

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

Revision date: 30.05.2025

Version: 7.4

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

1.1 Product identifier

Trade name/designation:	Nitric acid 6 mol/l (6 N)
Product No.:	310547
CAS No.:	7697-37-2
Index No.:	Not applicable
EU REACH No.:	This product is a mixture. See section 3 for EU REACH registration numbers when applicable.
Other means of identification:	none

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

Relevant identified uses:	Scientific research and development
Uses advised against:	All uses other than scientific research and development

1.3 Details of the supplier of the safety data sheet

Ireland

VWR International Ltd.

Street	Orion Business Campus, Northwest Business Park
Postal code/City	Ballycoolin, Dublin 15, Republic of Ireland
Telephone	+353 1 8822222
Telefax	+353 1 8822333
E-mail (competent person)	SDS@avantorsciences.com

1.4 Emergency phone number

Telephone	+44 (0) 1270 502894 (CareChem24)
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements
Substance or mixture corrosive to metals, category 1	H290
Skin corrosion, category 1A	H314
Serious eye damage, category 1	H318
Acute toxicity, category 3, inhalation	H331

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



Signal word: Danger

Hazard statements	
H290	May be corrosive to metals.
H331	Toxic if inhaled.
H314	Causes severe skin burns and eye damage.
EUH071	Corrosive to the respiratory tract.

Precautionary statements	
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P310	IF exposed or concerned: Immediately call a POISON CENTER/doctor.

2.3 Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

This product does not contain a substance that has endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

Hazardous ingredients Classification according to Regulation (EC) No 1272/2008 [CLP]

Substance name	Concentration	Identifier	Hazard classes and hazard categories	ATE, SCL and/or M-factor
Nitric acid ...%	30 - 40%	CAS No.: 7697-37-2 EC No.: 231-714-2 EU REACH No.: 01-2119487297-23-XXXX	Ox. Liq. 2 - H272 Met. Corr. 1 - H290 Acute Tox. 1 - H330 Skin Corr. 1A - H314 Eye Dam. 1 - H318	Ox. Liq. 2; H272: C ≥ 99 % Ox. Liq. 3; H272: 70 % ≤ C < 99 %

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.

After 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. Seek medical advice immediately. Consult an ophthalmologist.

In case of ingestion

Immediately call a POISON CENTRE/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 and effects, both acute and delayed

After inhalation: Shortness of breath. Cough. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Cyanosis (blue coloured 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: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

ABC-powder
Carbon dioxide (CO₂).
Dry sand
Nitrogen

Extinguishing media which must not be used for safety reasons

Water spray.
Full water jet

5.2 Special hazards arising from the substance or mixture

The product itself does not burn.
Causes severe skin burns and eye damage.
Fire may produce irritating, corrosive and/or toxic gases.
In case of fire may be liberated:
Nitrogen oxides (NO_x)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Special protective equipment for firefighters:
Wear a self-contained breathing apparatus and chemical protective clothing.
Co-ordinate fire-fighting measures to the fire surroundings.
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.

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 local legislation.

6.4 Reference to other sections

Personal protection equipment: 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/vapours/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

Storage class: 8B

Store in a well-ventilated place. Keep container tightly closed. Packaging materials: High density polyethylene (HDPE) 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	Remark
Nitric acid ...%	2000/39/EC	EU	STV	2.6 mg/m ³ - 1 ppm	
Nitric acid ...%	DNEL	EU	Worker, Inhalation, long-term, local	2.6 mg/m ³	repeated dose toxicity
Nitric acid ...%	DNEL	EU	Worker, Inhalation, short-term, local	2.6 mg/m ³	
Nitric acid ...%	Chemical Agents Code of Practice 2020	IE	STV	2,6 mg/m ³ - 1 ppm	IOELV

Recommended monitoring procedures:

European Standard EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents)

European Standard EN 482 (Workplace exposure. Procedures for the determination of the concentration of chemical agents - Basic performance requirements)

8.2 Exposure controls

8.2.1 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.

8.2.2 Personal protection equipment

Wear suitable protective clothing. When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

Eye/face protection

Eye glasses with side protection DIN-/EN-Norms EN 166

Recommendation: VWR 111-0432

Skin protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. Recommended glove articles DIN-/EN-Norms EN ISO 374 In the case of wanting to use the gloves again, clean them before taking off and air them well.

By short-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,12 mm
Breakthrough time:	> 480 min
Recommended glove articles:	VWR 112-0998

By long-term hand contact

Suitable material:	NBR (Nitrile rubber)
Thickness of the glove material:	0,38 mm
Breakthrough time:	> 480 min
Recommended glove articles:	VWR 112-3717 / 112-1381

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

Suitable respiratory protection apparatus:	Full-/half-/quarter-face masks (EN 136/140)
Recommendation:	VWR 111-0206
Suitable material:	ABEK2P3
Recommendation:	VWR 111-0059

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.

