



## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 26.08.2021

Version number 6 (replaces version 5)

Revision: 29.01.2021

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

#### · 1.1 Product identifier

· Product name: **Reagent PB1 Phosphate HR**

· Catalog number: 100547E

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

· Application of the substance / the preparation: Reagent for water analysis

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

##### · Supplier:

Vecom Marine B.V.  
Mozartlaan 3  
3144 NA Maassluis  
The Netherlands

phone: + 31 (0)10 5930 210  
Email: sales@vecom-marine.com

#### · 1.4 Emergency telephone number:

Dutch Poisons Information Center (NVIC): +31 (0)88 755 8000 (24 hour service)  
Only for the purpose of informing medical personnel in case of acute intoxications.  
See section 4 on first aid measures.

### SECTION 2: Hazards identification

#### · 2.1 Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008



GHS05 corrosion

Met. Corr. 1 H290 May be corrosive to metals.  
Skin Corr. 1A H314 Causes severe skin burns and eye damage.  
Eye Dam. 1 H318 Causes serious eye damage.

#### · 2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.

##### · Hazard pictograms



GHS05

· Signal word Danger

##### · Hazard-determining components of labelling:

sulphuric acid 26 %

##### · Hazard statements

H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.

##### · Precautionary statements

P280 Wear protective gloves / eye protection.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

P310 Immediately call a POISON CENTER/doctor.

P390 Absorb spillage to prevent material damage.

· **2.3 Other hazards** Acid burns have to be treated immediately, as it may otherwise cause badly curing wounds.

· **Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

· **Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine disrupting properties.

### SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**

· **Description:** sulfuric acid solution

· **Dangerous components:**

CAS: 7664-93-9 EINECS: 231-639-5 Index No: 016-020-00-8 Reg.nr.: 01-2119458838-20-XXXX	sulphuric acid ⚠ Met. Corr. 1, H290; Skin Corr. 1A, H314 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 15 % Skin Irrit. 2; H315: 5 % ≤ C < 15 % Eye Dam. 1; H318: C ≥ 15 % Eye Irrit. 2; H319: 5 % ≤ C < 15 %	25-35%
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· **Additional information** For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information** Instantly remove any clothing soiled by the product.

· **After inhalation**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness bring patient into stable side position for transport.

· **After skin contact**

Clean with water and soap. If possible, also wash with polyethylene glycol 400.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

· **After eye contact**

Rinse opened eye for several minutes (at least 15 min) under running water.

Call a doctor immediately.

· **After swallowing**

Rinse out mouth and then drink 1-2 glasses of water.

Call a doctor immediately.

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

breathing difficulty

sickness

vomiting

diarrhoea

pain

strong caustic effect.

· **Danger** Danger of gastric perforation.

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

If swallowed or in case of vomiting, danger of entering the lungs

Subsequent observation for pneumonia and pulmonary oedema

### 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**

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

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Can be released in case of fire:

Sulphur oxides (SO<sub>x</sub>)Nitrogen oxides (NO<sub>x</sub>)

- **5.3 Advice for firefighters**

- **Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

- **Advice for non-emergency personnel:**

Wear protective equipment. Keep unprotected persons away.

Avoid substance contact.

Ensure adequate ventilation

Use breathing protection against the effects of fumes/dust/aerosol.

- **Advice for emergency responders:** Protective equipment: see section 8

- **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.

- **6.3 Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Use neutralising agent.

Neutralize with diluted sodium hydroxide solution.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose of contaminated material as waste according to item 13.

- **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** Open and handle container with care.

- **Advice on safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

- **Hygiene measures:**

Do not inhale gases / fumes / aerosols.

Do not get in eyes, on skin, or on clothing.

Take off immediately all contaminated clothing.

Wash hands during breaks and at the end of the work.

Do not eat, drink or smoke when using this product.

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

- **Requirements to be met by storerooms and containers:** Store in cool location.

- **Information about storage in one common storage facility:**

Store away from metals.

Do not store together with alkalis (caustic solutions).

Store away from flammable substances.

- **Further information about storage conditions:**

Keep container tightly sealed.

Protect from heat and direct sunlight.

Protect from the effects of light.

Protect from humidity and keep away from water.

- **Recommended storage temperature:** 20°C +/- 5°C

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

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

· **Components with limit values that require monitoring at the workplace:**

##### CAS: 7664-93-9 sulphuric acid

WEL (Great Britain)	Long-term value: 0.05* mg/m <sup>3</sup> *mist: defined as thoracic fraction
IOELV (European Union)	Long-term value: 0.05 mg/m <sup>3</sup>
OEL (Sweden)	Short-term value: 0.2 mg/m <sup>3</sup> Long-term value: 0.1 mg/m <sup>3</sup> C, V

#### · Regulatory information

WEL (Great Britain): EH40/2011

IOELV (European Union): (EU) 2017/164

OEL (Sweden): AFS2015:7

· **Additional information:** IOELV = Indicative Occupational Exposure Limit

#### · DNELs

##### CAS: 7664-93-9 sulphuric acid

Inhalative	DNEL	0.1 mg/m <sup>3</sup> (Worker / acute / local effects)
		0.05 mg/m <sup>3</sup> (Worker / acute / systemic effects)

#### · Recommended monitoring procedures:

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

#### · PNECs

##### CAS: 7664-93-9 sulphuric acid

PNEC	8.8 mg/l (Sewage treatment plant)
	0.00025 mg/l (Marine water)
	0.0025 mg/l (Fresh water)
PNEC	0.002 mg/kg (Marine sediment)
	0.002 mg/kg (Fresh water sediment)

· **Additional information:** The lists that were valid during the compilation were used as basis.

#### · 8.2 Exposure controls

##### · Engineering measures:

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.

##### · Individual protection measures, such as personal protective equipment

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.

· **Eye/face protection** Tightly sealed safety glasses.

##### · Hand protection

Acid resistant gloves

Preventive skin protection by use of skin-protecting agents is recommended.

After use of gloves apply skin-cleaning agents and skin cosmetics.

##### · Material of gloves

nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

##### · Penetration time of glove material

Value for the permeation: Level = 1 (&lt; 10 min)

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Other skin protection (body protection):** Acid resistant protective clothing

· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.

· **Recommended filter device for short term use:** Filter P2

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· **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

### SECTION 9: Physical and chemical properties

#### · 9.1 Information on basic physical and chemical properties

· <b>Physical state</b>	Fluid
· <b>Form:</b>	Solution
· <b>Colour:</b>	Colourless
· <b>Odour:</b>	Odourless
· <b>Odour threshold:</b>	Not determined.
· <b>Melting point/Freezing point:</b>	Not determined.
· <b>Boiling point or initial boiling point and boiling range</b>	Not determined.
· <b>Flammability</b>	Not applicable.
· <b>Explosive properties:</b>	Product is not explosive.
· <b>Lower and upper explosion limit</b>	
· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.
· <b>Flash point:</b>	Not applicable.
· <b>Ignition temperature:</b>	Not applicable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>pH at 20°C</b>	1
· <b>Kinematic viscosity</b>	Not determined.
· <b>Solubility</b>	
· <b>Water:</b>	Fully miscible
· <b>Partition coefficient n-octanol/water (log value)</b>	Not applicable (mixture).
· <b>Vapour pressure:</b>	Not determined.
· <b>Density and/or relative density</b>	
· <b>Density at 20°C:</b>	1.3 g/cm <sup>3</sup>
· <b>Relative density:</b>	Not determined.
· <b>Relative gas density</b>	Not determined.
· <b>Particle characteristics</b>	Not applicable (liquid).

#### · 9.2 Other information

##### · Information with regard to physical hazard classes

· <b>Corrosive to metals</b>	May be corrosive to metals.
· <b>Metals that are corroded by the substance or mixture</b>	Information on incompatible materials can be found in Sections 7 and 10.
· <b>Other safety characteristics</b>	
· <b>Oxidising properties:</b>	none
· <b>Additional information</b>	
· <b>Solids content:</b>	<5 %
· <b>Solvent content:</b>	
· <b>Organic solvents:</b>	0.0 %
· <b>Water:</b>	> 60 %

### SECTION 10: Stability and reactivity

· **10.1 Reactivity** see section 10.3

· **10.2 Chemical stability** Stable at ambient temperature (room temperature).

#### · 10.3 Possibility of hazardous reactions

Reacts with metals forming hydrogen (--> Explosive!)

Corrosive action on metals

When diluting, always add acid to water, never vice versa

Diluting or dissolving in water always causes rapid heating

Reacts with peroxides

Reacts with reducing agents

Reacts with halogenated compounds

Reacts with oxidizing agents

Reacts with acids and alkali (lyes).

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Reacts with ammonia (NH<sub>3</sub>).

- **10.4 Conditions to avoid**

strong heating

To avoid thermal decomposition do not overheat.

- **10.5 Incompatible materials:**

metals

nitriles

combustible substances

organic solvents

- **10.6 Hazardous decomposition products:** see section 5

## SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC50 values that are relevant for classification:**

**CAS: 7664-93-9 sulphuric acid**

Oral	LD50	2140 mg/kg (rat) (IUCLID)
Inhalative	LC 50	510 mg/m <sup>3</sup> /2h (rat) IUCLID

- **Skin corrosion/irritation** Causes severe skin burns and eye damage.

- **Serious eye damage/irritation**

Causes serious eye damage.

Risk of blindness!

- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

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

- **Reproductive toxicity** Based on available data, the classification criteria are not met.

- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.

- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

- **Aspiration hazard** Based on available data, the classification criteria are not met.

- **Additional toxicological information:**

In case of an acute molybdenum(VI) intoxication: diarrhoea, anaemia, fatigue, loss of appetite

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The aerosol is corrosive to the eyes, the skin and the respiratory tract. Inhalation of aerosols may cause lung oedema.

Sulfuric acid: erosion of the teeth, cancer

- **11.2 Information on other hazards**

- **Endocrine disrupting properties**

None of the ingredients is listed.

## SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

**CAS: 7664-93-9 sulphuric acid**

EC50	>100 mg/l/48h (Daphnia magna) (OECD 202) (ECHA)
LC50	16–29 mg/l/96h (bluegill) (Merck)

- **Bacterial toxicity:** sulphates toxic > 2.5 g/l

- **Other information:**

Toxic for fish:

sulphates &gt; 7 g/l

molybdenum compounds in general: &gt; 25 mg/l

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NH<sub>4</sub><sup>+</sup> > 0.3 mg/l

- **12.2 Persistence and degradability** .

- **Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

- **12.3 Bioaccumulative potential**

Depending on the concentration, nitrogen compounds may contribute to the eutrophication of water supplies.

- **12.4 Mobility in soil** No further relevant information available.

- **12.5 Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

- **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

- **12.7 Other adverse effects**

Neutralisation possible in waste water treatment plants.

Avoid transfer into the environment.

- **Water hazard:**

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**

- **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to disposers of hazardous waste.

- **European waste catalogue**

16 05 07\* discarded inorganic chemicals consisting of or containing dangerous substances

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

### SECTION 14: Transport information

- **14.1 UN number or ID number**

- **ADR, IMDG, IATA**

UN2796

- **14.2 UN proper shipping name**

- **ADR**

2796 SULPHURIC ACID solution

- **IMDG, IATA**

SULPHURIC ACID solution

- **14.3 Transport hazard class(es)**

- **ADR**



- **Class**

8 (C1) Corrosive substances.

- **Label**

8

- **IMDG, IATA**



- **Class**

8 Corrosive substances.

- **Label**

8

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· <b>14.4 Packing group</b> · ADR, IMDG, IATA	II
· <b>14.5 Environmental hazards:</b> · Marine pollutant:	No
· <b>14.6 Special precautions for user</b> · Kemler Number: · EMS Number: · Segregation groups · Stowage Category	Warning: Corrosive substances. 80 F-A,S-B Acids B
· <b>14.7 Maritime transport in bulk according to IMO instruments</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· ADR · Excepted quantities (EQ): · Limited quantities (LQ) · Excepted quantities (EQ)	E2 1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category · Tunnel restriction code	2 E
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

### \* SECTION 15: Regulatory information

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

##### · Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)

None of the ingredients is listed.

##### · Regulation (EU) 2019/1148 on the marketing and use of explosives precursors

Acquisition, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see <https://ec.europa.eu>

##### · explosives precursors - ANNEX I

CAS: 7664-93-9 | sulphuric acid

##### · Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

None of the ingredients is listed.

##### · REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)

None of the ingredients is listed.

##### · Directive 2012/18/EU (SEVESO III):

##### · Named dangerous substances - ANNEX I None of the ingredients is listed.

##### · LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)

None of the ingredients is listed.

##### · Substances of very high concern (SVHC) according to REACH, Article 57

This product does not contain any substances of very high concern above the legal concentration limit of  $\geq 0.1\%$  (w / w).

##### · REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

##### · Information about limitation of use: Employment restrictions concerning young persons must be observed (94/33/EC).

##### · 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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### SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

· **Abbreviations and acronyms:**

EC50: effective concentration, 50 percent (in vivo)

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Met. Corr.1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· **Sources** Data arise from safety data sheets, reference works and literature.

· **\* Data compared to the previous version altered.**



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Version number 8 (replaces version 7)

Revision: 29.01.2021

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

#### 1.1 Product identifier

Product name: **Reagent PB2 Phosphate HR**

Catalog number: 100554E

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

Application of the substance / the preparation: Reagent for water analysis

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

##### Supplier:

Vecom Marine B.V.  
Mozartlaan 3  
3144 NA Maassluis  
The Netherlands

phone: + 31 (0)10 5930 210  
Email: sales@vecom-marine.com

#### 1.4 Emergency telephone number:

Dutch Poisons Information Center (NVIC): +31 (0)88 755 8000 (24 hour service)  
Only for the purpose of informing medical personnel in case of acute intoxications.  
See section 4 on first aid measures.

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification according to Regulation (EC) No 1272/2008



GHS05 corrosion

Met. Corr. 1 H290 May be corrosive to metals.  
Skin Corr. 1B H314 Causes severe skin burns and eye damage.  
Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

#### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.

##### Hazard pictograms



GHS05



GHS07

Signal word Danger

##### Hazard-determining components of labelling:

nitric acid 18 %

##### Hazard statements

H290 May be corrosive to metals.

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### Product name: Reagent PB2 Phosphate HR

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H332 Harmful if inhaled.

H314 Causes severe skin burns and eye damage.

#### Precautionary statements

P260 Do not breathe mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection.

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

P304+P340 IF INHALED: Remove person to fresh air and keep 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.

P310 Immediately call a POISON CENTER/doctor.

• **2.3 Other hazards** Acid burns have to treated immediately, as it may otherwise cause badly curing wounds.

#### Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

#### Determination of endocrine-disrupting properties

The product does not contain substances with endocrine disrupting properties.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

• **Description:** aqueous solution

#### Dangerous components:

CAS: 7697-37-2 EINECS: 231-714-2 Index No: 007-004-00-1 Reg.nr.: 01-2119487297-23-XXXX	nitric acid ⚠ Ox. Liq. 2, H272; ⚠ Acute Tox. 3, H331; ⚠ Met. Corr.1, H290; Skin Corr. 1A, H314, EUH071 Specific concentration limits: Ox. Liq. 2; H272: C ≥ 99 % Ox. Liq. 3; H272: 65 % ≤ C < 99 % Skin Corr. 1A; H314: C ≥ 20 % Skin Corr. 1B; H314: 5 % ≤ C < 20 %	10–<20%
CAS: 7803-55-6 EINECS: 232-261-3	ammonium meta-vanadate ⚠ Acute Tox. 3, H301; ⚠ STOT RE 1, H372; ⚠ Acute Tox. 4, H332; Eye Irrit. 2, H319; STOT SE 3, H335	0.1–1%

• **Additional information** For the wording of the listed hazard phrases refer to section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General information

Personal protection for the First Aider!

Instantly remove any clothing soiled by the product.

• **After inhalation** Supply fresh air or oxygen; call for doctor.

#### After skin contact

Wash with polyethylene glycol 400 and then rinse with copious amounts of water.

Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.

#### After eye contact

Rinse opened eye for several minutes (at least 15 min) under running water.

Call a doctor immediately.

#### After swallowing

Rinse out mouth and then drink 1-2 glasses of water.

Do not induce vomiting; instantly call for medical help.

### 4.2 Most important symptoms and effects, both acute and delayed:

burns

after inhalation:

damage to the affected mucous membranes

coughing

respiratory paralysis

after swallowing:

strong caustic effect.

pain

vomiting

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diarrhoea

after absorption of large amounts:

methaemoglobinaemia

- **Danger**

Danger of gastric perforation.

Danger of pulmonary oedema.

Danger of system failure.

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

If swallowed or in case of vomiting, danger of entering the lungs

Subsequent observation for pneumonia and pulmonary oedema

### 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**

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

Can be released in case of fire:

nitrous gases

Nitrogen oxides (NOx)

- **5.3 Advice for firefighters**

- **Protective equipment:**

Wear self-contained breathing apparatus.

Wear full protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter drains.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**

- **Advice for non-emergency personnel:**

Wear protective equipment. Keep unprotected persons away.

Avoid substance contact.

Ensure adequate ventilation

Use breathing protection against the effects of fumes/dust/aerosol.

- **Advice for emergency responders:** Protective equipment: see section 8

- **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.

- **6.3 Methods and material for containment and cleaning up:**

Ensure adequate ventilation.

Neutralize with diluted sodium hydroxide solution or by throwing on lime sand, lime or sodium carbonate.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose of contaminated material as waste according to item 13.

- **6.4 Reference to other sections**

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**

- **Advice on safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

- **Hygiene measures:**

Do not inhale gases / fumes / aerosols.

Do not get in eyes, on skin, or on clothing.

Take off immediately all contaminated clothing.

Wash hands during breaks and at the end of the work.

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Do not eat, drink or smoke when using this product.

- **7.2 Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information about storage in one common storage facility:**  
Store away from metals.  
Do not store together with alkalis (caustic solutions).  
Store away from flammable substances.  
Store away from reducing agents.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Protect from heat and direct sunlight.  
Protect from the effects of light.  
Protect from humidity and keep away from water.
- **Recommended storage temperature:** 20°C +/- 5°C
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

- **Components with limit values that require monitoring at the workplace:**

##### **CAS: 7697-37-2 nitric acid**

WEL (Great Britain) | Short-term value: 2.6 mg/m<sup>3</sup>, 1 ppmIOELV (European Union) | Short-term value: 2.6 mg/m<sup>3</sup>, 1 ppm

- **Regulatory information**

WEL (Great Britain): EH40/2018

IOELV (European Union): (EU) 2017/164

- **DNELs**

##### **CAS: 7697-37-2 nitric acid**

Inhalative | DNEL | 1.3 mg/m<sup>3</sup> (Worker / long-term / local effects)

- **Recommended monitoring procedures:**

Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

- **Additional information:** The lists that were valid during the compilation were used as basis.

#### · 8.2 Exposure controls

- **Engineering measures:**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.

- **Individual protection measures, such as personal protective equipment**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.

- **Eye/face protection** Tightly sealed safety glasses.

- **Hand protection**

Acid resistant gloves

Preventive skin protection by use of skin-protecting agents is recommended.

After use of gloves apply skin-cleaning agents and skin cosmetics.

- **Material of gloves**

nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.35 mm

- **Penetration time of glove material**

Value for the permeation: Level = 1 ( &lt; 10 min )

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Other skin protection (body protection):** Acid resistant protective clothing

- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.

- **Recommended filter device for short term use:** Combination filter E-P2

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· **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

### SECTION 9: Physical and chemical properties

#### · 9.1 Information on basic physical and chemical properties

· <b>Physical state</b>	Fluid
· <b>Form:</b>	Solution
· <b>Colour:</b>	Yellow
· <b>Odour:</b>	Pungent
· <b>Odour threshold:</b>	CAS 7697-37-2: 0.27 ppm (anhydrous substance)
· <b>Melting point/Freezing point:</b>	Not determined.
· <b>Boiling point or initial boiling point and boiling range</b>	Not determined.
· <b>Flammability</b>	Not applicable.
· <b>Explosive properties:</b>	Product is not explosive.
· <b>Lower and upper explosion limit</b>	
· <b>Lower:</b>	Not applicable.
· <b>Upper:</b>	Not applicable.
· <b>Flash point:</b>	Not applicable.
· <b>Ignition temperature:</b>	Not applicable.
· <b>Decomposition temperature:</b>	Not determined.
· <b>pH</b>	< 1 Strongly acidic
· <b>Kinematic viscosity</b>	Not determined.
· <b>Solubility</b>	
· <b>Water:</b>	Fully miscible
· <b>Partition coefficient n-octanol/water (log value)</b>	Not applicable (mixture).
· <b>Vapour pressure:</b>	Not determined.
· <b>Density and/or relative density</b>	
· <b>Density at 20°C:</b>	1.1 g/cm <sup>3</sup>
· <b>Relative density:</b>	Not determined.
· <b>Relative gas density</b>	Not determined.
· <b>Particle characteristics</b>	Not applicable (liquid).

