

Nitric acid solution

sc-301479



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

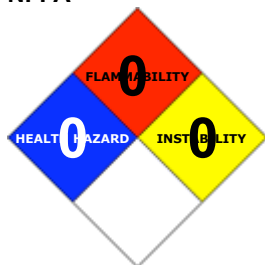
PRODUCT NAME

Nitric acid solution

STATEMENT OF HAZARDOUS NATURE

Not considered a hazardous substance according to OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	■
Toxicity:	0	■
Body Contact:	0	■
Reactivity:	0	■
Chronic:	0	■

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

None

EMERGENCY OVERVIEW RISK

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material has NOT been classified as "harmful by ingestion".

This is because of the lack of corroborating animal or human evidence.

EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

SKIN

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

INHALED

■ Not normally a hazard due to non-volatile nature of product.

■ The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified using animal models).

Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
nitric acid	7697-37-2	<1
water	7732-18-5	>99

Section 4 - FIRST AID MEASURES

SWALLOWED

■ If poisoning occurs, contact a doctor or Poisons Information Center. · If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. · Observe the patient carefully. · Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious · Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. · Seek medical advice.

EYE

■ If this product comes in contact with eyes: · Wash out immediately with water. · If irritation continues, seek medical attention.

SKIN

■ If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Other measures are usually unnecessary.

NOTES TO PHYSICIAN

■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	17.251 @ 20C
Upper Explosive Limit (%):	Not Applicable
Specific Gravity (water=1):	1.0
Lower Explosive Limit (%):	Not Applicable

EXTINGUISHING MEDIA

· There is no restriction on the type of extinguisher which may be used.

Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.

· Wear breathing apparatus plus protective gloves for fire only.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Non combustible.

· Not considered to be a significant fire risk.

· Expansion or decomposition on heating may lead to violent rupture of containers.

· Decomposes on heating and may produce toxic/ irritating fumes.

· May emit acrid smoke.

Decomposition may produce toxic fumes of: nitrogen oxides (NOx).

FIRE INCOMPATIBILITY

■ None known.

PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

1.NEOPRENE 2.BUTYL 3.VITON

Respirator:
Type AE-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapors and contact with skin and eyes.

MAJOR SPILLS

- Minor hazard.
- Clear area of personnel.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- Glass container.
- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	nitric acid (Nitric acid)	2	5.2	4	10				
Canada - British Columbia Occupational Exposure Limits	nitric acid (Nitric acid)	2		4					
US - Minnesota Permissible Exposure Limits (PELs)	nitric acid (Nitric acid)	2	5	4	10				
US OSHA Permissible Exposure Levels (PELs) - Table Z1	nitric acid (Nitric acid)	2	5						
US ACGIH Threshold Limit Values (TLV)	nitric acid (Nitric acid)	2		4					TLV Basis: upper respiratory tract & eye irritation; dental erosion
US NIOSH Recommended Exposure Limits (RELs)	nitric acid (Nitric acid)	2	5	4	10				
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	nitric acid (Nitric acid)	2	5	4	10				

US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	nitric acid (Nitric acid)	2	5		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	nitric acid (Nitric acid)	2	5	4	10
US - California Permissible Exposure Limits for Chemical Contaminants	nitric acid (Nitric acid)	2	5	4	10
US - Idaho - Limits for Air Contaminants	nitric acid (Nitric acid)	2	5		
US - Hawaii Air Contaminant Limits	nitric acid (Nitric acid)	2	5	4	10
US - Alaska Limits for Air Contaminants	nitric acid (Nitric acid)	2	5	4	10
US - Michigan Exposure Limits for Air Contaminants	nitric acid (Nitric acid)	2	5	4	10
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	nitric acid (Nitric acid)	2	5	4	10
US - Washington Permissible exposure limits of air contaminants	nitric acid (Nitric acid)	2		4	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	nitric acid (Nitric acid)	2		4	
Canada - Prince Edward Island Occupational Exposure Limits	nitric acid (Nitric acid)	2		4	
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	nitric acid (Nitric acid)	2	5		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	nitric acid (Nitric acid)	2	5.2	4	10

TLV Basis:
upper
respiratory
tract & eye
irritation;
dental
erosion

US - Oregon Permissible Exposure Limits (Z-1)	nitric acid (Nitric acid)	2	5		
Canada - Northwest Territories Occupational Exposure Limits (English)	nitric acid (Nitric acid)	2	5.2	4	10
Canada - Nova Scotia Occupational Exposure Limits	nitric acid (Nitric acid)	2		4	

TLV Basis:
upper
respiratory
tract & eye
irritation;
dental
erosion

ENDOELTABLE

The following materials had no OELs on our records

- water: CAS:7732-18-5

PERSONAL PROTECTION



RESPIRATOR

Type AE-P Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields
- Chemical goggles.

