

MATERIAL SAFETY DATA SHEET**NITRIC ACID <2N**

PRODUCT CODE NUMBER(S): 7528-6, 7529-6, CAL 0761

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** Nitric acid solutions, <2N**Chemical Family:** Mineral acid**Chemical Formula:** HNO₃ in H₂O**Product Use:** Laboratory reagent**Manufacturer's Name and Address:**Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9**Telephone No:** (905) 877-0101**Fax No:** (905) 877-6666**Emergency Telephone No:** CANUTEC (613) 996-6666**HAZARDOUS INGREDIENTS OF MATERIALS**

Ingredients	%	TLV Units	CAS No.
Nitric acid	<12	2 ppm	7697-37-2

PHYSICAL DATA**Physical State:** Liquid**Odour and Appearance:** Clear colourless to light yellow liquid, slight odour.**Odour Threshold (ppm):** Not available**Vapour Pressure (mm Hg):** Similar to water**Vapour Density (Air = 1):** Similar to water**Evaporation Rate:** Similar to water**Boiling Point (degrees C):** Similar to water**Melting Point (degrees C):** Similar to water**pH:** ~3**Specific Gravity:** Similar to water**Coefficient of Water/Oil distribution:** Not available**SHIPPING DESCRIPTION****UN:** Not regulated**T.D.G. Class:** Not regulated**Pkg. Group:** Not regulated**REACTIVITY DATA****Chemical Stability:** Stable under normal conditions**Incompatibility with other substances:** Nitric acid is incompatible with most substances, especially combustible organic materials, alcohols, turpentine, metal powders, hydrogen sulphide, strong bases. Contact with metals may liberate flammable/explosive hydrogen gas. Combustible materials can have increased flammability after contact with nitric acid, and can ignite spontaneously, immediately or after delay.**Reactivity:** This powerful oxidant is the compound most frequently involved in hazardous reactions. Avoid all ignition sources, excessive heat, all incompatible materials.**Hazardous Decomposition Products:** NO_x**FIRE AND EXPLOSION DATA****Flammability:** Not combustible, but a strong oxidizer which can increase the flammability of combustible materials.**Extinguishing Media:** Water as fog or mist in flooding amounts. Water stream may spread fire. Use water to cool containers, disperse vapours, dilute product. Fight fire from safe distance and protected location. Firefighters must wear protective equipment and clothing sufficient to prevent inhalation and contact (full face-piece, positive pressure self-contained breathing apparatus, Bunker Gear).**Flash Point (Method Used):** Not applicable**Autoignition Temperature:** Not applicable**Upper Flammable Limit (% by volume):** Not applicable**Lower Flammable Limit (% by volume):** Not applicable**Hazardous Combustion Products:** Hydrogen gas, NO_x**Sensitivity to Impact:** Some reactions may produce shock-sensitive nitrates**Sensitivity to Static discharge:** None identified**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** Not available**LD_{Lo}:** (hum) 430 mg/kg**LC₅₀:** (inh, rat) 3,124 ppm/1h (conc. HNO₃)**Effects of Acute Exposure to Product:****Inhaled:** Corrosive. Irritates mucous membranes of nose and throat. 2-25 ppm over 8 hours can cause pulmonary irritation and lung damage. Concentrations >200 ppm can cause severe pulmonary damage, pulmonary edema, and death. Onset of symptoms may be delayed for several hours.**In contact with skin:** Corrosive, can cause severe irritation and burns. Severity of damage depends on duration and concentration of exposure. Repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.**In contact with eyes:** Corrosive, can cause severe irritation, burns, and irreversible damage. Severity of damage depends on duration and concentration of exposure.**Ingested:** Corrosive, causes burning and pain in the mouth, throat and abdomen, irritation to gastrointestinal tract. Can cause vomiting, bloody diarrhea and perforation of the esophagus and stomach lining. Aspiration into the lungs during ingestion or vomiting may cause severe lung tissue damage, and may be fatal.**Effects of Chronic Exposure to Product:**

Prolonged or repeated contact to dilute solutions may cause irritation, hardening of the skin, dermatitis. Prolonged or re-

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peated inhalation may cause irritation of respiratory tract, bronchitis, eventual lung damage.

