

## Safety Data Sheet

### 1. IDENTIFICATION

**Product Identifier:** Nitric Acid Solution, 1-6 N, 5-50% v/v, 30% w/w, 40% w/w

**Product Code(s):** N1006, N1011, N1012, N1013, N1015, N1016, N1022, N1037, CF1092, CF1138

**Synonyms:** Azotic Acid Solution; Aqua Fortis Solution

**Recommended Use:** For manufacturing, industrial, and laboratory use only. Use for neutralization of basic systems, as a catalyst, as a solvent, or as a laboratory reagent.

**Uses Advised Against:** Not for food, drug, or household use.

**Supplier:** Rocky Mountain Reagents, Inc.  
4621 Technology Drive, Golden, CO 80403  
Phone: (303) 762-0800 Fax: (303) 762-1240

**Emergency Phone Number:** (800) 255-3924 (CHEM-TEL)

### 2. HAZARDS IDENTIFICATION

**Hazard Classifications:** Skin Corrosion/Irritation: Category 1A  
Eye Damage/Irritation: Category 1

**Signal Word:** DANGER

**Hazard Statements:** Causes severe skin burns and serious eye damage.

**Pictograms:**



**Precautionary Statements:**

**Prevention:** Do not breathe fumes, mists, vapors or spray.  
Wash thoroughly after handling.  
Wear protective gloves, protective clothing, eye protection, and face protection.

**Response:** Immediately call a poison center or doctor.  
If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Storage:** Store locked up.

**Disposal:** Dispose of contents and container in accordance with local, regional, national, and international regulations.

**Hazards Not Otherwise Classified:** May be harmful if vomited and enters airways.  
May cause cancer based on animal data.

**Toxicity Statement:** Not applicable.

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Water	Water	7732-18-5	H <sub>2</sub> O	44 – 95
Nitric Acid	Azotic Acid; Aqua Fortis	7697-37-2	HNO <sub>3</sub>	5.0 – 56

**Trade Secret Statement:** Not applicable.

### 4. FIRST AID MEASURES

#### First Aid Procedures:

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious, or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

**Skin Contact:** Wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician immediately.

**Eye Contact:** Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

**General Advice:** Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that those providing first aid and medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**Symptoms and Effects:** Irritation, burning, ulceration, coughing, wheezing, choking sensation, pneumonia, pulmonary edema, spasm, laryngitis, shortness of breath, headache, nausea, vomiting. Corrosive. Oxidizer. Harmful if swallowed, inhaled, or absorbed through the skin. Causes irritation of the eyes, skin, respiratory tract, and gastrointestinal tract. May enter lungs if swallowed or vomited. Liquid and vapors are corrosive. May cause tissue damage.

Prolonged or repeated exposure may cause tooth decay, reproductive effects, teratogenic effects, and cancer.

**Immediate Medical Care/  
Special Treatment:** Immediate medical attention is required. Call a physician or poison control center immediately. Treat symptomatically.

## 5. FIREFIGHTING MEASURES

**Suitable Extinguishing Media:** Water spray, dry powder, alcohol resistant foam, carbon dioxide.

**Unsuitable Extinguishing Media:** Do not use a solid (straight) water stream, as it may scatter and spread fire.

**Hazardous Combustion  
Products:** Hydrogen, nitrogen oxides.

**Specific Hazards:** Contact with metals may produce hydrogen gas. Excess thermal conditions or contact with combustible materials may cause decomposition and yield nitrogen oxides.

**Special Protective Equipment/  
Precautions for Firefighters:** As in any fire, wear MSHA/NIOSH-approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions and  
Protective Equipment:** Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.

**Emergency Procedures:** Evacuate surrounding personnel as needed. In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

**Methods for Containment:** Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Product should not be released to the environment. Contain and recover liquid when possible.

**Methods for Cleanup:** Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be diluted with water and neutralized with alkaline material such as soda ash or lime. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

## 7. HANDLING AND STORAGE

**Handling:** Wear personal protective equipment (see Section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes, and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues (vapors, liquids). Observe all warnings and precautions listed for this product. As with all acids, never add water directly to this product. Instead, add acids to water to prevent violent eruption of the solution.

**Storage:** Store in a cool, dry, ventilated area. Store in a segregated and approved area away from heat and incompatible materials (see Section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs.

Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

<b>Exposure Limits:</b>	Water:	No information found.		
	Nitric Acid:	OSHA (PEL):	TWA:	2 ppm
			STEL:	4 ppm
		ACGIH (TLV):	TWA:	2 ppm
			STEL:	4 ppm

**Engineering Controls:** Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

### Personal Protective Measures:

**Eye/Face Protection:** Wear safety glasses with side shields or goggles. Wear a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

**Skin Protection:** Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

**Respiratory Protection:** An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a full-face, positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

**Specific Requirements for Personal Protective Equipment:** Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

*Unless otherwise indicated, all properties are given at 25 °C and standard pressure.*

<b>Appearance:</b>	Colorless, transparent liquid.
<b>Odor:</b>	Acrid. Irritating.
<b>Odor Threshold:</b>	No information found.
<b>Formula Weight:</b>	63.01 as HNO <sub>3</sub>
<b>pH:</b>	< 1 at 20 °C
<b>Melting/Freezing Point:</b>	< 0 °C
<b>Boiling Point/Range:</b>	> 100 °C
<b>Decomposition Temperature:</b>	No information found.
<b>Flash Point:</b>	Not applicable.
<b>Auto-ignition Temperature:</b>	Not applicable.
<b>Flammability:</b>	Not flammable.
<b>Flammability/Explosive Limits:</b>	Not applicable.
<b>Solubility:</b>	Miscible with water.