8.2.3 *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
Colour:	colourless
Odour:	pungent

Safety relevant basic data

pH:	< 1
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	100 °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
Vapour pressure:	23 hPa (20 °C)
Relative vapour density:	no data available
Density and/or relative density	
Density:	1.192 g/cm ³ (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:	no data available
Particle characteristics:	does not apply to liquids

9.2 Other information

Evaporation rate:	no data available
Explosive properties:	no data available
Oxidising properties:	Not applicable
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

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 (NH₃)

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute effects

Acute oral toxicity:

Based on available data, the classification criteria are not met.

Acute dermal toxicity:

Based on available data, the classification criteria are not met.

Acute inhalation toxicity:

Toxic if inhaled.

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 sensitisation

In case of skin contact: not sensitising

After inhalation: not sensitising

STOT-single exposure

Not applicable

STOT-repeated exposure

Not applicable

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

Mixtures: No indication of human carcinogenicity.

Germ cell mutagenicity

Mixtures: No indications of human germ cell mutagenicity exist.

Reproductive toxicity

Mixtures: No indications of human reproductive toxicity exist.

Aspiration hazard

Not applicable

Other adverse effects

no data available

Additional information

no data available

11.2 Information on other hazards

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

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

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

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 local 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 local legislation. Handle contaminated packages in the same way as the substance itself.

Additional information

European waste management legislation

Directive 2008/98/EC (Waste Framework Directive)

National waste management legislation

Act No. 10/1996 - Waste Management Act, 1996

Act No. 36/2001 - Waste Management (Amendment) Act, 2001

SECTION 14: Transport information

Land transport (ADR/RID)

14.1	UN number or ID number:	2031
14.2	UN proper shipping name:	NITRIC ACID
14.3	Transport hazard class(es):	8
	Classification code:	C1
	Hazard label(s):	8
14.4	Packing group:	II
14.5	Environmental hazards:	No
14.6	Special precautions for user:	
	Hazard identification number (Kemler No.):	80
	Tunnel restriction code:	E
		(Passage forbidden through tunnels of category E.)

Sea transport (IMDG)

14.1	UN number or ID number:	2031
14.2	UN proper shipping name:	NITRIC ACID
14.3	Transport hazard class(es):	8
	Classification code:	
	Hazard label(s):	8
14.4	Packing group:	II
14.5	Environmental hazards:	No
	Marine pollutant:	No
14.6	Special precautions for user:	
	Segregation group:	1
	EmS-No.	F-A S-B
14.7	Maritime transport in bulk according to IMO instruments	not relevant

Air transport (ICAO-TI / IATA-DGR)

14.1	UN number or ID number:	2031
14.2	UN proper shipping name:	NITRIC ACID
14.3	Transport hazard class(es):	8
	Classification code:	
	Hazard label(s):	8
14.4	Packing group:	II
14.5	Special precautions for user:	

SECTION 15: Regulatory information

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

EU legislation

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (Text with EEA relevance)
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance)
- Commission Regulation (EU) 2020/878 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

National regulations

no data available

Water hazard class: no data available

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road

AGS - Committee on Hazardous Substances (Ausschuss für Gefahrstoffe)

CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures

DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)

DNEL - Derived No Effect Level

Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)

IATA-DGR - International Air Transport Association-Dangerous Goods Regulations

ICAO-TI - International Civil Aviation Organization-Technical Instructions

IMDG - International Maritime Code for Dangerous Goods

KOSHA - Korea Occupational Safety and Health Agency

LTV - Long Term Value

NIOSH - National Institute for Occupational Safety and Health

OSHA - Occupational Safety & Health Administration

PBT - Persistent, Bioaccumulative and Toxic

PNEC - Predicted No Effect Concentration

RID - Regulation concerning the International Carriage of Dangerous Goods by Rail

STV - Short Term Value

SVHC - Substances of Very High Concern

vPvB - very Persistent, very Bioaccumulative

H272 - May intensify fire; oxidiser.

H290 - May be corrosive to metals.

H314 - Causes severe skin burns and eye damage.

H318 - Causes serious eye damage.

H330 - Fatal if inhaled.

Training advice: Provide adequate information, instruction and training for operators.

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.

Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure

Hazard statements	Hazard classes and hazard categories	Classification procedure
H290	Met. Corr. 1	Data obtained by expert judgement.
H331	Acute Tox. 3	Calculation method.
H314	Skin Corr. 1A	Calculation method.
H318	Eye Dam. 1	Calculation method.
EUH071		Data obtained by expert judgement.

Additional information

Indication of changes Implementation: Commission Regulation (EU) 2020/878

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.