

# Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

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## SECTION 1: Identification

### Product identifier

Trade name/designation:	Nitric acid 68 - 70%
Product No.:	BDH3044
Synonyms:	none
CAS No.:	7697-37-2

### Relevant identified uses of the substance or mixture and uses advised against

Recommended use	For Further Manufacturing Use Only
Uses advised against	Not for Human or Animal Drug Use

### Details of the supplier of the safety data sheet

#### Supplier

##### **VWR International LLC**

Street	100 Matsonford Road Radnor Corporate Center, Building One, Suite 200 P. O. Box 6660
Postal code/City	Radnor, PA 19087
Telephone	+1-800-932-5000 toll-free within US/Canada +1-610-386-1700
Telefax	+1-610-728-2103

## Emergency phone number

Telephone +1-800-424-9300 (Chemtrec, 24 hrs/day, 7 days/week, USA)

## Preparation Information

VWR International - Product Information Compliance

E-mail SDS@avantorsciences.com

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

Hazard classes and hazard categories	Hazard statements
Oxidising liquid, category 3	H272
Substance or mixture corrosive to metals, category 1	H290
Skin corrosion, category 1A	H314

### 2.2 Label elements

#### Labelling in accordance with 29 CFR 1910.1200 (OSHA HCS)

#### Hazard pictograms



Signal word: Danger

Hazard statements	
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P310	IF exposed or concerned: Immediately call a POISON CENTER/doctor.

#### Hazard(s) not otherwise classified (HNOC)

none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

not applicable

### 3.2 Mixtures

Hazardous ingredients Classification according to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Substance name	Concentration	Identifier	Hazard classes and hazard categories
Nitric acid	50 - 75 %	CAS No.: 7697-37-2	Ox. Liq. 2 - H272 Met. Corr. 1 - H290 Acute Tox. 1 - H330 Skin Corr. 1A - H314 Eye Dam. 1 - H318

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information

Do not leave affected person unattended. Causes poorly healing wounds. Risk of blindness. Wash contaminated clothing prior to re-use. When in doubt or if symptoms are observed, get medical advice.

#### In case of inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Seek medical advice immediately.

#### In case of skin contact

Remove contaminated, saturated clothing immediately. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure. If skin irritation occurs: Get medical help. If extensive skin contact: get medical help immediately and kept under medical surveillance (hospitalization). Seek medical advice immediately.

#### After eye contact:

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Transport to the ophthalmologist or eye clinic as soon as possible. Continue rinsing with isotonic saline solution during transport, alternatively with water.

#### In case of ingestion

Immediately call a POISON CENTER/doctor. Never give anything by mouth to an unconscious person or a person with cramps. Rinse mouth thoroughly with water. Spit out all liquid. Do NOT induce vomiting.

#### Self-protection of the first aider

First aider: Pay attention to self-protection! Wear personal protection equipment (refer to section 8). Avoid mouth to mouth resuscitation. Use mouth to mask ventilation with one way valve to exhaust victim's exhaled air away from rescuer.

#### 4.2 Most important symptoms/effects, acute and delayed

After inhalation: Shortness of breath. Cough. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Cyanosis (blue colored blood) After skin contact: Erythema (Redness). May cause severe damage with formation of corneal ulcers. Occurrence of severe chemical burns resembling a burn. Yellowish to brown permanent discoloration. After eye contact: Conjunctival oedema (chemosis). Corneal damage. Risk of blindness. After ingestion: Burning/pain and tumescence in the mouth/throat/oesophagus/stomach. Vomiting. Circulatory collapse. Gastric perforation.

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

After inhalation, immediate application of glucocorticoids (inhalative), administration of oxygen and immobilization of the affected person are indicated. If necessary, all further measures of pulmonary edema prophylaxis. After vapor inhalation cardiovascular and pulmonary functions should be carefully monitored. After decontamination of the skin pain treatment and shock prophylaxis. After swallowing: Do not induce vomiting. No oral administration of fluids, activated charcoal, or laxatives, no gastric lavage, but aspiration of the fluid from the stomach via a nasogastric tube, avoiding intubation, if this is possible within 60 minutes.

### SECTION 5: Fire fighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

The product itself does not burn.  
May intensify fire; oxidiser.  
Co-ordinate fire-fighting measures to the fire surroundings.