#### · 9.2 Other information

##### · Information with regard to physical hazard classes

· <b>Corrosive to metals</b>	May be corrosive to metals.
· <b>Metals that are corroded by the substance or mixture</b>	Information on incompatible materials can be found in Sections 7 and 10.
· <b>Other safety characteristics</b>	
· <b>Oxidising properties:</b>	Oxidising potential CAS 7697-37-2: is classified as oxidising.
· <b>Additional information</b>	
· <b>Solids content:</b>	< 1 %
· <b>Solvent content:</b>	
· <b>Organic solvents:</b>	0.0 %
· <b>Water:</b>	> 80 %

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** see section 10.3
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
  - Reacts with metals forming hydrogen (--> Explosive!)
  - Corrosive action on metals
  - Reacts with reducing agents
  - Reacts with acids and alkali (lyes).
  - Reacts with metals to form nitrous fumes and hydrogen
  - Reacts with ammonia (NH<sub>3</sub>).
  - Reacts with alcohols

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- Acts as an oxidizing agent on organic materials such as wood, paper and fats
- **10.4 Conditions to avoid** To avoid thermal decomposition do not overheat.
- **10.5 Incompatible materials:**
  - metals
  - alkali metals
  - combustible substances
  - organic solvents
- **10.6 Hazardous decomposition products:**
  - nitrous gases
  - In case of fire: see section 5.

### SECTION 11: Toxicological information

#### · 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

##### · Acute toxicity

Classification according to calculation procedure:  
Harmful if inhaled.

##### · Acute toxicity estimate (ATE<sub>(mix)</sub>) - Calculation method:

Dermal	CLP ATE <sub>(mix)</sub>	15 mg/kg (vapour)
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##### · LD/LC50 values that are relevant for classification:

###### CAS: 7697-37-2 nitric acid

Oral	LDLo	430 mg/kg (human) (IUCLID)
Inhalative	LC50/4h	>2.65 mg/l/4h (rat) (OECD 403) (Registrant, ECHA: the atmosphere consisted mainly of vapor with a small aerosol fraction of ca. 0.8%.)

###### CAS: 7803-55-6 ammonium meta-vanadate

Oral	LD50	169 mg/kg (rat) (OECD 401) (Merck)
Dermal	LD50.	>2500 mg/kg (rat) (OECD402) (Registrant, ECHA: limit-test, all test animals survived at this concentration)
Inhalative	LC50/4h	2.5 mg/l/4h (rat) (OECD 403) (Merck)

##### · Skin corrosion/irritation Causes severe skin burns and eye damage.

##### · Serious eye damage/irritation

Causes serious eye damage.  
Risk of blindness!

##### · Information on components:

###### CAS: 7803-55-6 ammonium meta-vanadate

Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: irritation)

##### · Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

##### · Germ cell mutagenicity Based on available data, the classification criteria are not met.

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

##### · Reproductive toxicity Based on available data, the classification criteria are not met.

##### · STOT (specific target organ toxicity) -single exposure Based on available data, the classification criteria are not met.

##### · STOT (specific target organ toxicity) -repeated exposure Based on available data, the classification criteria are not met.

##### · Aspiration hazard Based on available data, the classification criteria are not met.

##### · Additional toxicological information:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.  
The aerosol is corrosive to the eyes, the skin and the respiratory tract. Inhalation of aerosols may cause lung oedema.

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**· 11.2 Information on other hazards**
**· Endocrine disrupting properties**

None of the ingredients is listed.

