

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

Printing date 06.04.2019

Version number 20

Revision: 06.04.2019

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

· **1.1 Product identifier**

· **Product name:** Total Nitrogen Hydroxide LR / HR

· **Catalog number:** 251995

· **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:**

Xylem Analytics Germany GmbH
WTW
Dr.-Karl-Slevogt-Straße 1
82362 Weilheim
Germany
Tel. +49 881 183-0

· **Informing department:** E-Mail: Info.WTW@Xyleminc.com

· **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

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.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

· **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** Warning

· **Hazard statements**

H290 May be corrosive to metals.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· **Precautionary statements**

P280 Wear protective gloves / eye 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 doctor.

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P390 Absorb spillage to prevent material damage.

 · **2.3 Other hazards** No further relevant information available.

 · **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.

SECTION 3: Composition/information on ingredients

 · **3.2 Mixtures**

 · **Description:** aqueous solution

 · **Dangerous components:**

CAS: 1310-73-2 EINECS: 215-185-5 Index No: 011-002-00-6 Reg.nr.: 01-2119457892-27-XXXX	sodium hydroxide	Met. Corr.1, H290; Skin Corr. 1A, H314	0.5-1%
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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; consult doctor in case of symptoms.

 · **After skin contact**

Instantly rinse with water.

If skin irritation continues, consult a doctor.

 · **After eye contact** Rinse opened eye for several minutes (at least 15 min) under running water. Then consult doctor.

 · **After swallowing**

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

Seek medical treatment.

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

 · **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

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.

 · **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.

Ensure adequate ventilation

 · **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 sulphuric acid

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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:** No special precautions necessary if used correctly.

Hygiene measures:

Avoid contact with the skin.
Avoid contact with the eyes.
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
Storage

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

· **Information about storage in one common storage facility:** Store away from metals.

Further information about storage conditions:

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: 1310-73-2 sodium hydroxide

WEL (Great Britain)	Short-term value: 2 mg/m ³	
OEL (Sweden)	Long-term value: 1 mg/m ³	
	Ceiling limit	: 2 mg/m ³
	inhalerbart damm	

Regulatory information

WEL (Great Britain): EH40/2011
OEL (Sweden): AFS2011:18

DNELs

Derived No Effect Level (DNEL)

CAS: 1310-73-2 sodium hydroxide

Inhalative	DNEL	1 mg/m ³ (Worker / long-term / local effects)
		1 mg/m ³ (Consumer / 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.

Personal protective equipment

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

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

Protection of hands:

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

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

- **Material of gloves**

nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.11 mm

- **Penetration time of glove material**

Value for the permeation: Level = 1 (< 10 min)

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

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing.

- **Limitation and supervision of exposure into the environment:**

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**

- **Appearance:**

Form / Physical state:	Fluid
Colour:	Colourless

· Odour:	Odourless
· Odour threshold:	Not applicable

· pH-value at 20°C:	12.1
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· Melting point/Freezing point:	Not determined
· Initial boiling point and boiling range:	Not determined

· Flash point:	Not applicable
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· Flammability (solid, gas):	Not applicable.
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· Decomposition temperature:	Not determined.
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· Auto-ignition temperature:	Product is not self-igniting.
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· Explosive properties:	Product is not explosive.
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- **Flammability or explosive limits:**

Lower:	Not applicable
Upper:	Not applicable

· Oxidising properties:	none
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· Vapour pressure:	Not determined.
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· Density at 20°C:	1.01 g/cm ³
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· Relative density:	Not determined.
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· Vapour density:	Not determined.
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· Evaporation rate:	Not determined.
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- **Solubility(ies):**

Water:	Fully miscible
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· Partition coefficient: n-octanol/water:	Not determined.
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· Viscosity:	Not determined.
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- **Solvent content:**

Organic solvents:	0.0 %
Water:	> 99 %
Solids content:	< 1 %

· 9.2 Other information	No further relevant information available.
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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**

Corrosive action on metals

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

Corrodes aluminium

Exothermic reaction with acids

· **10.4 Conditions to avoid** No further relevant information available.

· **10.5 Incompatible materials:**

metals

light metals

zinc

aluminium

NH_x

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

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**

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

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

CAS: 1310-73-2 sodium hydroxide

Oral	LDLo	500 mg/kg (rabbit) (IUCLID)
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· **Primary irritant effect:**

· **Skin corrosion/irritation**

Causes skin irritation.

