

# Material Safety Data Sheet

**Dyno Nobel Inc.**

2650 Decker Lake Boulevard, Suite 300  
Salt Lake City, Utah 84119  
Phone: 801-364-4800 Fax: 801-321-6703  
E-Mail: [dna.hse@am.dynonobel.com](mailto:dna.hse@am.dynonobel.com)

**FOR 24 HOUR EMERGENCY, CALL** CHEMTREC (USA) 800-424-9300  
CANUTEC (CANADA) 613-996-6666

**MSDS # 1023****Date 06/08/09**

Supersedes  
MSDS # 1023 05/30/06

## SECTION I - PRODUCT IDENTIFICATION

**Trade Name:** Nitric Acid**Chemical Name/Product Class:** Nitric Acid**Synonyms:** 53%-68% Nitric Acid, Tower Acid, HNO<sub>3</sub>**Product Appearance & Odor:** Clear to yellowish/brown fuming liquid. Pungent, acrid odor.**DOT Hazard Shipping Description:** UN2031 Nitric Acid 8 II RQ\*

Label: Corrosive

\* "RQ" required only if container (drums, rail tank car, etc.) has 1,000 pounds or more of Nitric Acid.

**NFPA Hazard Classification:** Health (Blue) = 3  
Flammability (Red) = 0  
Reactivity (Yellow) = 0  
Special Hazard (White) = Oxidizer

**HMIS Classification:** Health 3  
Flammability 0  
Reactivity 1  
PPE K

## SECTION II - HAZARDOUS INGREDIENTS

| Ingredients: | CAS#      | % (Range) | Occupational Exposure Limits                       |                     |
|--------------|-----------|-----------|--|---------------------|
|              |           |           | ACGIH TLV-TWA                                      | OSHA PEL-TWA        |
| Nitric Acid  | 7697-37-2 | 53-68     | 5 mg/m <sup>3</sup><br>10 mg/m <sup>3</sup> (STEL) | 5 mg/m <sup>3</sup> |

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in de minimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

## SECTION III - PHYSICAL DATA

**Boiling Point:** 117 - 121°C (243 - 250°F)**Vapor Pressure:** 5.6-7.0 mm Hg at 20°C**Vapor Density:** (Air=1) 2.2**Density:** 1.33-1.41 g/cc @ 20°C**Percent Volatile by Volume:** 100% at 122°C**Solubility in Water:** Complete**Evaporation Rate (Butyl Acetate = 1):** <1**Melting Point:** - 20°C to - 40°C (- 4°F to - 40°F)

# Material Safety Data Sheet

## SECTION IV - FIRE AND EXPLOSION HAZARD DATA

**Flash Point:** Not Applicable

**Flammable Limits:** Not Applicable

**Extinguishing Media:** Water

**Special Fire Fighting Procedures:** Soak with water. Use water spray to cool containers and reduce and knock down vapors. Apply water from as far away as possible and avoid directing water into the acid. Neutralize small amounts of spilled acid with crushed limestone, soda ash or lime. Wear self-contained breathing apparatus and full fire-fighting protective gear.

**Unusual Fire and Explosion Hazards:** Will emit oxides of nitrogen upon heating. Strong oxidizer. May cause spontaneous combustion when in contact with organic or combustible materials. Reacts vigorously with water to liberate heat, fumes of nitric acid or nitrogen oxides.

## SECTION V - HEALTH HAZARD DATA

### Effects of Overexposure

**Eyes:** Will produce severe, immediate damage and may result in permanent damage or loss.

**Skin:** Will produce immediate, penetrating chemical burns, with a characteristic yellow coloration. Severe and fatal skin burns can occur with necrosis and scarring.

**Ingestion:** Will cause immediate irritation, chemical burns to mouth and throat, and may cause hemorrhaging, necrosis and perforation of the gastrointestinal tract. Based on toxicity data for other acids, not expected to be toxic by oral exposure as defined by OSHA.

**Inhalation:** Highly toxic by inhalation as defined by OSHA. Mild exposure may cause irritation and burning of the nose and throat. Extreme inhalation may cause difficult breathing, loss of consciousness, pulmonary edema or death. Lung damage may appear after a delay of up to 48 hours after exposure.