<b>Vapor Pressure:</b>	No information found.
<b>Vapor Density:</b>	No information found.
<b>Specific Gravity:</b>	1.02 – 1.40 (Water = 1)
<b>Evaporation Rate:</b>	No information found.
<b>Viscosity:</b>	No information found.
<b>Partition Coefficient (n-octanol/water):</b>	No information found.

## 10. STABILITY AND REACTIVITY

<b>Reactivity Data:</b>	Corrosive; oxidizer. See section 11.
<b>Chemical Stability:</b>	Stable under normal conditions.
<b>Conditions to Avoid:</b>	Excessive heat, incompatible materials.
<b>Incompatible Materials:</b>	Strong bases, reducing agents, metals, combustible materials.
<b>Hazardous Decomposition Products:</b>	Nitrogen oxides, hydrogen.
<b>Possibility of Hazardous Reactions:</b>	May react vigorously, violently, or explosively with the incompatible materials listed above. Excess thermal conditions may yield hazardous nitrogen oxides. Contact with metals may produce hazardous concentrations of hydrogen gas.
<b>Hazardous Polymerization:</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>Routes of Exposure:</b>	Inhalation, ingestion, skin contact, eye contact.												
<b>Acute Effects:</b>	Corrosive. Oxidizer. Harmful if swallowed, inhaled, or absorbed through the skin. Causes irritation of the eyes, skin, respiratory tract, and gastrointestinal tract. May enter lungs if swallowed or vomited. Liquid and vapors are corrosive. May cause tissue damage.												
<b>Chronic Effects:</b>	Prolonged or repeated exposure may cause tooth decay, reproductive effects, teratogenic effects, and cancer.												
<b>Toxicological Data:</b>	<table> <tr> <td>Water:</td> <td colspan="2">Not applicable.</td> </tr> <tr> <td>Nitric Acid:</td> <td>LC<sub>50</sub> Inhalation, Rat:</td> <td>67 mg/L 4 h</td> </tr> <tr> <td></td> <td>LDLo Oral, Human:</td> <td>430 mg/kg</td> </tr> <tr> <td></td> <td colspan="2">Causes severe burns based on human and animal data.</td> </tr> </table>	Water:	Not applicable.		Nitric Acid:	LC <sub>50</sub> Inhalation, Rat:	67 mg/L 4 h		LDLo Oral, Human:	430 mg/kg		Causes severe burns based on human and animal data.	
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<b>Symptoms of Exposure:</b>	Irritation, burning, ulceration, coughing, wheezing, choking sensation, pneumonia, pulmonary edema, spasm, laryngitis, shortness of breath, headache, nausea, vomiting.												
<b>Carcinogenic Effects:</b>	This product may cause cancer.												
<b>IARC:</b>	Nitric Acid: 2A – Probably carcinogenic to humans												

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Data:** Water: Not applicable.

Nitric Acid: No information found.

**Persistence and Degradability:** No information found.

**Environmental Effects:** May be toxic to aquatic life. May leach into groundwater. Avoid release to the environment.

## 13. DISPOSAL INFORMATION

**Disposal Instructions:** All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers.

**Contaminated Packaging:** Because emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

**Waste Codes:** D002: Waste Corrosive Material (pH  $\leq$  2 or pH  $\geq$  12.5 or corrosive to steel)

## 14. TRANSPORT INFORMATION

**DOT:**

**UN Number:** UN2031

**Proper Shipping Name:** Nitric acid

**Hazard Class:** 8

**Packing Group:** II

**ERG Number:** 157

**Environmental Hazard Regulations:** No information found.

**Other Transport Precautions:** No information found.

## 15. REGULATORY INFORMATION

**U.S. Federal Regulations:**

**OSHA:** This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Inventory:** All components of this product are on the U.S. TSCA Inventory.

**U.S. EPCRA (SARA Title III):**

**Section 302:** Extremely Hazardous Substance: Nitric Acid  
Reportable Quantity: 1000 lb  
Threshold Planning Quantity: 1000 lb

**Sections 311/312:**

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	Yes
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

**Section 313:** Nitric Acid: Threshold Value: 1.0%

**CERCLA Reportable Quantities:** Nitric Acid: 1000 lb

**International Inventories:**

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

\*A "Yes" indicates that the listed components of this product comply with the inventory requirements administered by the governing country or region.

<b>16. OTHER INFORMATION</b>
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**Issue Date:**

July 31, 2019

**Reason for Revision:**

Update of product identifier and product codes information in Sections 1. Supersedes 07/31/2019 version.