



Material Safety Data Sheet

Orica Nitrogen LLC
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EMERGENCY CONTACTS

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS:
CHEMTREC (800) 424-9300.

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Nitric Acid**
MSDS Number: 20014

CAS Number: 7697-37-2
Date Issued: 07-May-2001

Product Use: Manufacture of ammonium nitrate for fertilizers and explosives.

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENT(S)	% (w/w)	ACGIH TWA	CAS NO.
Nitric Acid	50-70	5.2 mg/m3	7697-37-2

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview: Corrosive Contact with combustible material may cause fire. Very toxic; danger of very serious irreversible effects through inhalation. Causes severe burns on contact. Irritating to eyes, respiratory system and skin. Read the entire MSDS for a more thorough evaluation of the hazards.

SECTION 4 - FIRST AID MEASURES

General: Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential. SPEED IS ESSENTIAL in obtaining medical attention. OBTAIN IMMEDIATE MEDICAL ATTENTION. Nitrogen dioxide may be released from off-gassing or from the reaction of nitric acid with contaminants. Nitrogen dioxide itself is acutely toxic.

Inhalation: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Oxygen administration may be beneficial in this situation but should only be administered by personnel trained in its use. Obtain medical attention IMMEDIATELY.

Skin Contact: Flush skin with running water for a minimum of 20 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.

Eye Contact: Immediately flush eyes with running water for a minimum of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.

Ingestion: If victim is alert and not convulsing, rinse out mouth and give 200-300 mL (1 cup) of water to dilute material. DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.

Note to Physicians: This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur.

SECTION 5 - FIRE-FIGHTING MEASURES

Flash Point: This product does not flash.
Flammable Limits (Lower): Not applicable.
Flammable Limits (Upper): Not applicable.
Auto Ignition Temperature: Not applicable.
Decomposition Temperature: 78°C (172°F) (Nitric Acid)
Rate of Burning: Not applicable.

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To	Dawn	From	Helen		
Co./Dept.	Chem Central	Co.	Nitrochem		
Phone #		Phone #			
Fax #	708-594-6382	Fax #			

Explosive Power: Not applicable.

Sensitivity to Mechanical Impact: Not expected to be sensitive to mechanical impact.

Sensitivity to Static Discharge: Not expected to be sensitive to static discharge.

Hazardous Reactions: Reacts violently or explosively with a wide variety of organic and inorganic chemicals including water, alcohol, carbides, chlorates, picrates, nitrates, metals and other combustible materials. Concentrated acid reacts violently with water, generating heat, nitrogen oxides and causing spattering.

Fire and Explosion Hazards: Contact with metals such as aluminum, tin and zinc generate hydrogen which is flammable and/or explosive when ignited.

Extinguishing Media: For large fires use an all purpose type AFFF foam according to foam manufacturer's recommended techniques. The foam supplier should be consulted for recommendations regarding foam types and delivery rates for specific applications. Use carbon dioxide or dry chemical media for small fires. If only water is available, use it in the form of a fog.

Fire Fighting Procedures: As appropriate for surrounding materials/equipment. Water spray should be used to cool containers. Water spray may only be used to knock down escaping vapour.

Fire Fighting Protective Equipment: Use self-contained breathing apparatus and special protective clothing.

NOTE: Also see "Section 10 - Stability and Reactivity"

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spills, Leaks, or Releases: Wear skin, eye, and respiratory protection during cleanup. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for disposal. Notify applicable government authority if release is reportable or could adversely affect the environment. Ventilate enclosed area.

Deactivating Chemicals: Neutralize carefully with soda ash or sodium bicarbonate to a pH of 6 to 9. The reaction is very violent. Neutralization should be done slowly, under controlled conditions to avoid exposure to fumes.

