

# Safety Data Sheet

## SECTION 1 – IDENTIFICATION

### Name, Address, and Telephone of the Responsible Party

**Dyno Nobel Inc.**

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**SDS #:** 1024

**Date:** 05/15/2015

Supersedes: 12/20/2012

### Product Identifier

**Product Form:** Substance

**Product Name:** Nitric Acid, Strong

**Chemical Name/Product Class:** Nitric Acid

### Other Means of Identification

#### Synonyms:

98% Low Oxide Nitric Acid

Aqua Fortis

Hydrogen Nitrate, (Not Red Fuming)

HNO<sub>3</sub>

### Intended Use of the Product

Industrial applications

### Emergency Telephone Number

**FOR 24 HOUR EMERGENCY, CALL** CHEMTREC (USA) 800-424-9300

CANUTEC (CANADA) 613-996-6666

## SECTION 2 – HAZARD(S) IDENTIFICATION

### Classification of the Substance or Mixture

#### Classification (GHS-US)

Ox. Liq. 3

H272

Met. Corr. 1

H290

Skin Corr. 1A

H314

Eye Dam. 1

H318

#### Label Elements

#### GHS-US Labeling

#### Hazard Pictograms (GHS-US)



GHS03



GHS05

#### Signal Word (GHS-US)

: Danger

#### Hazard Statements (GHS-US)

: H272 - May intensify fire; oxidizer

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

#### Precautionary Statements (GHS-US)

: P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.

P220 - Keep/Store away from combustible materials.

P221 - Take any precaution to avoid mixing with combustible materials.

P234 - Keep only in original container.

P260 - Do not breathe vapors, mist, spray.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling.

P280 - Wear eye protection, protective clothing, protective gloves, face shield.

# Safety Data Sheet

P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 - Immediately call a POISON CENTER or doctor/physician.  
P321 - Specific treatment (see Section 4).  
P363 - Wash contaminated clothing before reuse.  
P370+P378 - In case of fire: Use appropriate media to extinguish.  
P390 - Absorb spillage to prevent material damage.  
P405 - Store locked up.  
P406 - Store in corrosive resistant container with a resistant inner liner.  
P501 - Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.

## Other Hazards

**Hazards Not Otherwise Classified (HNOC):** Corrosive to the respiratory tract. When diluting, always add acid to water and not water to acid.

## SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

### Substances

Name	Product identifier	% (w/w)	Ingredient Classification (GHS-US)
Nitric acid	(CAS No) 7697-37-2	98 - 100	Ox. Liq. 3, H272 Met. Corr. 1, H290 Skin Corr. 1A, H314 Eye Dam. 1, H318

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).

Full text of H-phrases: see section 16

## SECTION 4 - FIRST AID MEASURES

### Description of First Aid Measures

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

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

**Skin Contact:** Will produce immediate, penetrating chemical burns, with a characteristic yellow coloration. Severe and fatal skin burns can occur with necrosis and scarring. Remove contaminated clothing. Drench affected area with water for at least 60 minutes. Seek immediate medical attention.

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

**Ingestion:** Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

### Most Important Symptoms and Effects Both Acute and Delayed

**General:** Causes severe skin burns and eye damage. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

**Inhalation:** Inhalation may cause immediate severe irritation progressing quickly to chemical burns. Lungs may be affected by repeated or prolonged exposure to the vapor. 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. The

# Safety Data Sheet

substance may have effects on the teeth, resulting in teeth erosion.

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

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

**Ingestion:** Will cause immediate irritation, chemical burns to mouth and throat, and may cause hemorrhaging, necrosis and perforation of the gastrointestinal tract.

**Chronic Symptoms:** None expected under normal conditions of use.

**Indication of Any Immediate Medical Attention and Special Treatment Needed**

If exposed, seek immediate medical attention. If exposure to Nitric Acid vapor occurs, professional medical observation should continue for 24 - 48 hours after exposure. Delayed reactions may cause pulmonary edema.

## SECTION 5 - FIRE-FIGHTING MEASURES

### Extinguishing Media

**Suitable Extinguishing Media:** 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 firefighting protective gear.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. A heavy water stream may spread burning liquid. Apply water from as far away as possible and avoid directing water into the acid.

### Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Not flammable but will support combustion. May intensify fire; oxidizer.

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

**Reactivity:** Contact with metals may evolve flammable hydrogen gas. Violent exothermic reaction with water (moisture): release of corrosive gases/vapors. The substance decomposes on warming producing nitrogen oxides. The substance is a strong oxidant and reacts violently with combustible and reducing materials, e.g., turpentine, charcoal, alcohol. The substance is a strong acid, it reacts violently with bases and is corrosive to metals

**Reference to Other Sections:** Refer to section 9 for flammability properties.

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Evacuate unnecessary personnel to safe area upwind of spill. Nitric Acid vapor is heavier than air and will concentrate in low spots. If necessary to enter spill area, wear full protective clothing including boots and proper supplied air 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 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.