### Emergency and First Aid Procedures

**Eyes:** Irrigate with running water for at least fifteen minutes. Seek immediate medical attention.

**Skin:** Immediately remove contaminated clothing. Flush with running stream of water for at least fifteen minutes. Wash with soap. Seek medical attention.

**Ingestion:** Do not induce vomiting. Drink three or more glasses of water or milk to dilute acid. Seek immediate medical attention.

**Inhalation:** Remove from exposure immediately. Restore or support respiration. Seek immediate medical attention for unprotected exposures beyond exposure limits.

**Special Considerations:** If exposure to Nitric Acid vapor occurs, medical observation should continue for 24 - 48 hours after exposure. Delayed reactions may cause pulmonary edema.

## SECTION VI - REACTIVITY DATA

**Stability:** Stable under normal conditions.

**Conditions to Avoid:** Avoid exposure to sunlight, which promotes oxide formation.

**Materials to Avoid (Incompatibility):** Bases. Organic and combustible materials. Will corrode most metals. Beware of containers, pumps, and hoses of inadequate construction and/or contamination by incompatible materials.

**Hazardous Decomposition Products:** Nitrogen Oxides (NO<sub>x</sub>)

**Hazardous Polymerization:** Will not occur.

# Material Safety Data Sheet

## SECTION VII - SPILL OR LEAK PROCEDURES

**Steps to be taken in Case Material is Released or Spilled:** Evacuate unnecessary personnel to safe area upwind of spill. Nitric acid vapor is denser than air and will concentrate in low spots. If necessary to enter spill area, wear full protective clothing including boots and proper breathing apparatus. Dike large spills and pump to salvage. If not possible to salvage, neutralize with soda ash or lime. If possible, carefully dilute the acid or the neutralizing material with water to slow down exceedingly vigorous neutralization reactions. Water spray can be used to reduce and knock down the vapors. Apply water from as far away as possible and avoid directing it into the acid. Do not get water in salvage containers since a violent reaction may occur. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. Follow Federal, State, and local spill reporting requirements.

**Waste Disposal Method:** Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any hazardous material.

## SECTION VIII - SPECIAL PROTECTION INFORMATION

**Ventilation:** Mechanical ventilation and/or local exhaust is recommended where needed to meet TLV requirement.

**Respiratory Protection:** For concentrations above the exposure limits, use full face supplied air respirator approved by NIOSH for nitric acid or nitrogen oxide gases or mists. **Chemical cartridge or canister respirators are not suitable for nitric acid or nitrogen oxide use.**

**Protective Clothing:** Neoprene or PVC gloves are required. Where spill or splash potential exists, rubberized aprons or chemical resistant suits are strongly recommended.

**Eye Protection:** Acid proof goggles and face shield should be required where acid is transferred, sampled, or where persons are otherwise potentially exposed. Eye baths should be provided when direct contact is possible.

**Other Precautions Required:** Provide safety showers and eyewash in immediate vicinity.

## SECTION IX - SPECIAL PRECAUTIONS

**Precautions to be Taken in Handling and Storage:** Store in clean, cool, well-ventilated area away from organic chemicals, bases, and metal powders.

**Other Precautions:** Avoid hydrocarbon lubricants and packing materials. Corrosion-resistant materials, such as stainless steel, must be used.

## SECTION X - SPECIAL INFORMATION

This product contains the following substances that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

| Chemical Name | CAS Number | % By Weight |
|---------------|------------|-------------|
| Nitric Acid   | 7697-37-2  | 53 – 68%    |

Moderately toxic to aquatic organisms based on algae data and on fish data for other acids as defined by USEPA.

### Disclaimer

Dyno Nobel Inc. and its subsidiaries disclaim any warranties with respect to this product, the safety or suitability thereof, the information contained herein, or the results to be obtained, whether express or implied, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND/OR OTHER WARRANTY. The information contained herein is provided for reference purposes only and is intended only for persons having relevant technical skills. Because conditions and manner of use are outside of our control, the user is responsible for determining the conditions of safe use of the product. Buyers and users assume all risk, responsibility and liability whatsoever from any and all injuries (including death), losses, or damages to persons or property arising from the use of this product or information. Under no circumstances shall either Dyno Nobel Inc. or any of its subsidiaries be liable for special, consequential or incidental damages or for anticipated loss of profits.