HANDS/FEET

- Wear general protective gloves, e.g., light weight rubber gloves.

OTHER

- No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Barrier cream.

ENGINEERING CONTROLS

- General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°F)	Not Available	Viscosity	Not Available
Boiling Range (°F)	Not Available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not Available
Autoignition Temp (°F)	Not Applicable	Vapor Pressure (mmHg)	17.251 @ 20C
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	1.0
Lower Explosive Limit (%)	Not Applicable	Relative Vapor Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

APPEARANCE

Colourless, odourless acidic liquid; mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Segregate from strong alkalis.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

Rowe 0.1M Nitric Acid

TOXICITY AND IRRITATION

ROWE 0.1M NITRIC ACID:

- Not available. Refer to individual constituents.

NITRIC ACID:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (human) LDLo: 430 mg/kg	Nil Reported
Inhalation (rat) LC50: 2500 ppm/1h * * DuPont	
Unreported (man) LDLo: 110 mg/kg	
Inhalation (Cat) LC: 500 mg/m ³ /4h	
Inhalation (Rat) LC50: 130 mg/m ³ /4h	
Oral (Human) LD: 430 mg/kg	
Inhalation (Cat) TCLo: 300 mg/m ³ /2h	

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

Oral (?) LD50: 50-500 mg/kg *

[Various Manufacturers]

WATER:

- No significant acute toxicological data identified in literature search.

CARCINOGEN

US - Rhode Island Hazardous Substance List

IARC

Section 12 - ECOLOGICAL INFORMATION

No data

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
nitric acid			LOW	

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

Regulations for ingredients

nitric acid (CAS: 7697-37-2) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits", "Canada - British Columbia Occupational Exposure Limits", "Canada - Northwest Territories Occupational Exposure Limits (English)", "Canada - Nova Scotia Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Industrial Hazardous Substances", "Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits", "Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances", "Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada National Pollutant Release Inventory (NPRI)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - Alaska Limits for Air Contaminants", "US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELS)", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Toxic Air Contaminant List Category II", "US - Connecticut Hazardous Air Pollutants", "US - Hawaii Air Contaminant Limits", "US - Idaho - Limits for Air Contaminants", "US - Massachusetts Oil & Hazardous Material List", "US - Michigan Exposure Limits for Air Contaminants", "US - Minnesota Hazardous Substance List", "US - Minnesota Permissible Exposure Limits (PELs)", "US - New Jersey Right to Know Hazardous Substances", "US - Oregon Hazardous Materials", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US ACGIH Threshold Limit Values (TLV)", "US CWA (Clean Water Act) - List of Hazardous Substances", "US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances", "US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest", "US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA Acute Exposure Guideline Levels (AEGs) - Interim", "US EPA High Production Volume Chemicals Additional List", "US EPCRA Section 313 Chemical List", "US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US NFPA 1 Annex B Typical Oxidizers", "US NIOSH Recommended Exposure Limits (RELs)", "US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives", "US OSHA Permissible Exposure Levels (PELs) - Table Z1", "US SARA Section 302 Extremely Hazardous Substances", "US Toxic Substances Control Act (TSCA) - Inventory", "USA: Chemical Facility Anti-Terrorism Standards - List Appendix A - 6CFR 27"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - Pennsylvania - Hazardous Substance List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion", "US Toxic Substances Control Act (TSCA) - Inventory", "US TSCA Section 8 (a) Inventory Update Rule (IUR) - Partial Exemptions"

No data for Rowe 0.1M Nitric Acid (CW: 25-9243)

Section 16 - OTHER INFORMATION

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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