Carcinogenicity: Not listed as carcinogen by NTP.

Teratogenicity: No information available

Reproductive Effects: No information available

Mutagenicity: Negative in one in vitro test on mammalian cells.

Synergistic Products: None found

PREVENTIVE MEASURES

Engineering Controls: Local, corrosion-proof, exhaust ventilation required.

Respiratory Protection: Use in a fumehood. Up to 25 ppm: NIOSH/OSHA approved continuous-flow supplied-air respirator. Up to 50 ppm: air-purifying, full facepiece respirator with canister for nitric acid. For higher or unknown concentrations, as in fire or spill conditions, full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus or full face-piece, positive-pressure self-contained breathing apparatus.

Eye Protection: Chemical safety glasses

Skin Protection: Teflon™, CPF3™, Tychem 10000™ gloves. Other protective clothing, apron, sleeves, coverall, sufficient to prevent any contact.

Other Personal Protective Equipment: Safety shower and eye wash fountains in work area.

Leak and Spill Procedure: Evacuate area. Eliminate all sources of ignition. Keep away from all combustible and organic materials. Cleanup crew must be thoroughly trained in the hazards of this product and its safe use, and must wear respiratory equipment and impervious protective clothing sufficient to prevent inhalation of mists, fumes or vapours, and all contact. Stop the discharge if possible and contain by constructing barriers. Keep from entering sewers or waterways. Absorb on sand or vermiculite and place in closed containers for disposal, reclamation or neutralization. Product can be neutralized with sodium bicarbonate, but this reaction will produce copious amounts of carbon dioxide; ensure adequate ventilation. Contaminated absorbent may pose the same hazards as the product. Ventilate area and wash site with plenty of water.

Waste Disposal: Dispose of in accordance with all federal, provincial and local regulations.

Handling Procedures and Equipment: CORROSIVE. Workers must be thoroughly trained in the hazards of this substance and its safe use. Avoid all contact. Avoid generating mist. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Keep work area clean and free of extraneous materials. Keep away from all combustible or incompatible materials. Follow routine safe handling and good housekeeping procedures. Avoid inhaling vapours.

Storage Requirements: Store in suitable, labelled containers, in a dry, well-ventilated area out of direct sunlight. Store away from incompatible and combustible materials and all ignition sources. Store at temperatures above freezing. The material attacks many forms of rubber, coatings and plastics, store in appropriate containers that are resistant. Keep tightly closed. Storage area should be constructed of non-combustible materials and have raised sills, with trenching to safe area. Protect from damage, and inspect frequently for signs of damage or leaks.

FIRST AID MEASURES

Specific Measures:

Eyes: IMMEDIATELY FLUSH EYES with gently running water for at least twenty to thirty (20-30) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear gloves to prevent contact during first aid procedures. Get medical attention immediately.

Skin: IMMEDIATELY remove contaminated clothing (including shoes, watches, belts, and rings). Wear protective gloves to avoid contact during first aid procedures. IMMEDIATELY flush the exposed area with running water for at least twenty to thirty (20-30) minutes. Place victim under a deluge shower if the exposure was extensive. Take care to completely clean folds, creases, groin, under fingernails. Obtain medical attention immediately. Discard contaminated clothing, shoes, leather goods.

Inhalation: Remove to fresh air. Give oxygen and get medical attention for breathing difficulty.

Ingestion: Do not induce vomiting. If casualty is alert and not convulsing, rinse mouth with water and give 1/2 to 1 cup of water or milk to dilute material. Obtain medical attention. If spontaneous vomiting occurs, have casualty lean forward with head down to avoid breathing in of vomitus, rinse mouth thoroughly and give more water or milk to drink.

REFERENCES USED

CCINFO disc

NIOSH Pocket Guide to Chemical Hazards

Budavari: The Merck Index, 12th ed., 1997

Royal Society of Chemistry: Chemical Safety Data Sheets, Vol. 3, 1990

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: August 6, 1991

Revision: March 2011

MSDS: 7528-6, 7529-6, CAL 0761

Proposed WHMIS Designation: C; D1A; D2A; E (conc. HNO₃)

Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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