SECTION 7 - HANDLING AND STORAGE

Handling: Take all precautions to avoid personal contact. Use only with adequate ventilation and avoid breathing aerosols, mists and vapors. Drums which have been exposed to heat may be under internal pressure. These should be cooled and carefully vented before opening. A face shield and apron should be worn. Locate safety shower and eyewash station close to chemical handling area. Use EXTREME care when diluting with water. Always add acid to water. Use normal good industrial hygiene and housekeeping practices. Wash containers thoroughly before reuse. Aspiration of droplets or inhalation of mists may cause chemical pneumonitis.

Storage Requirements: Store in a cool, well-ventilated area. Keep away from heat, sparks and flames. Keep containers closed. Exposure to extremes of heat and cold should be avoided. Keep away from incompatibles. If stored indoors, building floors should be acid resistant with drains to a recovery tank.

Storage Temperature: Ideal storage temperature is 10-27°C (50-80.6°F). Do not expose sealed containers to temperatures above 40°C (104°F).

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

PREVENTIVE MEASURES:

Recommendations listed in this section indicate the type of equipment which will provide protection against over-exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: Local exhaust ventilation required. Full handling precautions should be taken at all times. Where suitable engineering controls are not in place or are inadequate, wear suitable respiratory equipment.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Use full face-shield and chemical safety goggles when there is potential for contact.

Skin Protection: Take all precautions to prevent skin contact. Gloves and protective clothing made from neoprene and natural rubber (combination) should be impervious under conditions of use.

Respiratory Protection: A NIOSH/MSHA-approved air-purifying respirator equipped with acid gas cartridges up to ten times the TLV. An air-supplied respirator if concentrations are high or unknown.

EXPOSURE GUIDELINES:

PRODUCT:

WEAK NITRIC ACID:

ACGIH TLV	5.2 mg/m ³
ACGIH STEL	10 mg/m ³
OSHA PEL	5 mg/m ³
OSHA STEL	10 mg/m ³

HAZARDOUS INGREDIENT(S):

Nitric Acid:	
ACGIH TLV	5.2 mg/m ³

ACGIH STEL:	10 mg/m3
OSHA PEL:	5 mg/m3
OSHA STEL:	10 mg/m3

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Alternate Name(s): Aqua Fortis, Engravers acid, Azoic acid, Hydrogen Nitrate
 Chemical Name: Nitric acid
 Chemical Family: Mineral acid
 Molecular Formula: HNO₃
 Appearance: Clear, colorless to slightly yellow, fuming, aqueous solution.
 Odor: Suffocating, acrid odor.
 pH: < 1.0 Contains maximum of 0.3% nitrogen dioxide.
 Vapor Pressure (mm Hg at 20°C): 4.0 to 5.0 mm Hg depending on concentration
 Vapor Density (Air=1): 2.3
 Boiling Point: 117.8 to 120.9°C (244 to 248.5°F)
 Melting Point: -42.5 to -20°C (-44.5 to -4°F)
 Solubility (Water): (Completely soluble)
 Solubility (Other): Not Available.
 Specific Gravity: 1.355 to 1.421
 Evaporation Rate: Not Available.
 Additional Properties:

SECTION 10 - STABILITY AND REACTIVITY

Hazardous Decomposition Products: Thermal decomposition products are toxic and may include oxides of nitrogen.
 Chemical Stability: Stable at room temperature.
 Conditions to Avoid: Contact with water and combustible materials. High temperatures which increase its corrosion rate and fume emissions to the atmosphere. Protect from light.
 Incompatibility with other Substances: Reducing agents. Alkalies and various metals.
 Hazardous Polymerization: Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

Summary: Corrosive! May cause immediate pain. May cause permanent damage if eye is not immediately irrigated. Aspiration of droplets or inhalation of mists may cause chemical pneumonitis. May cause death.

TOXICOLOGICAL DATA:

PRODUCT:

None established for product.

INGREDIENTS:

Nitric Acid:

Oral LDLO (human) 430 mg/kg

Unreported LDLO (human) 110 mg/kg

POTENTIAL HEALTH EFFECTS:

Inhalation: Corrosive! Product may cause severe irritation of the nose, throat and respiratory tract. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary edema (fluid build-up in lungs), and reduction of pulmonary function. Aspiration of droplets or inhalation of mists may cause chemical pneumonitis.