· **Serious eye damage/irritation** Causes serious eye irritation.

· **Information on components:** CAS 1310-73-2: chronic: dermatitis

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

· **Information on components:**

CAS: 1310-73-2 sodium hydroxide

Sensitisation	Patch test (human)	(negative)
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· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** The following statements refer to the mixture:

· **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.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

CAS: 1310-73-2 sodium hydroxide

LC50	40.4 mg/l/48h (Ceriodaphnia sp.) (ECHA)
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· **Bacterial toxicity:**

CAS: 1310-73-2 sodium hydroxide

EC50	22 mg/l (Photobacterium phosphoreum) (15 min)
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· **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** No further relevant information available.

· **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.

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12.6 Other adverse effects

Harmful effect due to pH shift.
Forms corrosive mixtures with water even if diluted.
Neutralisation possible in waste water treatment plants.
Avoid transfer into the environment.

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 hazardous 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
ADR, IMDG, IATA

UN1824

14.2 UN proper shipping name
ADR
IMDG, IATA

1824 SODIUM HYDROXIDE SOLUTION mixture
SODIUM HYDROXIDE SOLUTION mixture

14.3 Transport hazard class(es)
ADR

Class
Label

8 (C5) Corrosive substances.

8

IMDG, IATA

Class
Label

8 Corrosive substances.

8

14.4 Packing group
ADR, IMDG, IATA

III

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user
Kemler Number:
EMS Number:
Segregation groups
Stowage Category
Segregation Code

Warning: Corrosive substances.

80

F-A,S-B

Alkalis

A

SG35 Stow "separated from" acids.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

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· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

SECTION 15: Regulatory information

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

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

None of the ingredients is listed.

· Directive 2012/18/EU (SEVESO III):

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

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

· Regulation (EU) No 649/2012

None of the ingredients is listed.

· National regulations

· Information about limitation of use: Employment restrictions concerning young persons must be observed.

· 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.

· Relevant phrases

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

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

· Abbreviations and acronyms:

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 européen sur le transport 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

vPvB: very Persistent and very Bioaccumulative

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

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

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

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Sources

Data arise from safety data sheets, reference works and literature.
IUCLID (International Uniform Chemical Information Database)
ECOTOX Database

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

· **1.1 Product identifier**

· **Product name:** VARIO TOTAL NITROGEN ACID LR VIALS

· **Catalog number:** 251995, 251996

· **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:**

Xylem Analytics Germany GmbH
WTW
Dr.-Karl-Slevogt-Straße 1
D 82362 Weilheim
Germany
Tel. +49 881 183-0

· **Informing department:** E-Mail: Info.WTW@Xyleminc.com

· **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

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 86 %

· **Hazard statements**

H290 May be corrosive to metals.

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.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

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 doctor.

· **2.3 Other hazards**

Contact with skin and inhalation of aerosols/ vapours of the preparation should be avoided.

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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: 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 %	80-90%
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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

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:

after inhalation:

damage to the affected mucous membranes

coughing

breathing difficulty

after swallowing:

diarrhoea

pain

sickness

vomiting

cramps

Danger

Danger of impaired breathing.

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 CO₂, sand, extinguishing powder.

For safety reasons unsuitable extinguishing agents Water.

5.2 Special hazards arising from the substance or mixture

The product is not combustible.

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

Can be released in case of fire:

Sulphur oxides (SO_x)

· **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

· **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.

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**

· **Advice on safe handling:**

Open and handle container with care.

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:**

Store in cool, dry conditions in well sealed containers.

Store in a locked cabinet or with access restricted to technical experts or their assistants.

Protect from heat and direct sunlight.

Protect from the effects of light.

Protect from humidity and keep away from water.

This product is hygroscopic.

Store under dry conditions.

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

- **Regulatory information**

WEL (Great Britain): EH40/2011
 IOELV (European Union): 91/322/EEC, 2000/39/EC, 2006/15/EC
 OEL (Sweden): AFS2011:18

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

- **DNELs**

Derived No Effect Level (DNEL)

CAS: 7664-93-9 sulphuric acid

Inhalative	DNEL	0.1 mg/m ³ (Worker / acute / local effects)
		0.05 mg/m ³ (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**

Predicted No Effect Concentration (PNEC)

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.
Face protection

- **Hand protection**

Protective 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**

Butyl rubber, BR
Recommended thickness of the material: ≥ 0.7 mm

- **Penetration time of glove material**

Value for the permeation: Level = 1 (< 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

