

Nitric Acid (Intermediate strength)

1 - IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY

Trade name	Intermediate strength nitric acid, 65% – 70%
Designation	Chemical intermediate
Company address	GrowHow UK Ltd, Ince, Chester CH2 4LB
Telephone	+44 (0) 151 357 2777
Telefax	+44 (0) 151 357 1755
E-mail address	info@growhow.co.uk
Technical queries	+44 (0) 1642 542 873
In case of Emergency, telephone	+44 (0) 1642 546 800

2 – HAZARDS IDENTIFICATION

Human Health

Skin contact	}	Causes severe burns to all parts of the body.
Eye Contact		
Ingestion		
Inhalation		Vapour is corrosive to the airways. Fluid build up in the lungs can occur after severe exposure with consequential shortness of breath and may cause acute pulmonary oedema. Some lung effects may be delayed.
Long Term Effects		Not known
Fire and Thermal		Inhalation of decomposition gases can produce oxides of nitrogen and hydrogen with effects detailed above.
Environment		Spillage should be contained prior to neutralisation/recovery. See Section 6.
Other		Contact with combustible materials may cause fire. Reaction with most common metals liberates toxic oxides of nitrogen and hydrogen.

3 – COMPOSITION / INFORMATION ON INGREDIENTS

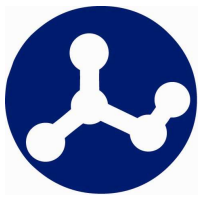
CAS Number	Nitric acid	7697-37-2
	Demineralised water	7732-18-5
EC (EINECS) Number		231-714-2
Alternative names	Aqua fortis, Azotic acid	
Molecular Formula	HNO ₃	
Product description	A clear liquid varying in colour from 'water-white' to pale straw.	
Form	Liquid	
Concentration	65% -70%	
Classification	Corrosive. Oxidising	

4 - FIRST AID MEASURES

Product

IN ALL CASES OF CONTACT WITH NITRIC ACID SEEK IMMEDIATE MEDICAL ATTENTION

Skin contact	Continued washing of the affected area, with copious amounts of water, until medical help arrives.
Eye contact	Immediately irrigate all parts of the eye with eye wash solution or clean water, holding eyelids apart with assistance, if available. Continue irrigation until medical assistance arrives.
Ingestion	Do not induce vomiting. Give large quantities of water or milk to drink. Never give liquids to an unconscious person.



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Inhalation

Remove from source of exposure. Give oxygen if there is 'blueness' around the mouth. Apply artificial resuscitation if breathing stops. Keep under observation as symptoms may be delayed.

Fire and Decomposition Products

Skin contact

Wash affected areas as for exposure detailed above.

Inhalation

Remove from source of exposure to fumes/vapours. Keep warm and at rest even though no symptoms may be evident. See section on 'Inhalation' above.

5 - FIRE FIGHTING MEASURES

If product is not directly involved in the fire:

Oxides of nitrogen may be evolved if the fire causes decomposition of the product. Keep containers cool, where possible.

If product is involved in the fire:

Nitric acid is not combustible. Call the fire brigade. Avoid breathing fumes (toxic). Approach from upwind of the fire. Use a self-contained breathing apparatus if fumes are being entered. Fight the fire appropriate to the materials involved. Consider effects of reaction between other materials and nitric acid. Contain fire fighting water if contaminated. Inform the local authorities immediately if water containing nitric acid enters any drains or watercourse.

Extinguishing media

Fight the fire appropriate to the materials involved.

6 - ACCIDENTAL RELEASE MEASURES

Spillages

Any spillage of nitric acid should be approached wearing appropriate levels of personal protection. Do not allow spillages to mix with combustible or organic substances. Absorb spillages with dry sand, earth, proprietary absorbents or other inert material. Depending on the degree or nature of contamination, dispose of by firstly neutralising with anhydrous sodium carbonate, a solution of sodium carbonate or lime. Take care to avoid contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.

7 - HANDLING & STORAGE

Handling

Basic personal protective equipment, (PPE), includes, PVC gloves, chemical goggles, Wellington boots or rubber boots and PVC overalls. Individuals should make a judgement as to whether equivalent items are suitable for use. Provide adequate ventilation and do not breathe fumes. Do not exceed recommended exposure levels.

Storage

Bulk nitric acid is best stored in low-carbon stainless steels, e.g. 316L or 304L. Plastics are often used for storing and transporting smaller quantities. Keep away from heat, direct sunlight, reducing agents, combustible materials and substances mentioned in Section 10.

For further information see: GrowHow UK Limited brochure; **Nitric Acid, Storage & Handling**.
For further technical information contact GrowHow on the telephone number in Section 1

8 - EXPOSURE CONTROL / PERSONAL PROTECTION

Workplace Exposure Limits

Hazardous ingredients	Workplace Exposure Limits			
	Long-term exposure limit (8 hr TWA reference period)		Short-term exposure limit (15 min reference period)	
	ppm	mg/m ⁻³	ppm	mg/m ⁻³
Nitric acid	-	-	1	2.6

Definition: TWA = Time weighted average. Concentration in ppm or mg/m³ of a chemical component multiplied by the time of each individual sampling period, summed for all samples taken during an interval and divided by the total sampling time.
Definition Copyright 1989 CRC Press LLC. All rights reserved.

