

114105

**** MATERIAL SAFETY DATA SHEET ****

Nitric Acid
16550

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Nitric Acid

Catalog Numbers:

S71972, S71972-1, S75623-2, S75623-3, S76523, A198C 212, A198C-212, A198C212, A198C4X 212, A198C4X212, A200 212, A200 500, A200 612GAL, A200-212, A200-500, A200-612G, A200-612GAL, A200-612GL, A200212, A200500, A200612GAL, A200C-2.5, A200C-212, A200C212EA, A200C4X 212, A200C4X212, A200C4X212 1, A200C4X2121, A200C4X2122, A200C4X212L, A200FP 500, A200FP500, A200J500, A200S 500, A200S-2.5, A200S-212, A200S-500, A200S4X212, A200S4X2123, A200S4X212L, A200S500, A200SI 212, A200SI-21, A200SI-212, A200SI212, A200SI21201, A200SI212LC, A206C 212, A206C-212, A206C212, A206C4X 212, A206C4X212, A206C4X212, A467 500, A467-1, A467-2, A467-250, A467-500, A4672, A467500, A483 212, A483-212, A483212, A509 212, A509 212 002, A509 500, A509-212, A509-500, A509212, A509212 002, A509212001, A509212002, A509212003, A509212004, A5092122005, A509212LC, A509500, A509SK212, A510SK212, NC9619321, S71972-1MF*, S719721, S719721MF, S71972MF, S71972MF*, S71972SC

Synonyms:

Azotic Acid; Engravers Nitrate; Hydrogen Nitrate.

Company Identification: Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7697-37-2	Nitric acid	68-70	231-714-2
7732-18-5	Water	29-31%	231-791-2

Hazard Symbols: O C
Risk Phrases: 35 8

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear to yellow.

Danger: Strong oxidizer. Contact with other material may cause a fire. Corrosive. Causes eye and skin burns. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns.

Target Organs: No data found.
Potential Health Effects

Eye: Causes severe eye burns. May cause irreversible eye injury. May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin burns. May cause deep, penetrating ulcers of the skin. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects.

Inhalation: Effects may be delayed. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema.

Chronic: Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause erosion of teeth. Effects may be delayed.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes: Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Use water with caution and in flooding amounts.

Extinguishing Media:

Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Contact professional fire-fighters immediately.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Neutralize spill with sodium bicarbonate. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Do not breathe dust, vapor, mist, or gas. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not get on skin or in eyes. Avoid ingestion and inhalation. Discard contaminated shoes.

Storage:

Keep away from heat, sparks, and flame. Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Nitric acid	2 ppm; 4 ppm STEL	2 ppm TWA; 5 mg/m3 TWA 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA
Water	none listed	none listed	none listed

OSHA Vacated PELs:

Nitric acid:
2 ppm TWA; 5 mg/m3 TWA
Water:

No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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.

Skin: Wear appropriate gloves to prevent skin exposure.

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Clothing: Wear a chemical apron. Wear appropriate clothing to prevent skin exposure.
Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: clear to yellow
Odor: strong odor - acrid odor
pH: 1.0
Vapor Pressure: 6.8 mm Hg
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 186.8 deg F
Freezing/Melting Point: -43.6 deg F
Autoignition Temperature: Not available.
Flash Point: Not published.
NFPA Rating: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
Decomposition Temperature: Not available.
Solubility: Soluble in water.
Specific Gravity/Density: 1.50
Molecular Formula: HNO3
Molecular Weight: 63.0119