##### Extinguishing media which must not be used for safety reasons

no restriction

#### 5.2 Specific hazards arising from the chemical

In case of fire may be liberated:  
Nitrogen oxides (NO<sub>x</sub>)

#### 5.3 Advice for firefighters

DO NOT fight fire when fire reaches explosives.  
Protective equipment and precautions for firefighters:  
Wear a self-contained breathing apparatus and chemical protective clothing.  
Do not allow run-off from fire-fighting to enter drains or water courses.  
Do not inhale explosion and combustion gases.  
Use water spray jet to protect personnel and to cool endangered containers.  
In case of fire: Evacuate area.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Wear personal protection equipment (refer to section 8). Avoid contact with skin, eyes and clothes. Remove victim out of the danger area. Stop leak if safe to do so. Provide adequate ventilation. First Aid, decontamination, treatment of symptoms. For emergency responders: In case of fire: Wear self-contained breathing apparatus. Wear full chemical protective clothing. Substance is non-flammable. Adapt fire and explosion protection measures to the combustible substances in the area.

## 6.2 Environmental precautions

Avoid release to the environment. Do not allow to enter into surface water or drains. Cover drains. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

## 6.3 Methods and material for containment and cleaning up

Large spills: Dike or dam to contain for later disposal. Take up mechanically, placing in appropriate containers for disposal. Take precautionary measures against static discharges. Small spills: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Dispose according to legislation.

## 6.4 Reference to other sections

Personal protection equipment (PPE): see section 8 Disposal information: see section 13

# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

Advices on safe handling

Use extractor hood (laboratory).

Use only in well-ventilated areas.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Avoid contact with eyes and skin.

Use personal protective equipment as required.

Measures to prevent fire, aerosol and dust generation

Usual measures for fire prevention.

Use only in well-ventilated areas.

Measures required to protect the environment

Do not empty into drains.

Collect spillage.

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

## 7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 15-25 °C

Store in a well-ventilated place. Keep container tightly closed. Packaging materials: High density polyethylene (HDPE) Glass

Unsuitable container/equipment material: Metal container

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

Ingredient (Designation)	Source	Country	parameter	Limit value
Nitric acid	NIOSH	US	LTV	5 mg/m <sup>3</sup> - 2 ppm
Nitric acid	NIOSH	US	STV	10 mg/m <sup>3</sup> (1) - 4 ppm (1)
Nitric acid	OSHA	US	LTV	5 mg/m <sup>3</sup> - 2 ppm

## 8.2 Engineering controls

### Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

### Personal protection equipment (PPE)

Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

#### *Eye/face protection*

Eye glasses with side protection

#### *Skin protection*

Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

#### By short-term hand contact

Suitable material:	Butyl caoutchouc (butyl rubber)
Thickness of the glove material:	0,30 mm
Breakthrough time	60-120 min

#### By long-term hand contact

Suitable material:	Butyl caoutchouc (butyl rubber)/FKM (fluoro rubber)
Thickness of the glove material:	0,70 mm
Breakthrough time	240-480 min

#### *Respiratory protection*

Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

#### *Additional information*

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

#### *Environmental exposure controls*

no data available

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Color:	colorless
Odor:	pungent

#### Safety relevant basic data

pH:	< 1
Melting point/freezing point:	-41 °C
Initial boiling point and boiling range:	~121.5 °C (1013 hPa)
Flash point:	no data available
Flammability:	Not applicable
Lower and upper explosion limit	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
Vapor pressure:	23 hPa (20 °C)
Relative vapour density:	no data available
Density and/or relative density	
Density:	1.41 g/cm <sup>3</sup> (20 °C)
Solubility(ies)	
Water solubility:	no data available
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	Not applicable
Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	~2.0 mPa*s (20 °C)
Particle characteristics:	does not apply to liquids

### 9.2 Other information

Evaporation rate:	no data available
Explosive properties:	no data available
Oxidising properties:	May intensify fire; oxidiser.
Bulk density:	no data available
Refraction index:	no data available
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

- Corrosive to metals
- Oxidizer, allows chemicals to burn without an air supply.

## 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

## 10.3 Possibility of hazardous reactions

Explosive reaction with:

Alcohols

Acetone

Reducing agent.

Violent reaction with:

Ammonia

Hydrogen iodide (HI)

Exothermic reaction with:

Water.

Substance, organic

## 10.4 Conditions to avoid

Humidity

Heat

## 10.5 Incompatible materials:

Metal.