Precautionary/Engineering Measures

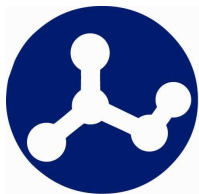
Local Exhaust Ventilation may be required to reduce exposure levels in certain circumstances

Personal Protection

See Section 7.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid. Evolves vapours at all strengths but vapours increase as the strength increases.
 Colour : Almost colourless through to pale yellow at higher strengths.
 Odour : Fumes are acid and choking.
 pH : Highly acidic



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Melting point	:	-30°C (65%),	-38°C (70%)
Boiling point	:	120°C	
Vapour pressure (Pascals)	:	733 (70%)	
Liquid density (20°C) gm/cm ³	:	1.392 at 65%,	1.413 at 70%
Solubility in water	:	Soluble in water with evolution of heat.	
Vapour density (Air = 1)	:	2 approx.	

10 - STABILITY AND REACTIVITY

Stability	Nitric acid is stable under normal conditions of storage, handling and use.
Materials to avoid	Contact with combustible materials, reducing agents, strong bases, organic materials, finely divided metals, chlorates and carbides.
Hazardous Reactions and Decomposition Products	Avoid close proximity to sources of heat or fire. Reaction with most common metals liberates toxic oxides of nitrogen and hydrogen. See also sections 3 and 9.

11 - TOXICOLOGICAL INFORMATION

General	Nitric acid can be fatal if swallowed or inhaled in sufficient quantity. It will immediately cause corrosion of, and damage to the gastrointestinal tract. The severity of acute effects is such that significant repeated or prolonged exposure is unlikely.
Toxicity Data	Nitric acid LC ₅₀ (inhalation, rat) 244 ppm (NO ₂)/30 m, 67 ppm (NO ₂)/4 hrs Nitric acid LD ₅₀ (oral, rat) >90 mg/kg. May cause methaemoglobinaemia (see Section 3).

12 - ECOLOGICAL INFORMATION

Mobility	The NO ₃ ⁻ ion is mobile.
Persistence/Degradability	Nitrogen follows the natural nitrification / denitrification cycle to give nitrogen or nitrogen oxides.
Bio-accumulation	The substance has a low potential for bio-accumulation.
Eco-toxicity	Large discharges may contribute to the acidification of water and be harmful to aquatic life.

13 - DISPOSAL CONSIDERATIONS

Disposal	Dispose of in a manner consistent with prevailing local, national or state regulations.
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14 - TRANSPORT INFORMATION

Air

ICA O/IATA Class	- primary : 8	- subsidiary : 5.1
UN packing group (air)	: II	

Sea

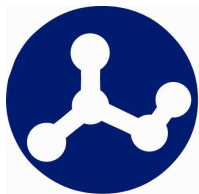
IMDG Class	- primary : 8	- subsidiary : 5.1
UN packing group	: II	
Proper Shipping Name	: UN 2031, NITRIC ACID	

Road and Rail

UN No. and proper shipping name	: UN 2031, NITRIC ACID
UN Classification	: Class 8, 5.1. Corrosive & Oxidising
Packing Group	: II
Emergency Action Code	: 2R
ADR HIN	: 85

UK TANKER REGULATIONS: DANGEROUS GOODS

Emergency Action Code	: 2R
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15 - REGULATORY INFORMATION

EU Directives & Regulations	96/82/EC (Control of Major Accident Hazards involving Dangerous Substances) and 2003/105/EC (amendment)
	ADR, (Accord Dangereuse Routiers) 1 st Jan 2009
UK Legislation	Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP 3)
	The Carriage of Dangerous Goods and use of Transportable Pressure Equipment Regulations 2009
	Control of Major Accident Hazards (COMAH) Regulations 1999 and Amendment Regulations 2005
	Occupational Exposure Limits and Monitoring Strategies – Guidance Notes EH40/2000 and HSG173
	Dangerous Goods Emergency Action Code List 2009
EEC Classification	<ul style="list-style-type: none">• CORROSIVE, OXIDISING
Risk Phrases	<ul style="list-style-type: none">• R 35 Causes severe burns
Safety Phrases	<ul style="list-style-type: none">• S 23 Do not breathe fumes
	<ul style="list-style-type: none">• S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
	<ul style="list-style-type: none">• S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection
	<ul style="list-style-type: none">• S 45 In case of accident or if you feel unwell, seek medical advice immediately, (show the label where possible)

16 - OTHER INFORMATION

This safety data sheet provides health and safety information. The product is to be used in applications consistent with GrowHow literature.

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. Please consult GrowHow Technical Services Manager for any further advice. The product information in this data sheet is to the Company's knowledge correct at the date of publication. The user should contact the Company for updated advice and in any event must be satisfied that the product is entirely suited for its purpose. The Company accepts no liability for any loss or damage (other than that arising from death or personal injury caused by negligence if proved) resulting from reliance on this information.

Freedom from patent restrictions cannot be assumed.

Reference	Intermediate nitric acid
Revision Number	2 Growhow
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