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability: Stable. Decomposes when in contact with air, light, or organic matter.
Conditions to Avoid: High temperatures, incompatible materials, ignition sources, dust generation, moisture, combustible materials, reducing agents.
Incompatibilities with Other Materials: Reducing agents, acids (organic, e.g. acetic acid, benzoic acid, formic acid, methanoic acid, ethanoic acid), alcohols and glycols (e.g. butyl alcohol, ethanol, methanol, ethylene glycol), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, formaldehyde), amides (e.g. butyramide, diethyltoluamide, dimethyl formamide), amines (aliphatic and aromatic, e.g. dimethyl amine, propylamine, pyridine, triethylamine), azo, diazo, and hydrazines (e.g. dimethyl hydrazine, hydrazine, methyl hydrazine), carbamates (e.g. carbamate, carbofuran), caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), cyanides (e.g. potassium cyanide, sodium cyanide), dithiocarbamates (e.g. ferbam, maneb, metham, thiram), esters (e.g. butyl acetate, ethyl acetate, propyl formate), ethers (e.g. dioxane, furfuran, tetrahydrofuran (THF)), fluorides (inorganic, e.g. ammonium fluoride, calcium fluoride, cesium fluoride), hydrocarbons (aromatic, e.g. benzene, chrysene, cumen).
Hazardous Decomposition Products: Nitrogen oxides.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#: CAS# 7697-37-2: Q05775000 Q05900000
CAS# 7732-18-5: ZC0110000
LD50/LC50: Not available.
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Carcinogenicity: Nitric acid - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology: No information found.
Teratogenicity: No information found.
Reproductive Effects: No information found.
Neurotoxicity: No information found.
Mutagenicity: No information found.
Other Studies: See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

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Other: For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: NITRIC ACID
Hazard Class: 8
UN Number: UN2031
Packing Group: II
Canadian TDG
Shipping Name: NITRIC ACID
Hazard Class: 8 (9.2)
UN Number: UN2031

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 7697-37-2 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
CAS# 7697-37-2: final RQ = 1000 pounds (454 kg)
Section 302 (TFQ)
CAS# 7697-37-2: TPQ = 1000 pounds; RQ = 1000 pounds
SARA Codes
CAS # 7697-37-2: acute, chronic, flammable.
Section 313
This material contains Nitric acid (CAS# 7697-37-2, 68 70%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone Depletors.
This material does not contain any Class 2 Ozone Depletors.
Clean Water Act:
CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
CAS# 7697-37-2 is considered highly hazardous by OSHA.
STATE
Nitric acid can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: O C
Risk Phrases:
R 35 Causes severe burns.
R 8 Contact with combustible material may cause fire.
Safety Phrases:
S23B Do not breathe fumes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36 Wear suitable protective clothing.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
WGK (Water Danger/Protection)
CAS# 7697-37-2: 1
CAS# 7732-18-5: No information available.
United Kingdom Occupational Exposure Limits
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL
CAS# 7697-37-2: OES-United Kingdom, TWA 2 ppm TWA; 5.2 mg/m3 TWA
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL
CAS# 7697-37-2: OES-United Kingdom, STEL 4 ppm STEL; 10 mg/m3 STEL

Canada

CAS# 7697-37-2 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of C, D1A, E.
CAS# 7697-37-2 is not listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 7697-37-2: OEL-ARAB Republic of Egypt:TWA 2 ppm (5 mg/m3)
OEL-AUSTRALIA:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-BELGIUM:TWA 2 ppm (5.2 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-CZECHOSLOVAKIA:TWA 2.5 mg/m3;STEL 5 mg/m3
OEL-DENMARK:TWA 2 ppm (5 mg/m3)
OEL-FINLAND:TWA 2 ppm (5 mg/m3);STEL 5 ppm (13 mg/m3);Skin
OEL-FRANCE:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL-GERMANY:TWA 10 ppm (25 mg/m3)
OEL-HUNGARY:STEL 5 mg/m3
OEL-JAPAN:TWA 2 ppm (5.2 mg/m3)
OEL-THE PHILIPPINES:TWA 2 ppm (5 mg/m3)
OEL-POLAND:TWA 10 mg/m3
OEL-RUSSIA:TWA 2 ppm;STEL 2 mg/m3;Skin
OEL-SWEDEN:TWA 2 ppm (5 mg/m3);STEL 5 ppm (13 mg/m3)
OEL-SWITZERLAND:TWA 2 ppm (5 mg/m3);STEL 4 ppm (1 mg/m3)
OEL-THAILAND:TWA 2 ppm (5 mg/m3)
OEL-TURKEY:TWA 2 ppm (5 mg/m3)
OEL-UNITED KINGDOM:TWA 2 ppm (5 mg/m3);STEL 4 ppm (10 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/30/1998 Revision #5 Date: 4/30/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.