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- **Breathing equipment:**
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Recommended filter device for short term use:** Combination filter B-P2
- **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**
- **Physical state** Fluid
- **Form:** Liquid
- **Colour:** Clear
- **Odour:** Recognisable
- **Odour threshold:** Not determined.
- **Melting point/Freezing point:** Not determined
- **Boiling point or initial boiling point and boiling range** Not determined
- **Flammability** Not applicable.
- **Explosive properties:** Product is not explosive.
- **Lower and upper explosion limit**
- **Lower:** Not applicable
- **Upper:** Not applicable
- **Flash point:** Not applicable
- **Ignition temperature:** Not applicable
- **Decomposition temperature:** Not determined.
- **pH at 20°C** < 1
- **Kinematic viscosity** Not determined.
- **Solubility**
- **Water:** Fully miscible
- **Partition coefficient n-octanol/water (log value)** Not applicable (mixture).
- **Vapour pressure:** Not determined.
- **Density and/or relative density**
- **Density at 20°C:** 1.8 g/cm³
- **Relative density:** Not determined.
- **Relative gas density** Not determined.
- **Particle characteristics** Not applicable (liquid).

· 9.2 Other information

- **Information with regard to physical hazard classes**
- **Corrosive to metals**
May be corrosive to metals.
- **Metals that are corroded by the substance or mixture** Information on incompatible materials can be found in Sections 7 and 10.
- **Other safety characteristics**
- **Oxidising properties:** none
- **Additional information**
- **Solvent content:**
- **Organic solvents:** 0.0 %
- **Water:** > 10 %

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

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Reacts with halogenated compounds
 Reacts with oxidizing agents
 Reacts with acids and alkali (lyes).
 Reacts with ammonia (NH₃).

- **10.4 Conditions to avoid** strong heating

- **10.5 Incompatible materials:**

metals
 combustible substances
 organic solvents

- **10.6 Hazardous decomposition products:**

Sulphur oxides (SO_x)
 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:**

The following statements refer to the individual components.

CAS: 7664-93-9 sulphuric acid

Oral	LD50	2140 mg/kg (rat)
	LC 50	510 mg/m ³ /2h (rat)

- **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:**

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)

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

- **Other information:**

Toxic for fish:
 sulphates > 7 g/l

- **12.2 Persistence and degradability .**

- **Other information:**

Mixture of inorganic compounds.

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- Does not cause biological oxygen deficit.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **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**
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.
- **Remark:** neutralization possible



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 hazardous 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 | UN1830 |
| 14.2 UN proper shipping name | |
| · ADR | 1830 SULPHURIC ACID |
| · IMDG, IATA | SULPHURIC ACID |
| 14.3 Transport hazard class(es) | |
| · ADR | |
|  | |
| · Class | 8 (C1) Corrosive substances. |
| · Label | 8 |
| · IMDG, IATA | |
|  | |
| · Class | 8 Corrosive substances. |
| · Label | 8 |
| 14.4 Packing group | |
| · ADR, IMDG, IATA | II |
| 14.5 Environmental hazards: | |
| · Marine pollutant: | No |
| 14.6 Special precautions for user | Warning: Corrosive substances. |

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· Kemler Number:	80
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	E
· Stowage Code	SW15 For metal drums, stowage category B.
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	
· ADR	
· 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 (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

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

· Abbreviations and acronyms:

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

EC50: effective concentration, 50 percent (in vivo)

STOT: specific target organ toxicity

SE: single exposure

RE: repeated exposure

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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.
CSST (Service du répertoire toxicologique)
IUCLID (International Uniform Chemical Information Database)
International Chemical Safety Cards (ICSCs)

· * Data compared to the previous version altered.

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

· **1.1 Product identifier**

· **Product name:** Vario Total N Persulfate RGT

· **Catalog number:** 251995, 251996

· **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:**

Xylem Analytics Germany GmbH
WTW
Dr.-Karl-Slevogt-Straße 1
D 82362 Weilheim
Germany
Tel. +49 881 183-0

· **Informing department:** E-Mail: Info.WTW@Xyleminc.com

· **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

SECTION 2: Hazards identification

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

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



GHS03 flame over circle

Ox. Sol. 3 H272 May intensify fire; oxidiser.



GHS08 health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

· **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**



GHS03



GHS07



GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**
disodium peroxodisulphate

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potassium persulphate

Hazard statements

- H272 May intensify fire; oxidiser.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H335 May cause respiratory irritation.

