



Material Safety Data Sheet

Creation Date 12-Mar-2009

Revision Date 12-Mar-2009

Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Nitric acid (65 - 70%)
Cat No. A198C-212, A200-212, A200-212LC, A200-500, A200-500LC, A200-612GAL, A200C-212, A200S-212, A200S-212LC, A200S-500, A200SI-212, A206C-212, A467-1, A467-2, A467-250, A467-500, A483-212, A509-212, A509-212LC, A509-500, A509-SK212, A509-SK212LC
Synonyms Azotic acid; Engraver's acid; Aqua fortis
Recommended Use Laboratory chemicals

Company Fisher Scientific
Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300
 One Reagent Lane
 Fair Lawn, NJ 07410
 Tel: (201) 796-7100
5. HAZARDS IDENTIFICATION

DANGER!
Emergency Overview
 Oxidizer: Contact with combustible/organic material may cause fire. Causes severe burns by all exposure routes. May cause pulmonary edema.
Appearance Clear Colorless, Light yellow
Physical State Liquid
Odor strong Acid

Target Organs Eyes, Respiratory system, Skin, Teeth, Kidney, Gastrointestinal tract (GI)
Potential Health Effects
 Causes severe burns. May cause blindness or permanent eye damage. Causes severe burns. May be harmful in contact with skin. Causes severe burns. May cause pulmonary edema. May be harmful if inhaled. Ingestion causes burns of the upper digestive and respiratory tract. May be harmful if swallowed.
Acute Effects
Principle Routes of Exposure
 Eyes
 Skin
 Inhalation
 Ingestion

Thermo Fisher Scientific - Nitric acid (65 - 70%)

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Chronic Effects

Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. May cause adverse kidney effects. Experiments have shown reproductive toxicity effects on laboratory animals.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions Preexisting eye disorders. Skin disorders.

3. CHEMICAL AND PHYSICAL INFORMATION

Haz/Non-haz	Component	CAS-No	Weight %
	Nitric acid	7697-37-2	65 - 70
	Water	7732-18-5	30 - 35

4. FIRST AID MEASURES

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.
Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point Not applicable
Method No information available.
Autoignition Temperature No information available.
Explosion Limits No data available
 Upper
 Lower
Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media No information available.
Hazardous Combustion Products No information available.
Sensitivity to mechanical impact No information available.
Sensitivity to static discharge No information available.

Specific Hazards Arising from the Chemical
 Oxidizer: Contact with combustible/organic material may cause fire. Corrosive Material. Causes severe burns by all exposure routes. Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

NFPA	Health 4	Flammability 0	Instability 0	Physical hazards OX
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Personal Precautions

Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions

Should not be released into the environment.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Keep away from clothing and other combustible materials.

Handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Keep away from clothing and other combustible materials. Do not breathe vapors/dust. Do not ingest. Contents under pressure.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials.

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

Component Nitric acid	ACGIH TLV TWA: 2 ppm STEL: 4 ppm	OSHA PEL (Vacated) TWA: 2 ppm (Vacated) STEL: 10 mg/m ³ (Vacated) TWA: 5 mg/m ³ (Vacated) STEL: 4 ppm TWA: 2 ppm TWA: 5 mg/m ³	NIOSH IDLH IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m ³ STEL: 10 mg/m ³ STEL: 4 ppm
Component Nitric acid	Quebec TWA: 2 ppm TWA: 5.2 ppm ³ STEL: 10 mg/m ³ STEL: 4 ppm	Mexico OEL (TWA) TWA: 2 ppm TWA: 5 mg/m ³ STEL: 10 mg/m ³ STEL: 4 ppm	Ontario TWAEV TWA: 2 ppm TWA: 5 mg/m ³ STEL: 10 mg/m ³ STEL: 4 ppm

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment
Eye/Face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Wear appropriate protective gloves and clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.



Physical State

Liquid

Clear Colorless, Light yellow

strong Acid

No information available.

Odor Threshold

1.0 (0.1M)

pH

0.37 - 0.40 kPa

Vapor Pressure

No information available.

Viscosity

No information available.

Boiling Point/Range

120.5°C / 248.9°F

Melting Point/Range

-41°C / -41.8°F

Decomposition temperature °C

No information available.

Flash Point

Not applicable

Evaporation Rate

No information available.

Specific Gravity

1.41

Solubility

No information available.

log Pow

No data available

Molecular Weight

63.02

Molecular Formula

HNO3



Stability

Oxidizer: Contact with combustible/organic material may cause fire.

Conditions to Avoid

Incompatible products: Combustible material. Excess heat.

Incompatible Materials

Strong bases. Reducing agents. Organic materials, Aldehydes, Alcohols, Cyanides, Métaux, Powdered metals, Ammonia

Hazardous Decomposition Products

Nitrogen oxides (NOx)

Hazardous Polymerization

Hazardous polymerization does not occur.

Hazardous Reactions

None under normal processing.



Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid	Not listed	Not listed	7 mg/L (Rat) 1 h
Water	> 90 mL/kg Oral LD50 Rat	> 90 mL/kg Oral LD50 Rat	130 mg/m ³ (Rat) 4 h > 90 mL/kg Oral LD50 Rat

Irritation
Causes severe burns by all exposure routes

Toxicologically Synergistic Products
No information available.

Chronic Toxicity
There are no known carcinogenic chemicals in this product

Sensitization
No information available.

Mutagenic Effects
No information available.

Reproductive Effects
Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects
No information available.

Teratogenicity
Teratogenic effects have occurred in experimental animals.

Other Adverse Effects
See actual entry in RTECS for complete information.

Endocrine Disruptor Information
No information available

Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nitric acid	Not listed	LC50= 72 mg/L Gambusia affinis 96 h	Not listed	Not listed

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available

Mobility

Component	log Pow
Nitric acid	-2.3

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

DOT

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

TDG

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

IATA

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

IMDG/IMO

UN-No UN2031
Proper Shipping Name NITRIC ACID
Hazard Class 8
Subsidiary Hazard Class 5.1
Packing Group II

All of the components in the product are on the following inventory lists: All of the components in the product are on the following inventory lists.

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Nitric acid	Present	X	-	231-714-2	-	-	X	X	X	X	KE-25911 X
Water	Present	Present	-	-	-	-	Present	-	Present	Present	KE-35400 X

Legend:
 X - Listed
 E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
 F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
 N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
 P - Indicates a commercial PMN substance
 R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
 S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
 T - Indicates a substance that is the subject of a Section 4 test rule under TSCA
 XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e., Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
 Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
 Y2 - Indicates an exempt polymer that is a polyester, and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nitric acid	7697-37-2	65 - 70	1.0

SARA 311/312 Hazardous Categorization

- Acute Health Hazard No
- Chronic Health Hazard No
- Fire Hazard No
- Sudden Release of Pressure Hazard No
- Reactive Hazard No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nitric acid	X	1000 lb		

Clean Air Act
 Not applicable

OSHA

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Nitric acid		TQ: 500 lb

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances ROs	CERCLA EHS ROs
Nitric acid	1000 lb	1000 lb

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nitric acid	X	X	X	X	X

U.S. Department of Transportation

- Reportable Quantity (RQ) Y
- DOT Marine Pollutant N
- DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Nitric acid	2000 lb STQ

Other International Regulations

Mexico - Grade No information available

Canada

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

WHMIS Hazard Class

- C Oxidizing materials
- E Corrosive material



Prepared By

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Revision Summary

..... and red text indicates revision

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Page 9 of 9

