

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**  
Trade name **Nitric acid, Acculute Standard Volumetric Solution, Final Concentration 1.0N**  
Stock number: 88564  
EC number: 231-714-2  
Index number: 007-004-00-1

**1.2 Relevant identified uses of the substance or mixture and uses advised against.**  
Identified use: SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**  
Manufacturer/Supplier: Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com  
Product safety Tel + +049 (0) 7275 988687-0

**Informing department:** Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)  
**1.4 Emergency telephone number:** Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**  
Classification according to Regulation (EC) No 1272/2008



GHS03 flame over circle

Ox. Liq. 2 H272 May intensify fire; oxidiser.



GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

C; Corrosive

R35: Causes severe burns.

O; Oxidising

R8: Contact with combustible material may cause fire.

**Information concerning particular hazards****for human and environment:**  
**Other hazards that do not result in**

Not applicable

No information known.

**2.2 Label elements**  
Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

Signal word

Hazard statements

**Precautionary statements**

The substance is classified and labelled according to the CLP regulation.

GHS03, GHS05

Danger

H272 May intensify fire; oxidiser.

H314 Causes severe skin burns and eye damage.

P221 Take any precaution to avoid mixing with combustibles.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**2.3 Other hazards**

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

CAS# Designation:

Nitric acid, Acculute Standard Volumetric Solution, Final Concentration 1.0N

Identification number(s):

EC number:

231-714-2

Index number:

007-004-00-1

**SECTION 4: First aid measures****4.1 Description of first aid measures**

General information

After inhalation

Instantly remove any clothing soiled by the product.

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

After skin contact

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing agents

Use fire fighting measures that suit the environment.

**5.2 Special hazards arising from the substance or mixture**This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. If this product is involved in a fire, the following can be released:  
Nitrogen oxides (NOx)

**Trade name Nitric acid, Acculute Standard Volumetric Solution, Final Concentration 1.0N**

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**5.3 Advice for firefighters**  
**Protective equipment:** Wear self-contained breathing apparatus.  
Wear full protective suit.

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

**6.2 Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach sewage system or water bodies.  
Do not allow to enter the ground/soil.

**6.3 Methods and material for containment and cleaning up:** Use neutralizing agent.  
Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Absorb with liquid-binding material.

**Prevention of secondary hazards:** Acts as an oxidizing agent on organic materials such as wood, paper and fats  
Keep away from combustible material.

**6.4 Reference to other sections** See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling** Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.

**Information about protection against explosions and fires:** Substance/product can reduce the ignition temperature of flammable substances.  
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

**7.2 Conditions for safe storage, including any incompatibilities**

**Storage Requirements to be met by storerooms and containers:** No special requirements.

**Information about storage in one common storage facility:** Store away from flammable substances.  
Store away from reducing agents.  
Do not store with organic materials.  
Store away from metal powders.

**Further information about storage conditions:** Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Store in a locked cabinet or with access restricted to technical experts or their assistants.

**7.3 Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

**Additional information about design of technical systems:** Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**8.1 Control parameters**  
**Components with critical values that require monitoring at the workplace:**

Nitric acid	
	ppm
ACGIH TLV	2; 4-STEL
Austria MAK	2
Belgium TWA	2; 4-STEL
Denmark TWA	2
Finland TWA	2; 5-STEL (skin)
France VME	2; 5-VLE
Germany MAK	2
Hungary	5 mg/m3-STEL
Japan OEL	2
Korea TLV	2; 4-STEL
Norway TWA	2
Poland TWA	5 mg/m3; 10 mg/m3-STEL
Russia TWA	2; 2 mg/m3-STEL (skin)
Sweden NGV	2; 5-KTV
United Kingdom LTEL	2; 4-STEL
USA PEL	2
<b>Additional information:</b>	No data

**8.2 Exposure controls**  
**Personal protective equipment**  
**General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.  
Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.  
Use breathing protection with high concentrations.  
Check protective gloves prior to each use for their proper condition.  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Breathing equipment:**

**Protection of hands:**

**Material of gloves**  
**Penetration time of glove material**  
**Eye protection:**

Impervious gloves  
Not determined  
Tightly sealed safety glasses.  
Full face protection  
Protective work clothing.

**Body protection:**

DE/E

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Trade name **Nitric acid, Acculute Standard Volumetric Solution, Final Concentration 1.0N**

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Liquid
<b>Colour:</b>	Light yellow
<b>Smell:</b>	Characteristic
<b>Odour threshold:</b>	Not determined.