Precautionary statements

- P261 Avoid breathing dust.
- P280 Wear protective gloves/protective clothing/eye protection.
- P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
- 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.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

• **2.3 Other hazards** No further relevant information available.

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

• **Description:** Mixture of inorganic compounds.

Dangerous components:

CAS: 7775-27-1 EINECS: 231-892-1	disodium peroxodisulphate ⚠ Ox. Sol. 3, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	80–90%
CAS: 7727-21-1 EINECS: 231-781-8 Index No: 016-061-00-1	potassium persulphate ⚠ Ox. Sol. 3, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	5–<10%

• **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.
- **After skin contact**
Instantly rinse with water.
If skin irritation continues, consult a doctor.
- **After eye contact** Rinse opened eye for several minutes (at least 15 min) under running water. Then consult doctor.
- **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Seek medical treatment.

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

- allergic reactions
- irritations
- after inhalation:
mucosal irritations, Cough, Shortness of breath
- after swallowing:
sickness
vomiting
gastric or intestinal trouble
mucous membrane irritation
headache
- **Danger**
Danger of pulmonary oedema.
risk of airways sensitization
risk of skin sensitization

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- **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.
-

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
 - **Suitable extinguishing agents** Water, Carbon dioxide (CO₂), Foam, Fire-extinguishing powder
 - **For safety reasons unsuitable extinguishing agents**
 - For this substance / mixture no limitations of extinguishing agents are given.
 - **5.2 Special hazards arising from the substance or mixture**
 - The product is not combustible.
 - Has a fire-promoting effect due to release of oxygen.
 - Risk of dust explosion
 - Formation of toxic gases is possible during heating or in case of fire.
 - Can be released in case of fire:
 - Sulphur oxides (SO_x)
 - Sodium oxide
 - Dipotassium oxide
 - **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
 - Avoid causing dust.
 - **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.
 - Collect mechanically.
 - 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 dust.
- Thorough dedusting.
- **Hygiene measures:**
- Do not inhale dust / smoke / mist.
- Avoid contact with the skin.
- Avoid contact with the eyes.
- 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.

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· 7.2 Conditions for safe storage, including any incompatibilities

· Storage

· Requirements to be met by storerooms and containers:

Store in cool location.

Protect from heat.

· Information about storage in one common storage facility:

Store away from flammable substances.

Store away from reducing agents.

· Further information about storage conditions:

Store in cool, dry conditions in well sealed containers.

Protect from heat and direct sunlight.

Protect from the effects of light.

Store under dry conditions.

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:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· 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.

· Personal protective equipment

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

· Recommended filter device for short term use: Filter P2

· Protection of hands:

Protective 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: ≥ 0.11 mm

· Penetration time of glove material

Value for the permeation: Level = 1 (< 10 min)

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

· Eye protection: Safety glasses

· Body protection: Protective work clothing.

· Limitation and supervision of exposure into the environment:

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

· Appearance:

Form / Physical state:	Powder
Colour:	White

· Odour:	Odourless
· Odour threshold:	Not applicable

· pH-value (25 g/l) at 20°C:	4.5
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· Melting point/Freezing point:	Not determined
· Initial boiling point and boiling range:	Not applicable
· Flash point:	Not applicable
· Flammability (solid, gas):	Contact with combustible material may cause fire.
· Decomposition temperature:	> 100°C (CAS 7727-21-1)
· Auto-ignition temperature:	Product is not self-igniting.
· Explosive properties:	Product is not explosive. Risk of dust explosion if enriched with fine dust in presence of air
· Flammability or explosive limits:	
Lower:	Not determined.
Upper:	Not determined.
· Oxidising properties:	May intensify fire; oxidiser.
· Vapour pressure:	Not applicable.
· Density at 20°C:	2.41 g/cm ³
· Relative density:	Not determined.
· Vapour density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies):	
Water:	Soluble
· Partition coefficient: n-octanol/water:	Not applicable.
· Viscosity:	Not applicable.
· Solvent content:	
Organic solvents:	0 %
Solids content:	100.0 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Risk of dust explosion
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
 - Reacts with alcohols
 - Reacts with reducing agents
 - Reacts with heavy metals
 - Reacts with strong acids and alkali
- **10.4 Conditions to avoid**
 - Exposure to moisture.
 - Strong heating (decomposition)
- **10.5 Incompatible materials:** combustible substances
- **10.6 Hazardous decomposition products:**
 - oxygen
 - see section 5

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**
 - Classification according to calculation procedure:
 - Harmful if swallowed.

