

Safety Data Sheet

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

Revision date: 21.04.2023

Version: 7.3

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

1.1 Product identifier

Trade name/designation:	Potassium standard solution, 1,000 mg/l K in dil. nitric acid AVS TITRINORM
Product No.:	86686
CAS No.:	not applicable
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:	General chemical reagent
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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
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 irritation, category 2	H315
Eye irritation, category 2	H319

2.2 Label elements

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

Hazard pictograms



Signal word: Warning

Hazard statements	
H290	May be corrosive to metals.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

Precautionary statements	
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water/...
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+P311	IF exposed or concerned: 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.

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	1 - 3%	CAS No.: 7697-37-2 EC No.: 231-714-2	Ox. Liq. 2 - H272 Met. Corr. 1 - H290 Acute Tox. 1 - H330 Skin Corr. 1A - H314	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. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. 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 unconscious but breathing normally, place in recovery position and seek medical advice. Seek medical advice immediately.

In case of skin contact

Wash off any skin contamination immediately. When in doubt or if symptoms are observed, get medical advice.

After eye contact:

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist.

In case of ingestion

Rinse mouth thoroughly with water. Do NOT induce vomiting. Call a POISON CENTER.

Self-protection of the first aider

First aider: Pay attention to self-protection! Wear personal protection equipment (refer to section 8). Avoid contact with skin, eyes and clothes.

4.2 Most important symptoms and effects, both acute and delayed

After inhalation: May cause respiratory irritation. Shortness of breath. Cough. After skin contact: Irritation. After eye contact: Irritation. After ingestion: Nausea. Vomiting. Hypocalcämie.

4.3 Indication of any immediate medical attention and special treatment needed

After inhalation: Provide fresh air. After skin contact: Wash with plenty of soap and water. If necessary, treat skin irritations with a dermatocorticoid foam. After eye contact: Treat symptomatically. After ingestion: Let water be drunken in little sips (dilution effect). After ingestion of large amounts, immediate gastric lavage in intubation should be considered.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Dry extinguishing powder.

ABC-powder

Carbon dioxide (CO₂).

Nitrogen

Extinguishing media which must not be used for safety reasons

Full water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible corrosive substances (liquid).

Causes skin and eye irritation.

The inhalation of dust/mist or aerosols causes irritation of the respiratory tract.

Fire may produce irritating, corrosive and/or toxic gases.

In case of fire may be liberated:

Pyrolysis products, toxic

5.3 Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.

In case of fire: Evacuate area.

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.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

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 eyes. Use a dust mask if there is a lot of dust. Provide adequate ventilation. Remove victim out of the danger area. First Aid, decontamination, treatment of symptoms.

6.2 Environmental precautions

Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal. 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 personal protective equipment as required.

Avoid substance contact.

Use extractor hood (laboratory).

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

Measures to prevent fire, aerosol and dust generation

Usual measures for fire prevention.

Measures required to protect the environment

Do not empty into drains.

Collect spillage.

Cover drains.

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: no data available

Storage class: no data available

Storage: Store in a dry place. Store in a closed container. Keep/Store only in original container. Packaging materials: Glass High density polyethylene (HDPE) Unsuitable materials and coatings of containers/equipment: 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	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	Directive 98/24/EC	EU	STV	2.6 mg/m ³ - 1 ppm	
Nitric acid	Chemical Agents Code of Practice 2020	IE	STV	2,6 mg/m ³ - 1 ppm	IOELV

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 112-1381

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

(a) Appearance	
Physical state:	liquid
Colour:	no data available
(b) Odour:	odourless
(c) Odour threshold:	no data available

Safety relevant basic data

(d) pH:	<2.0
(e) Melting point/freezing point:	no data available
(f) Initial boiling point and boiling range:	83 °C
(g) Flash point:	no data available
(h) Evaporation rate:	no data available
(i) Flammability (solid, gas):	not applicable
(j) Flammability or explosive limits	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
(k) Vapour pressure:	18.51 mmHg
(l) Vapour density:	0.62
(m) Density:	1.02 g/cm ³ (20 °C)
(n) Solubility(ies)	
Water solubility:	no data available
(o) Partition coefficient: n-octanol/water:	no data available
(p) Auto-ignition temperature:	no data available
(q) Decomposition temperature:	not applicable
(r) Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	no data available
(s) Explosive properties:	not applicable
(t) Oxidising properties:	not applicable
(u) Particle characteristics:	does not apply to liquids

9.2 Other information

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

Reactive substance.
Corrosive to metals

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Reaction with:

Zinc

The product develops hydrogen in an aqueous solution in contact with metals.

Exothermic reaction with:

Water.

Substance, organic

10.4 Conditions to avoid

No special measures are necessary.

10.5 Incompatible materials

Metal.

The product develops hydrogen in an aqueous solution in contact with metals.

10.6 Hazardous decomposition products

Decomposition products in case of fire: see section 5.

10.7 Additional information

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:

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 skin irritation.

Irritation to eyes:

Causes serious eye irritation.

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

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

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 Ecotoxicity

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.

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

no data available

SECTION 14: Transport information

Land transport (ADR/RID)

14.1	UN number or ID number:	3264
14.2	UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
14.3	Transport hazard class(es):	8
	Classification code:	C1
	Hazard label(s):	8
14.4	Packing group:	III
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:	3264
14.2	UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
14.3	Transport hazard class(es):	8
	Classification code:	
	Hazard label(s):	8
14.4	Packing group:	III
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:	3264
14.2	UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)
14.3	Transport hazard class(es):	8
	Classification code:	
	Hazard label(s):	8
14.4	Packing group:	III
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.

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.
H315	Skin Irrit. 2	Calculation method.
H319	Eye Irrit. 2	Calculation method.

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.