inhaled. Effects may be delayed. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Chemical pneumonitis, bronchitis, and possible death.

Effects of Chronic Exposure: Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause erosion of teeth. May cause erosion of the teeth, lesions of the skin, bronchial irritation, coughing, pneumonia and lung damage. To the best of our knowledge the chronic toxicity of this substance has not been fully investigated.

SECTION 4 – First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, holding lids apart to ensure flushing of the entire surface. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.

Skin: Get medical aid immediately. Immediately flush skin with copious quantities water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately. Call a physician. Never give anything by mouth to an unconscious person.

Inhalation: Remove patient from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Call a physician.

Notes to Physician: Treat symptomatically and supportively.

SECTION 5 – Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Contact with combustible materials may cause a fire. Use water spray to keep fire-exposed containers cool. Substance is non-combustible.

Special Fire and Explosion Hazards: Oxidizing material – contributes to combustion of other materials. Emits toxic fumes under fire conditions. Contact with other materials may cause fire and/or explosion.

Extinguishing Media: Substance is non-combustible; use agent most appropriate to extinguish surrounding fire. Water spray.

Auto-ignition Temperature: N/ap.

Flash Point: None.

NFPA Rating: Health 4; Flammability 0; Instability 0; Other OXIDIZING MATERIAL

Explosion Limits: Lower: Not available. Upper: Not available.

SECTION 6 – Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g., dry sand or earth), then place into a chemical waste container. Neutralize spill with sodium bicarbonate. A vapor suppressing foam may be used to reduce vapors.

Steps to be taken in case material is released or spilled: Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Add lime. Mix carefully with water to form a slurry place in a suitable container and send for disposal. Ventilate area and wash spill site after material pick-up is complete.

Waste disposal method: According to all applicable regulations. Avoid run-off.

SECTION 7 – Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before re-use. Use with adequate ventilation. Do not get on skin or in eyes. Do not ingest or inhale.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances, heated areas, sparks and flame. Do not store in metal or glass containers. Do not store in direct sunlight. Do not store near organic substances. Keep tightly closed. Empty container may contain hazardous residue. Do not add any other material to the container. Do not wash down the drain. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking or food consumption while handling.

Storage Code: White.

SECTION 8 – Exposure Control/Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits

Exposure Limits:

Chemical Name	ACGH	NIOSH	OSHA
Nitric acid	2 ppm TWA; 5.2 mg/m ³ TWA; 4 ppm STEL; 10 mg/m ³ STEL	2 ppm TWA; 5 mg/m ³ TWA; 4 ppm STEL; 10 mg/m ³ STEL	2 ppm TWA; 5 mg/m ³ TWA.
Water	None listed.	None listed.	None listed.

OSHA Vacated PELs Nitric acid: 2 ppm TWA; 5 mg/m³ TWA. Nitric acid: 2 ppm TWA; 5 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133. Wear face shield.

Skin: Wear appropriate protective neoprene gloves to prevent skin exposure. Wear acid-resistant PVC or neoprene jacket, trousers and boots sufficient to protect skin.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respiratory Protection: Wear appropriate OSHA/MSHA approved chemical cartridge respirator. Regulations found in 29CFR 1910.134. If more than TLV, do not breathe vapour. Wear self-contained breathing apparatus. Always use an NIOSH-approved respirator when necessary.

Ventilation: Use only in a chemical fume hood. Adequate ventilation to maintain vapour/dust below TLV.

Other Protective Equipment: Make eye bath and emergency shower available.

SECTION 9 – Physical and Chemical Properties

Physical State: Liquid

Appearance: clear to yellow

Odor: strong odor – acrid odor

pH: 1.0

Vapor Pressure: 6.8 mm Hg

Vapor Density: No information available.

Evaporation Rate: No information available.

Viscosity: No information available.

Boiling Point: 186.8°F

Freezing/Melting Point: -43.6°F

Decomposition Temperature: No information available.

Solubility: Soluble in water.

Specific Gravity/Density: 1.50

Molecular Formula: HNO₃

Molecular Weight: 63.0119

SECTION 10 – Stability and Reactivity

Chemical Stability: Decomposes when in contact with air, light, or organic matter.

Conditions to Avoid: High temperatures, incompatible materials, moisture, reducing agents.

Incompatibilities with Other Materials: Reacts with over 150 chemical combinations. Refer to NFPA Fire Protection Guide for specifics. Reacts explosively with organic materials and combustibles. Reducing agents. Reacts with most common metals to produce hydrogen. Bases, alkalis, aluminium, cyanides, iron, copper, carbides, sulphides, alcohols, hydrogen sulphide, turpentine. Heat. Amines.

Hazardous Decomposition Products: Nitrogen oxides.

Hazardous Polymerization: Will not occur. Has not been reported.

Reaction Product(s): Reacts with water to produce heat, and toxic, corrosive fumes of nitrogen oxides.

SECTION 11 – Toxicological Information

RTECS: CAS# 7697-37-2: QY5775000; QU5900000. CAS# 7732-18-5: ZC0110000.

LD50/LC50: CAS# 7697-37-2: Inhalation, rate: LC50 = 67 ppm (NO₂)/4H. CAS# 7664-39-3: Oral, rat: LD50 = >90 mL/kg.

Carcinogenicity: CAS# 7697-37-2: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA or CA Prop 65. CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: Effects on newborn: biochemical and metabolic, Oral-rat TDLo = 2345 mg/kg (female 18D post). Fetotoxicity: Stunted fetus, Oral-rat TDLo = 21150 mg/kg (female 1-21D post).

Reproductive: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

SECTION 12 – Ecological Information

Ecotoxicity: No information available. Mosquito fish: TLm = 72 /96H (fresh water). Cockle: LC50 = 330-1000 ppm/49H (salt water).

Environmental: No information reported. **Physical:** No information available **Other:** None.

SECTION 13 – Disposal Considerations

Dispose of in a manner consistent with federal, provincial/state/territorial, and local regulations.

RCRA D-Maximum Concentration of Contaminants: None of the components are on this list.

RCRA D Series – Chronic Toxicity Reference Levels: None of the components are on this list.

RCRA F Series Wastes: None of the components are on this list.

RCRA P Series Wastes: None of the components are on this list.

RCRA U Series Wastes: None of the components are on this list.

RCRA Substances Banned from Land Disposal: None of the components are on this list.

SECTION 14 – Transport Information

Proper Shipping Name: NITRIC ACID, 60-71%

Hazard Class: 8

UN Number: UN2031

Packing Group: II

SECTION 15 – Regulatory Information

US Federal

TSCA: CAS# 7697-37-2 is listed on the TSCA Inventory. CAS# 7732-18-5 is listed on the TSCA Inventory.

Health and Safety Reporting List: None of the components are on this list.

Chemical Test Rules: None of the components are on this list.

TSCA Section 12b: None of the components are on this list.

TSCA Significant New Use Rule (SNUR): None of the components are on this list.

CERCLA Reportable Quantities (RQ): CAS# 7697-37-2: final RQ = 1000 pounds (454 kg).

SARA Threshold Planning Quantities (TPQ): CAS# 7697-37-2: TPQ = 1000 pounds.

SARA Hazard Categories: CAS# 7697-37-2: acute, chronic, flammable.

SARA Section 313: This material contains Nitric acid (CAS# 7697-38-2, 60-71%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

US State

State Right to Know: Nitric acid can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California Prop 65: No information available.

California No Significant Risk Level: No information available.

European/International Regulations

European Labelling in Accordance with EC Directives:

Hazard Symbols: OC. Risk Phrases: R 8 Contact with combustible material may cause fire. R 8 Contact with combustible material may cause fire. Safety Phrases: S 24/25 Avoid contact with skin and eyes.

WGKK (Water Danger/Protection): No information available.

Canadian DSL/NDSL: CAS# 7697-37-2 is listed on Canada's DSL/NDSL List. CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.

Canadian WHMIS Classification: This product has a WHMIS classification of C, D1A, E.

Canada Ingredient Disclosure List: CAS# 7697-37-2 is not listed on Canada's Ingredient Disclosure List. CAS# 7732-18-5 is listed on Canada's Ingredient Disclosure List.

Exposure Limits:

CAS# 7697-37-2; OEL-ARAB Republic of Egypt: TWA 2 ppm (5 mg/m³)

OEL-AUSTRALIA: TWA 2 ppm (5 mg/m³); STEL 4 ppm (10 mg/m³)

OEL-BELGIUM: TWA 2 ppm (5.2 mg/m³); STEL 4 ppm (10 mg/m³)

OEL-CZECHOSLOVAKIA: TWA 2.5 mg/m³; STEL 5 mg/m³

OEL-DENMARK: TWA 2 ppm (5 mg/m³)

OEL-FINLAND: TWA 2 ppm (5 mg/m³); STEL 5 ppm (13 mg/m³);

Skin

OEL-GERMANY: TWA 10 ppm (25 mg/m³)

OEL-HUNGARY: STEL 5 mg/m³

OEL-JAPAN: TWA 2 ppm (5.2 mg/m³)

OEL-THE PHILIPPINES: TWA 2 ppm (5 mg/m³)

OEL-POLAND: TWA 10 mg/m³

Clean Air Act – Hazardous Air Pollutants (HAPs): None of the components are on this list.

Clean Air Act – Class 1 Ozone Depletors: None of the components are on this list.

Clean Air Act – Class 2 Ozone Depletors: None of the components are on this list.

Clean Water Act – Hazardous Substances: CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.

Clean Water Act – Priority Pollutants: None of the components are on this list.

Clean Water Act – Toxic Pollutants: None of the components are on this list.

OSHA – Highly Hazardous: CAS #7697-37-2 is considered highly hazardous by OSHA.

OEL-RUSSIA: TWA 2 ppm; STEL 2 mg/m³; Skin

OEL-SWEDEN: TWA 2 ppm (5 mg/m³); STEL 5 ppm (13 mg/m³)

OEL-SWITZERLAND: TWA 2 ppm (5 mg/m³); STEL 4 ppm (10 mg/m³)

OEL-THAILAND: TWA 2 ppm (5 mg/m³)

OEL-TURKEY: TWA 2 ppm (5 mg/m³)

OEL-UNITED KINGDOM: TWA 2 ppm (5 mg/m³); STEL 4 ppm (10 mg/m³)

OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

OES-United Kingdom: TWA 2 ppm TWA; 5 mg/m³ TWA

OES-United Kingdom: STEL 4 ppm; STEL 10 mg/m³

SECTION 16 – Other Information

The statements contained herein are offered for informational purposes only and are based upon technical data. Seastar Chemicals Inc believes them to be accurate but does not purport to be all-inclusive. The above-stated product is intended for use only by persons having the necessary technical skills and facilities for handling the product at their discretion and risk. Since conditions and manner of use are outside our control, we (Seastar Chemicals Inc) make no warranty of merchantability or any such warranty, express or implied with respect to information and we assume no liability resulting from the above product or its use. Users should make their own investigations to determine suitability of information and product for their particular purposes.