### For Non-Emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE) suitable for response to nitric acid.

**Emergency Procedures:** Evacuate unnecessary personnel.

### For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper skin and body 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.**

**Emergency Procedures:** Stop leak if safe to do so. Eliminate ignition sources. Mechanical ventilation and/or local exhaust is recommended where needed to meet the TLV requirement.

### Environmental Precautions

Prevent entry to sewers and public waters.

# Safety Data Sheet

## Methods and Material for Containment and Cleaning Up

**For Containment:** Dike large spills and pump to salvage. If not possible to salvage, neutralize with soda ash or lime. If possible, carefully dilute the neutralizing material with water to slow down exceedingly vigorous neutralization reactions. Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as saw dust or cellulosic material.

**Methods for Cleaning Up:** 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 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.

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.

### Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see section 13.

## SECTION 7 - HANDLING AND STORAGE

### Precautions for Safe Handling

**Additional Hazards When Processed:** May be corrosive to metals.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and forearms thoroughly after handling. Do not eat, drink or smoke when using this product.

### Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Store in clean, cool, well-ventilated area away from organic chemicals, bases, and metal powders. Avoid hydrocarbon lubricants and packing materials. Aluminum storage tanks are required. Dilution of 98% Nitric Acid with water will subject aluminum storage tanks to excessive corrosion.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Metals. Organic materials. Chlorides.

**Special Rules on Packaging:** Store in original container or corrosive resistant and/or lined container.

### Specific End Use(s)

Industrial applications.

## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

#### Nitric acid (7697-37-2)

Mexico	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Mexico	OEL TWA (ppm)	2 ppm
Mexico	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Mexico	OEL STEL (ppm)	4 ppm
USA ACGIH	ACGIH TWA (ppm)	2 ppm
USA ACGIH	ACGIH STEL (ppm)	4 ppm
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (ppm)	2 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (TWA) (ppm)	2 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
USA NIOSH	NIOSH REL (STEL) (ppm)	4 ppm
USA IDLH	US IDLH (ppm)	25 ppm

# Safety Data Sheet

Alberta	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Alberta	OEL STEL (ppm)	4 ppm
Alberta	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
Alberta	OEL TWA (ppm)	2 ppm
British Columbia	OEL STEL (ppm)	4 ppm
British Columbia	OEL TWA (ppm)	2 ppm
Manitoba	OEL STEL (ppm)	4 ppm
Manitoba	OEL TWA (ppm)	2 ppm
New Brunswick	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
New Brunswick	OEL STEL (ppm)	4 ppm
New Brunswick	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
New Brunswick	OEL TWA (ppm)	2 ppm
Newfoundland & Labrador	OEL STEL (ppm)	4 ppm
Newfoundland & Labrador	OEL TWA (ppm)	2 ppm
Nova Scotia	OEL STEL (ppm)	4 ppm
Nova Scotia	OEL TWA (ppm)	2 ppm
Nunavut	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Nunavut	OEL STEL (ppm)	4 ppm
Nunavut	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
Nunavut	OEL TWA (ppm)	2 ppm
Northwest Territories	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Northwest Territories	OEL STEL (ppm)	4 ppm
Northwest Territories	OEL TWA (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
Northwest Territories	OEL TWA (ppm)	2 ppm
Ontario	OEL STEL (ppm)	4 ppm
Ontario	OEL TWA (ppm)	2 ppm
Prince Edward Island	OEL STEL (ppm)	4 ppm
Prince Edward Island	OEL TWA (ppm)	2 ppm
Québec	VECD (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Québec	VECD (ppm)	4 ppm
Québec	VEMP (mg/m <sup>3</sup> )	5.2 mg/m <sup>3</sup>
Québec	VEMP (ppm)	2 ppm
Saskatchewan	OEL STEL (ppm)	4 ppm
Saskatchewan	OEL TWA (ppm)	2 ppm
Yukon	OEL STEL (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
Yukon	OEL STEL (ppm)	4 ppm
Yukon	OEL TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
Yukon	OEL TWA (ppm)	2 ppm

## Exposure Controls

**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

**Personal Protective Equipment:** Protective goggles. Face shield. Gloves. Protective clothing. If insufficient ventilation: wear respiratory protection.



# Safety Data Sheet

**Materials for Protective Clothing:** Corrosion-proof clothing.

**Hand Protection:** PVC gloves are required.

**Eye Protection:** Chemical goggles or face shield.

**Skin and Body Protection:** Rubber apron, boots. Where spill or splash potential exists, chemical resistant PVC suits are strongly recommended.

**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.**

**Environmental Exposure Controls:** Do not allow the product to be released into the environment.

**Consumer Exposure Controls:** Do not eat, drink or smoke during use

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Light yellowish/brown-fuming liquid
Odor	: Pungent, acrid odor
Odor Threshold	: Not available
pH	: Not available
Relative Evaporation Rate (butylacetate=1)	: > 1
Melting Point	: -42 °C (-44 °F)
Freezing Point	: Not available
Boiling Point	: 86 °C (187 °F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: 38 mm Hg @ 20 °C (68 °F)
Relative Vapor Density at 20 °C	: 2.2 (Air=1)
Relative Density	: Not available
Density	: 1.51 g/cc @ 20 °C (68 °F)
Specific Gravity	: Not available
Solubility	: Complete in water
Partition coefficient: n-octanol/water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge.