<b>pH-value:</b>	Not determined.
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**Change in condition**

<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined

<b>Flash point:</b>	Not applicable
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	Not determined
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<b>Inflammability (solid, gaseous)</b>	Not determined.
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<b>Ignition temperature:</b>	Not determined
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<b>Decomposition temperature:</b>	Not determined
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<b>Self-inflammability:</b>	Not determined.
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<b>Critical values for explosion:</b>	
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<b>Lower:</b>	Not determined
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<b>Upper:</b>	Not determined
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<b>Steam pressure:</b>	Not determined
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<b>Density</b>	Not determined
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<b>Relative density</b>	Not determined.
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<b>Vapour density</b>	Not determined.
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<b>Evaporation rate</b>	Not determined.
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<b>Solubility in / Miscibility with</b>	
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<b>Water:</b>	Fully miscible
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<b>Partition coefficient (n-octanol/water):</b>	Not determined.
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<b>Viscosity:</b>	
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<b>dynamic:</b>	Not determined.
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<b>kinematic:</b>	Not determined.
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<b>9.2 Other information</b>	No further relevant information available.
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**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	May intensify fire; oxidiser.
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<b>10.2 Chemical stability</b>	Stable under recommended storage conditions.
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<b>Thermal decomposition / conditions to be avoided:</b>	No decomposition if used and stored according to specifications.
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<b>10.3 Possibility of hazardous reactions</b>	Reacts with metals forming hydrogen
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	Reacts with reducing agents
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	Reacts with flammable substances
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<b>10.5 Incompatible materials:</b>	Bases
	Alkali metals
	Alkaline earth metals
	Cyanides
	Sulfides
	Flammable substances
	Reducing agents
	Organic materials
	Metal powders

<b>10.6 Hazardous decomposition products:</b>	Nitrogen oxides (NO <sub>x</sub> )
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**SECTION 11: Toxicological information****11.1 Information on toxicological effects**

<b>Acute toxicity:</b>	Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
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<b>LD/LC50 values that are relevant for classification:</b>	Oral: LDLo: 430 mg/kg (hmn)(HNO <sub>3</sub> ) Unreported: LDLo: 110 mg/kg (man)(HNO <sub>3</sub> )
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<b>Skin irritation or corrosion:</b>	Causes severe skin burns.
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<b>Eye irritation or corrosion:</b>	Irritant effect. Causes serious eye damage.
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<b>Sensitization:</b>	No sensitizing effect known.
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<b>Germ cell mutagenicity:</b>	No effects known.
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<b>Carcinogenicity:</b>	No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
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<b>Reproductive toxicity:</b>	No effects known.
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<b>Specific target organ system toxicity - repeated exposure:</b>	No effects known.
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<b>Specific target organ system toxicity - single exposure:</b>	No effects known.
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<b>Aspiration hazard:</b>	No effects known.
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<b>Additional toxicological information:</b>	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
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**SECTION 12: Ecological information****12.1 Toxicity**

<b>Aquatic toxicity:</b>	No further relevant information available.
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<b>12.2 Persistence and degradability</b>	No further relevant information available.
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<b>12.3 Bioaccumulative potential</b>	No further relevant information available.
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<b>12.4 Mobility in soil</b>	No further relevant information available.
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**Additional ecological information:**

<b>General notes:</b>	Do not allow material to be released to the environment without proper governmental permits. Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system. Avoid transfer into the environment.
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**12.5 Results of PBT and vPvB assessment**

<b>PBT:</b>	Not applicable.
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<b>vPvB:</b>	Not applicable.
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<b>12.6 Other adverse effects</b>	No further relevant information available.
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**SECTION 13: Disposal considerations****13.1 Waste treatment methods  
Recommendation**

Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.  
Consult state, local or national regulations for proper disposal.

**Uncleaned packagings:****Recommendation:**

Disposal must be made according to official regulations.

**Recommended cleaning agent:**

Water, if necessary with cleaning agent.

**SECTION 14: Transport information****UN-Number**

ADR, IMDG, IATA

UN2031

**14.2 UN proper shipping name**

ADR

IMDG, IATA

2031 NITRIC ACID  
NITRIC ACID**14.3 Transport hazard class(es)**

ADR



Class

Label

IMDG, IATA

8 (CO1) Corrosive substances.  
8+5.1

Class

Label

8 Corrosive substances.  
8+5.1**Packing group**

ADR, IMDG, IATA

II

**14.5 Environmental hazards:**

Not applicable.

**14.6 Special precautions for user**

Kemler Number:

EMS Number:

Segregation groups

Warning: Corrosive substances.  
85  
F-A, S-B  
Acids

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC**

Code

Not applicable.

**Transport/Additional information:**

ADR

Excepted quantities (EQ):

Limited quantities (LQ)

Transport category

Tunnel restriction code

E2

1L

2

E

**UN "Model Regulation":**

UN2031, NITRIC ACID, 8 (5.1), II

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Australian Inventory of Chemical

Substances

Substance is not listed.

Standard for the Uniform Scheduling of

Drugs and Poisons

Substance is not listed.

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.

Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

**Other regulations, limitations and prohibitive regulations**

ELINCS (European List of Notified Chemical

Substances)

Substance is not listed.

Substances of very high concern (SVHC)

according to REACH, Article 57

REACH - Pre-registered substances

15.2 Chemical safety assessment:

Substance is not listed.

Substance is not listed.

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing data specification sheet:**

Health, Safety and Environmental Department.

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent