SAFETY DATA SHEET

Version 8.8
Revision Date 20.11.2024
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Nitric acid

Product Number : V800281
Brand : Vetec
CAS-No. : 7697-37-2

1.2 Other means of identification

No data available

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

Identified uses : For R&D use only. Not for pharmaceutical, household or other uses.

1.4 Details of the supplier of the safety data sheet

Company : Merck Life Science Pty Ltd
Ground Floor, Building 1, 885 Mountain Highway
BAYSWATER VIC 3153
AUSTRALIA

Telephone : +61 1800 800 097
E-mail address : customersupport.anz@merckgroup.com

1.5 Emergency telephone

Emergency Phone # : Free call (24/7): 1800 862 115
Int'l (24/7): +61 2 9037 2994
(CHEMTREC)

SECTION 2: Hazards identification

2.1 GHS Classification

Oxidizing liquids (Category 3), H272
Corrosive to Metals (Category 1), H290
Acute toxicity, Inhalation (Category 3), H331
Skin corrosion/irritation (Sub-category 1A), H314
Serious eye damage/eye irritation (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard Statements

H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.

H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.

Precautionary Statements

Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220	Keep away from clothing and other combustible materials.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards

Corrosive to the respiratory tract.

SECTION 3: Composition/information on ingredients

Substance / Mixture : Substance

3.1 Substances

Formula	:	HNO3
Molecular weight	:	63.01 g/mol
CAS-No.	:	7697-37-2
EC-No.	:	231-714-2
Index-No.	:	007-004-00-1

Hazardous ingredients

Component	Classification	Concentration
nitric acid		
	Ox. Liq. 3; Met. Corr. 1; Acute Tox. 3; Skin Corr./Irrit. 1A; Eye Dam./Irrit. 1; H272, H290, H331, H314, H318 Concentration limits: >= 1 %: Met. Corr. 1, H290; >= 65 %: Ox. Liq. 3, H272; >= 20 %: Skin Corr. 1A, H314; 5 - < 20 %: Skin Corr. 1B, H314;	<= 100 %

	>= 3 %: Eye Dam. 1, H318; 1 - < 3 %: Eye Irrit. 2, H319; 1 - < 5 %: Skin Irrit. 2, H315;	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nitrogen oxides (NOx)
Not combustible.
Has a fire-promoting effect due to release of oxygen.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
No metal containers.
Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Separately or together with other oxidising substances only and away from sources of ignition and heat.Because of their oxidation potential these products can raise the burning rate of combustible substances substantially or ignite combustible substances on contact with them.

Storage class
Storage class (TRGS 510): 5.1A: Strongly oxidizing hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.3 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis

nitric acid	7697-37-2	TWA	2 ppm 5.2 mg/m3	Australia. Workplace Exposure Standards for Airborne Contaminants.
		STEL	4 ppm 10 mg/m3	Australia. Workplace Exposure Standards for Airborne Contaminants.

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 60 min
Material tested:Butoject® (KCL 898)

Body Protection
Acid-resistant protective clothing

Respiratory protection
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	liquid
b)	Color	colorless
c)	Odor	stinging
d)	Melting point/freezing point	Melting point: -41.59 °C
e)	Initial boiling point and boiling range	100 °C at 1,013 hPa
f)	Flammability (solid, gas)	No data available

g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	No data available
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	pH	< 1 at 20 °C
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0.746 mPa.s at 25 °C
m)	Water solubility	1,000 g/l at 20 °C - soluble, (development of heat)
n)	Partition coefficient: n-octanol/water	log Pow: -2.3 - Bioaccumulation is not expected.
o)	Vapor pressure	10 hPa at 20 °C
p)	Density	1.51 g/cm3 at 20 °C
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	The substance or mixture is classified as oxidizing with the category 3.

9.2 Other safety information

Dissociation constant	-1.3
Relative vapor density	2.04

SECTION 10: Stability and reactivity

10.1 Reactivity

strong oxidising agent

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Risk of explosion with:
Acetone
acetonitrile
acetylidene
Alcohols
anilines
antimony hydride
arsenic hydride

organic combustible substances
phosphides
benzene/benzene derivatives
Amines
alkenes
Halogenated hydrocarbon
Ether
hydrazine and derivatives
Sulfides
Dioxane
acetic acid
Acetic anhydride
Fluorine
glycerol
rubber
oils
chlorates
potassium permanganate
Hydrocarbons
Copper
lithium silicide
organic solvent
Cyanides
Powdered metals
Methanol
Ketones
organic nitro compounds
nonmetallic halides
mercury(II) nitrate
Reducing agents
sulphur dioxide
cyanide complexes
Titanium
hydrogen peroxide
Tin
sugars
formaldehyde
Impurities
dichloromethane
Diethyl ether
ethanol
Boranes
Ethylene glycol
with
Heat.
Risk of ignition or formation of inflammable gases or vapours with:
Amines
Ammonia
combustible substances
Aldehydes
hydrogen iodide
Potassium
magnesium
sodium
hydrides
iodides
phosphorus

pyridine
hydrogen sulphide
turpentine oils and/or turpentine substitutes
halogen-halogen compounds
anilines
furfuryl alcohol
Exothermic reaction with:
Nitriles
formic acid
antimony
arsenic
selenium
Boron
Lithium
nonmetallic halides
strong alkalis
nitrides
sodium hypochlorite
Uranium
semimetals
Water
ferric oxide
in powder form
Generates dangerous gases or fumes in contact with:
conc. sulfuric acid

10.4 Conditions to avoid

May discolor on exposure to air and light.
no information available

10.5 Incompatible materials

Cellulose, MetalsContact with metals may lead to the formation of nitrous gases and hydrogen.

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Acute toxicity estimate Inhalation - 4 h - 2.65 mg/l - vapor

(Expert judgment)
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Causes severe burns.
Remarks: (IUCLID)
Remarks: Causes poorly healing wounds.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Causes burns.
Remarks: (IUCLID)

Remarks: Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
May be harmful to aquatic organisms due to the shift of the pH.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 2031 IMDG: 2031 IATA-DGR: 2031

14.2 UN proper shipping name

ADR/RID: NITRIC ACID
IMDG: NITRIC ACID
IATA-DGR: Nitric acid
Passenger Aircraft: Not permitted for transport

14.3 Transport hazard class(es)

ADR/RID: 8 (5.1) IMDG: 8 (5.1) IATA-DGR: 8 (5.1)

14.4 Packaging group

ADR/RID: I IMDG: I IATA-DGR: I

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA-DGR: no

14.6 Special precautions for user

None

14.7 Incompatible materials

Cellulose, MetalsContact with metals may lead to the formation of nitrous gases and hydrogen.

Other regulations

Hazchem Code : 2P

SECTION 15: Regulatory information

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

Therapeutic Goods (Poisons Standard) Instrument : No poison schedule number allocated

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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