Skin Contact: Corrosive! Concentrated solutions may cause pain and deep and severe burns to the skin. Prolonged and repeated exposure to dilute solutions often causes irritation, redness, pain and drying and cracking of the skin.

Eye Contact: Corrosive! This product causes immediate pain, severe burns and permanent corneal damage which may result in blindness.

Ingestion: Corrosive! Will immediately cause severe corrosion of and damage to the gastrointestinal tract.

Subchronic Effects: None known. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly, shock.

Chronic Effects: None known.

Carcinogenicity: The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

Mutagenicity: There is no evidence of mutagenic potential.

Reproductive Effects: No information is available and no adverse reproductive effects are anticipated.

Teratogenicity and Fetotoxicity: No information is available and no adverse teratogenic/embryotoxic effects are anticipated.

Synergistic Materials: None known.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information: Toxicity is primarily associated with pH. Toxic to aquatic life.

Environmental Effects: Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

Persistence and Degradation: The substance is highly reactive and will not persist in the environment.

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name: Nitric acid, other than red fuming.

Class/Division: 8 (9.2)

Product Identification Number (PIN): UN2031

Packing Group: II

Transportation Emergency Telephone Number: 1-800-424-9300.

SECTION 15 - REGULATORY INFORMATION

OSHA Classification:

Physical: Oxidizer.

Health: Corrosive.

Target Organ: Eye, Skin, Respiratory tract, Gastrointestinal tract, Blood/hematopoietic system.

SARA Regulations Section 313 (40 CFR 372): This product contains the following toxic chemical(s) subject to reporting requirements: 55% Nitric Acid (7697-37-2)

Emergency Planning and Notification (40 CFR 355): This product contains chemical(s) which is/are on the Extremely Hazardous Chemicals list: Hydrogen Nitrate (7697-37-2), TPQ=1000

Ozone Protection and 40 CFR 42: This product does not contain nor is it manufactured with ozone depleting substances.

Other Regulations/Legislation which apply to this product: Florida, New Jersey Special Health Hazard Substance List, Minnesota Hazardous Substance, California Director's List of Hazardous Substances, New Jersey RTK Environmental Hazardous Substance, Pennsylvania Right-to-Know Special, Massachusetts Extraordinarily Hazardous Substance List, Massachusetts Right-to-Know, Pennsylvania Right-to-Know, New Jersey Right-to-Know, CERCLA, National Pollutant Release Inventory.

SECTION 16 - OTHER INFORMATION

Label Text: Danger! Extremely Corrosive! Causes severe burns. May cause delayed lung injury if inhaled. May be fatal if inhaled or ingested. Do not breathe mist or vapours. Wash thoroughly after handling. Wear suitable protective clothing, including chemical gloves and goggles and NIOSH/MSHA-approved respirator. Use with adequate ventilation. Keep away from heat, combustibles, oxidizers, metallic powders and bases. To dilute, add acid slowly to water to avoid spattering.

REFERENCES:

RTECS-Registry of Toxic Effects of Chemical Substances, CCINFO Online, Canadian Centre for Occupational Health and Safety
RTECS database, National Institute for Occupational Safety and Health, U.S. Dept. of Human & Health Services, Cincinnati, 1998.

Supplier's Material Safety Data Sheets

"CHEMINFO", through "CCINFO Online", Canadian Centre for Occupational Health and Safety, Hamilton, Ontario, Canada.

Threshold Limit Values and Biological Exposure Indices for 2001, American Conference of Governmental Industrial Hygienists, Cincinnati, 1997.

Windholz, Martha, Ed., The Merck Index, 11th ed., Merck and Co. Inc., Rahway, New Jersey, 1989.

Prepared By: Safety, Health and Environment (805) 405-5617

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