Material Safety Data Sheet

Nitric acid, 20-70%
MSDS# 16550

Section 1 - Chemical Product and Company Identification

MSDS Name:
Nitric acid, 20-70%
Catalog Numbers:
J/5550C/05, J/5550C/90, N/2170/PB15, N/2170/PB21, N/2185/PB15, N/2185/PB17,
N/2200/PB17, N/2222/21, N/2222/PB17, N/2250/15, N/2250/17, N/2250/25,
N/2250/PB15, N/2250/PB17, N/2271/PB07, N/2271/PB08, N/2271/PB15,
N/2271/PB17, N/2275/07, N/2275/08, N/2275/15, N/2277/08, N/2300/15,
N/2300/17, N/2300/26, N/2300/PB08, N/2300/PB15, N/2300/PB15W, N/2300/PB17,
N/2300/PC17, PS/418
Synonyms:
Azotic acid; Engraver's acid; Aqua fortis.
Company Identification:Fisher Scientific UK
Bishop Meadow Road, Loughborough
Leics. LE11 5RG
For information in Europe, call:(01509) 231166
Emergency Number, Europe:
01509 231166

Section 2 - Composition, Information on Ingredients

CAS#: 7697-37-2
Chemical Name: Nitric acid
%: 20-70
EINECS#: 231-714-2
Hazard Symbols:
Risk Phrases:

CAS#: 7732-18-5
Chemical Name: Water
%: 30-80
EINECS#: 231-791-2
Hazard Symbols:
Risk Phrases:

Text for R-phrases: see Section 16
Hazard Symbols:
C
Risk Phrases:
35

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Causes severe burns.
Potential Health Effects
Eye:
Causes severe eye burns. Direct contact with liquid may cause blindness or permanent eye damage.
Skin:
Causes skin burns. May cause deep, penetrating ulcers of the skin. Concentrated nitric acid dyes human skin yellow on contact.
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:

Exposure to high concentrations of nitric acid vapor may cause pneuomonitis and pulmonary edema which may be fatal. Symptoms may or may not be delayed. Continued exposure to the vapor & mist of nitric acid may result in a chronic bronchitis, & more severe exposure results in a chemical pneumonitis. The vapor & mists of nitric acid may erode the teeth, particularly affecting the canines & incisors.

Section 4 - First Aid Measures

Eyes:

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

Skin:

Get medical aid immediately. Immediately flush skin with plenty of 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 and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. 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 supportively.

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 other material may cause 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. May react with metal surfaces to form flammable and explosive hydrogen gas. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

Extinguishing Media:
Use extinguishing media most appropriate for the surrounding fire.

Section 6 - Accidental Release Measures

General Information:
Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust. Provide ventilation. Evacuate unnecessary personnel. Approach spill from upwind. Use water spray to cool and disperse vapors and protect personnel.

Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Discard contaminated shoes. Do not use with metal spatula or other metal items. Use only with adequate ventilation or respiratory protection.
Storage:
Do not store near combustible materials. Do not store in direct sunlight. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Store away from alkalies. Separate from organic materials. Inspect periodically for damage or evidence of leaks or corrosion.

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 general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use a corrosion-resistant ventilation system.
Exposure Limits
CAS# 7697-37-2:
United Kingdom, WEL - TWA: 2 ppm TWA; 5.2 mg/m3 TWA
United Kingdom, WEL - STEL: 4 ppm STEL; 10 mg/m3 STEL
United States OSHA: 2 ppm TWA; 5 mg/m3 TWA
Belgium - TWA: 2 ppm VLE; 5.3 mg/m3 VLE
Belgium - STEL: 4 ppm VLE; 10 mg/m3 VLE
France - VME: 2 ppm VME; 5 mg/m3 VME
France - VLE: 4 ppm VLE; 10 mg/m3 VLE
Germany: 2 ppm TWA (exposure factor 1); 5.2 mg/m3 TWA (exposure factor 1)
Japan: 2 ppm OEL; 5.2 mg/m3 OEL
Malaysia: 2 ppm TWA; 5.2 mg/m3 TWA
Netherlands: 0.5 ppm STEL; 1.3 mg/m3 STEL
Spain: 2 ppm VLA-ED; 5.2 mg/m3 VLA-ED
Spain: 4 ppm VLA-EC; 10 mg/m3 VLA-EC

CAS# 7732-18-5:
Personal Protective Equipment
Eyes:
Wear chemical splash goggles and face shield.
Skin:
Wear appropriate gloves to prevent skin exposure.
Clothing:
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
Color:	clear to yellow
Odor:	strong odor - acrid odor - suffocating odor
pH:	1.0 (0.1M soln)
Vapor Pressure:	51 mm Hg @ 25 deg C
Viscosity:	0.761 cps @ 25 deg C
Boiling Point:	86 deg C (186.80□F)
Freezing/Melting Point:	-42 deg C (-43.60□F)
Autoignition Temperature:	Not available.
Flash Point:	Not applicable.
Explosion Limits: Lower:	Not available
Explosion Limits: Upper:	Not available
Decomposition Temperature:	Not available
Solubility in water:	Soluble in water.
Specific Gravity/Density:	1.4
Molecular Formula:	HNO3
Molecular Weight:	63.01

Section 10 - Stability and Reactivity

Chemical Stability:
Stable. Decomposes when in contact with air, light, or organic matter. The yellow color is due to release of nitrogen dioxide on exposure to light.
Conditions to Avoid:
High temperatures, light, confined spaces.
Incompatibilities with Other Materials
Metals, reducing agents, strong bases, acetic acid, alcohols, acetone, aniline, hydrogen sulfide, metal powders, carbides, aldehydes, organic solvents, combustible materials, chromic acid, flammable liquids, cyanides, sulfides, Incompatible with many substances.
Hazardous Decomposition Products
Nitrogen oxides.
Hazardous Polymerization
Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 7697-37-2: QU5775000 QU5900000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
RTECS: CAS# 7697-37-2: Inhalation, rat: LC50 = 260 mg/m3/30M; Inhalation, rat: LC50 = 130 mg/m3/4H; Inhalation, rat: LC50 = 67 ppm(NO2)/4H;.
RTECS: CAS# 7732-18-5: Oral, rat: LD50 = >90

mL/kg;.
Carcinogenicity:
Nitric acid -
Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Water -
Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other:
See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Other:

Section 13 - Disposal Considerations

Products considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location.
Contact a specialist disposal company or the local authority or advice. Empty containers must be decontaminated before returning for recycling.

Section 14 - Transport Information

IATA

Shipping Name:	NITRIC ACID
Hazard Class:	8
UN Number:	2031
Packing Group:	II

IMO

Shipping Name:	NITRIC ACID
Hazard Class:	8
UN Number:	2031
Packing Group:	II

RID/ADR

Shipping Name:	NITRIC ACID
Hazard Class:	8
UN Number:	2031
Packing Group:	II

USA RQ: CAS# 7697-37-2: 1000 lb final RQ; 454 kg final RQ

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: C
Risk Phrases:
R 35 Causes severe burns.
Safety Phrases:
S 23 Do not inhale gas/fumes/vapour/spray.
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: Not available
Canada
CAS# 7697-37-2 is listed on Canada's DSL List
CAS# 7732-18-5 is listed on Canada's DSL List
US Federal
TSCA
CAS# 7697-37-2 is listed on the TSCA Inventory.

CAS# 7732-18-5 is listed on the TSCA Inventory.

Section 16 - Other Information

Text for R-phrases from Section 2

MSDS Creation Date:

9/30/1998

Revision #14 Date

7/12/2006

Revisions were made in Sections:

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