## SECTION 10 - STABILITY AND REACTIVITY

**Reactivity:** Contact with metals may evolve flammable hydrogen gas. Violent exothermic reaction with water (moisture): release of corrosive gases/vapors.

**Chemical Stability:** Stable under recommended handling and storage conditions (see section 7).

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Heat. Sparks. Overheating. Open flame.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Metals. Organic materials. Chlorides.

**Hazardous Decomposition Products:** Nitrogen oxides (NOx). Thermal decomposition generates corrosive vapors.

# Safety Data Sheet

## SECTION 11 - TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects - Product

**Acute Toxicity:** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Causes severe skin burns and eye damage.

**Serious Eye Damage/Irritation:** Causes serious eye damage.

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Teratogenicity:** Not classified

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Inhalation may cause immediate severe irritation progressing quickly to chemical burns. Lungs may be affected by repeated or prolonged exposure to the vapor. 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. The substance may have effects on the teeth, resulting in teeth erosion.

**Symptoms/Injuries After Skin Contact:** Causes serious burns.

**Symptoms/Injuries After Eye Contact:** Causes serious eye damage.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

**Chronic Symptoms:** None expected under normal conditions of use.

## SECTION 12 - ECOLOGICAL INFORMATION

**Toxicity** Not classified

**Persistence and Degradability** Not available

**Bioaccumulative Potential**

**Nitric acid (7697-37-2)**

Log Pow

-2.3 (at 25 °C)

**Mobility in Soil** Not available

**Other Adverse Effects**

**Other Information:** Avoid release to the environment.

## SECTION 13 - DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** 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 14 - TRANSPORT INFORMATION

### 14.1 In Accordance with DOT

**Proper Shipping Name** : NITRIC ACID other than red fuming, with more than 70 percent nitric acid

**Hazard Class** : 8

**Identification Number** : UN2031

**Label Codes** : 8,5.1

**Packing Group** : I

**ERG Number** : 157







### 14.2 In Accordance with IMDG

**Proper Shipping Name** : NITRIC ACID

**Hazard Class** : 8



# Safety Data Sheet

<b>Identification Number</b>	: UN2031		
<b>Packing Group</b>	: I		
<b>Label Codes</b>	: 8,5.1	 	
<b>EmS-No. (Fire)</b>	: F-A		
<b>EmS-No. (Spillage)</b>	: S-Q		
<b>14.3 In Accordance with IATA</b>			
<b>Proper Shipping Name</b>	: NITRIC ACID		
<b>Packing Group</b>	: I		
<b>Identification Number</b>	: UN2031	 	
<b>Hazard Class</b>	: 8		
<b>Label Codes</b>	: 8,5.1		
<b>ERG Code (IATA)</b>	: 8X		
<b>14.4 In Accordance with TDG</b>			
<b>Proper Shipping Name</b>	: NITRIC ACID other than red fuming, with more than 70 per cent nitric acid		
<b>Packing Group</b>	: I		
<b>Hazard Class</b>	: 8		
<b>Identification Number</b>	: UN2031	 	
<b>Label Codes</b>	: 8,5.1		

## SECTION 15 - REGULATORY INFORMATION

### US Federal Regulations

#### 1024 Nitric Acid, Strong

<b>SARA Section 311/312 Hazard Classes</b>	Immediate (acute) health hazard Reactive hazard
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#### Nitric acid (7697-37-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on SARA Section 302 (Specific toxic chemical listings)  
Listed on SARA Section 313 (Specific toxic chemical listings)

<b>SARA Section 302 Threshold Planning Quantity (TPQ)</b>	1000
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<b>SARA Section 313 - Emission Reporting</b>	1.0 %
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### US State Regulations

#### Nitric acid (7697-37-2)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
U.S. - Pennsylvania - RTK (Right to Know) List

### Canadian Regulations

#### 1024 Nitric Acid, Strong

<b>WHMIS Classification</b>	Class C - Oxidizing Material Class E - Corrosive Material
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#### Nitric acid (7697-37-2)

Listed on the Canadian DSL (Domestic Substances List) inventory.  
Listed on the Canadian Ingredient Disclosure List



# Safety Data Sheet

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Revision date** : 05/15/2015  
**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

### GHS Full Text Phrases:

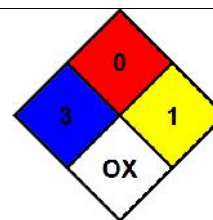
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Met. Corr. 1	Corrosive to metals Category 1
Ox. Liq. 3	Oxidizing liquids Category 3
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

**NFPA Health Hazard** : 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

**NFPA Fire Hazard** : 0 - Materials that will not burn.

**NFPA Reactivity** : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

**NFPA Specific Hazard** : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



### Party Responsible for the Preparation of This Document

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Dyno Nobel SDS