**SECTION 12: Ecological information**
**· 12.1 Toxicity**
**· Aquatic toxicity:**
**CAS: 7697-37-2 nitric acid**

LC50	72 mg/l/96h (mosquitofish) (IUCLID)
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**CAS: 7803-55-6 ammonium meta-vanadate**

NOEC	0.87 mg/l (fish) (30d) (Merck: Clarias batrachus)
LC50	2.6 mg/l/96h (fish) (ECOTOX: Ictalurus catus)

**· 12.2 Persistence and degradability .**
**· Other information:**

Mixture of inorganic compounds.

Methods for the determination of biodegradability are not applicable to inorganic substances.

**· 12.3 Bioaccumulative potential**
**CAS: 7697-37-2 nitric acid**

log Pow	-2.3 (.) (OECD 107)
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**· 12.4 Mobility in soil** No further relevant information available.

**· 12.5 Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.

**· 12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

**· 12.7 Other adverse effects**

Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of water supplies. Harmful effect due to pH shift.

Forms corrosive mixtures with water even if diluted.

Avoid transfer into the environment.

**· Water hazard:**

Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralised.

**SECTION 13: Disposal considerations**
**· 13.1 Waste treatment methods**
**· Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to disposers of hazardous waste.

**· European waste catalogue**

16 05 06*	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
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**· Uncleaned packagings:**
**· Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**
**· 14.1 UN number or ID number**
**· ADR, IMDG, IATA**

UN2031

**· 14.2 UN proper shipping name**
**· ADR**

2031 NITRIC ACID

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· IMDG, IATA	NITRIC ACID
· <b>14.3 Transport hazard class(es)</b>	
· ADR	
	
· Class	8 (C1) Corrosive substances.
· Label	8
· IMDG, IATA	
	
· Class	8 Corrosive substances.
· Label	8
· <b>14.4 Packing group</b>	
· ADR, IMDG, IATA	II
· <b>14.5 Environmental hazards:</b>	
· Marine pollutant:	No
· <b>14.6 Special precautions for user</b>	Warning: Corrosive substances.
· Kemler Number:	80
· EMS Number:	F-A,S-Q
· Segregation groups	Acids
· Stowage Category	D
· <b>14.7 Maritime transport in bulk according to IMO instruments</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· ADR	
· Excepted quantities (EQ):	E2
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

### SECTION 15: Regulatory information

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

##### · Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)

None of the ingredients is listed.

##### · Regulation (EU) 2019/1148 on the marketing and use of explosives precursors

Acquisition, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see <https://ec.europa.eu>

##### · explosives precursors - ANNEX I

CAS: 7697-37-2 | nitric acid

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**· Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**

None of the ingredients is listed.

**· REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**

None of the ingredients is listed.

**· Directive 2012/18/EU (SEVESO III):**
**· Named dangerous substances - ANNEX I** None of the ingredients is listed.

**· LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**

None of the ingredients is listed.

**· Substances of very high concern (SVHC) according to REACH, Article 57**
This product does not contain any substances of very high concern above the legal concentration limit of  $\geq 0.1\%$  (w / w).
**· REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

**· Information about limitation of use:** Employment restrictions concerning young persons must be observed (94/33/EC).

**· 15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**· Training hints** Provide adequate information, instruction and training for operators.

**· Relevant phrases**

H272 May intensify fire; oxidiser.

H290 May be corrosive to metals.

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H319 Causes serious eye irritation.

H331 Toxic if inhaled.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H372 Causes damage to organs through prolonged or repeated exposure.

EUH071 Corrosive to the respiratory tract.

**· Abbreviations and acronyms:**

EC50: effective concentration, 50 percent (in vivo)

OECD: Organisation for Economic Co-operation and Development

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

EC50: half maximal effective concentration

IC50: half maximal inhibitory concentration

NOEL or NOEC: No Observed Effect Level or Concentration

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Ox. Liq. 2: Oxidizing liquids – Category 2

Met. Corr.1: Corrosive to metals – Category 1

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

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**· Sources**

Data arise from safety data sheets, reference works and literature.

ECHA: European CHemicals Agency <http://echa.europa.eu>

ECOTOX Database

IUCLID (International Uniform Chemical Information Database)

**· \* Data compared to the previous version altered.**

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