## 10.6 Hazardous decomposition products

no data available

# SECTION 11: Toxicological information

## 11.1 Information on toxicological effects

### Acute effects

*Acute oral toxicity:*

Nitric acid - LDLo: > 430 mg/kg - Human - (Sax)

*Acute dermal toxicity:*

no data available

*Acute inhalation toxicity:*

Nitric acid - LC50: > 2.65 mg/l (4 h) - Rat - (OECD 403)

### Irritant and corrosive effects:

*Primary irritation to the skin:*

Causes severe skin burns and eye damage.

*Irritation to eyes:*

Causes serious eye damage.

*Irritation to respiratory tract:*

Not applicable

**Respiratory or skin sensitization**

In case of skin contact: not sensitizing

In case of inhalation: not sensitizing

**STOT-single exposure**

Not applicable

**STOT-repeated exposure**

Not applicable

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

**Carcinogenicity**

No indication of human carcinogenicity.

**Germ cell mutagenicity**

No indications of human germ cell mutagenicity exist.

**Reproductive toxicity**

No indications of human reproductive toxicity exist.

**Aspiration hazard**

Not applicable

**Other adverse effects**

no data available

**Additional information**

no data available

## SECTION 12: Ecological information

### 12.1 Toxicity

**Fish toxicity:**

no data available

**Daphnia toxicity:**

no data available

**Algae toxicity:**

no data available

**Bacteria toxicity:**

no data available

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water: no data available

#### 12.4 Mobility in soil:

no data available

#### 12.5 Results of PBT/vPvB assessment

Not applicable

#### 12.6 Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to the environment.

#### 12.7 Other adverse effects

no data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

##### Appropriate disposal / Product

Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. Product is an acid. Before disposal it needs to be neutralised.

Waste code product: no data available

##### Appropriate disposal / Package

Dispose according to legislation. Handle contaminated packages in the same way as the substance itself.

##### Additional information

none

No further relevant information available.

### SECTION 14: Transport information

#### Land transport (DOT)

UN-No.:	UN2031
Proper Shipping Name:	NITRIC ACID
Class(es):	8 (5.1)
Hazard label(s):	8+5.1
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	

#### Sea transport (IMDG)

UN-No.:	2031
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Proper Shipping Name:	NITRIC ACID
Class(es):	8 (5.1)
Hazard label(s):	8+5.1
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	
Segregation group:	1
EmS-No.	F-A S-Q
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	not relevant

### Air transport (ICAO-TI / IATA-DGR)

UN-No.:	2031
Proper Shipping Name:	NITRIC ACID
Class(es):	8 (5.1)
Classification code:	
Hazard label(s):	8+5.1
Packing group:	II
Special precautions for user:	

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National regulations

##### Toxic Substances Control Act (TSCA)

- Nitric acid - CAS No.: 7697-37-2
- Water - CAS No.: 7732-18-5

##### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Does not contain listed substances.

##### SARA 313 Components

- Nitric acid - CAS No.: 7697-37-2

#### US State Regulations

##### Massachusetts Right To Know Components

- Nitric acid - CAS No.: 7697-37-2

##### Pennsylvania Right To Know Components

- Nitric acid - CAS No.: 7697-37-2

**New Jersey Right To Know Components**

- Nitric acid - CAS No.: 7697-37-2

**California Prop. 65 Components**

Does not contain listed substances.

## SECTION 16: Other information

### Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists  
DOT - Department of Transportation  
IARC - International Agency for Research on Cancer  
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations  
ICAO-TI - International Civil Aviation Organization-Technical Instructions  
IMDG - International Maritime Code for Dangerous Goods  
LTV - Long Term Value  
NIOSH - National Institute for Occupational Safety and Health  
NTP - National Toxicology Program  
OSHA - Occupational Safety & Health Administration  
PBT - Persistent, Bioaccumulative and Toxic  
PEL - Permissible Exposure Limit  
STV - Short Term Value  
SVHC - Substances of Very High Concern  
TDG - Transport of Dangerous Goods  
TLV - Threshold Limit Value  
vPvB - very Persistent, very Bioaccumulative

### Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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### Additional information

Indication of changes                      Review and revision of Sections 4, 5, 6, 7 and 10.  
  
If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

*The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guidance. The information in this document is based on the present state knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. VWR International and his Affiliates shall not be held liable for any damage resulting from handling.*