· **Acute toxicity estimate (ATE_(MX)) - Calculation method:**

Oral | CLP ATE_(MX) | 907 mg/kg (.)

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· LD/LC50 values that are relevant for classification:		
CAS: 7775-27-1 disodium peroxodisulphate		
Oral	LD50	920 mg/kg (rat) (IUCLID)
Dermal	LD50	>10000 mg/kg (rabbit)
Inhalative	LC50.	>5.1 mg/l/4h (rat) (ECHA: no deaths at this concentration LC ₀ = >5.1)
	LD50 IPR	226 mg/kg (mouse)
CAS: 7727-21-1 potassium persulphate		
Oral	LD50	802 mg/kg (rat) (RTECS)
Dermal	LD50	>10000 mg/kg (rabbit)

- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.

- **Information on components:**

CAS 7775-27-1: chronic: dermatitis

CAS: 7775-27-1 disodium peroxodisulphate		
Irritation of skin	OECD 404	(rabbit: slight irritation) (ECHA: read-across CAS 7727-54-0 Diammonium persulfate)
Irritation of eyes	OECD 405	(rabbit: slight irritation) (ECHA: read-across CAS 7727-54-0 Diammonium persulfate)
CAS: 7727-21-1 potassium persulphate		
Irritation of skin	OECD 404	(rabbit: slight irritation) (ECHA: read-across CAS 7727-54-0 Diammonium persulfate)
Irritation of eyes	OECD 405	(rabbit: slight irritation) (ECHA: read-across CAS 7727-54-0 Diammonium persulfate)

- **Respiratory or skin sensitisation**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

- **Information on components:**

CAS: 7775-27-1 disodium peroxodisulphate		
Sensitisation	OECD 406	(guinea pig: positive)

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** The following statements refer to the mixture:
- **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**

May cause respiratory irritation.

- **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.

- **Information on components:**

OECD 414: Teratogenicity testing
 OECD 473: Mutagenicity testing
 OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 7775-27-1 disodium peroxodisulphate		
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) (IUCLID)	

- **Additional toxicological information:** Other dangerous properties can not be excluded.

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SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

CAS: 7775-27-1 disodium peroxodisulphate

EC50 133 mg/l/48h (Daphnia magna)

NOEC 91.7 mg/l/96h (rainbow trout)
(ECHA)NOEC 67.6 mg/l/48 h (Daphnia magna)
(ECHA)LC50 771 mg/l/96h (bluegill)
163 mg/l/96h (rainbow trout)
(ECHA)

CAS: 7727-21-1 potassium persulphate

EC50 120 mg/l/48h (Daphnia magna)

LC50 100 mg/l/96h (guppy)
(Hommel)

· Bacterial toxicity:

CAS: 7727-21-1 potassium persulphate

EC50 36 mg/l (Pseudomonas putida)
(Hommel)

· Other information:

Toxic for fish:
sulphates > 7 g/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

No further relevant information available.

· 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 Other adverse effects

Reacts with water to form toxic decomposition products.

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 hazardous 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

· ADR, IMDG, IATA

UN3215

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— GB —

Safety data sheet

according to 1907/2006/EC, Article 31



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Product name: Vario Total N Persulfate RGT

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<ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR · IMDG, IATA 	<p>3215 PERSULPHATES, INORGANIC, N.O.S. PERSULPHATES, INORGANIC, N.O.S.</p>
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR 	
	
<ul style="list-style-type: none"> · Class · Label 	<p>5.1 (O2) Oxidising substances. 5.1</p>
<ul style="list-style-type: none"> · IMDG, IATA 	
	
<ul style="list-style-type: none"> · Class · Label 	<p>5.1 Oxidising substances. 5.1</p>
<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	<p>III</p>
<ul style="list-style-type: none"> · 14.5 Environmental hazards: 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · 14.6 Special precautions for user · Kemler Number: · EMS Number: · Stowage Category · Segregation Code 	<p>Warning: Oxidising substances. 50 F-A,S-Q A SG40 Stow "separated from" SGG2-ammonium compounds other than mixtures of ammonium persulphates and/or potassium persulphates and/or sodium persulphates. SG49 Stow "separated from" SGG6-cyanides</p>
<ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code 	<p>Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: 	
<ul style="list-style-type: none"> · ADR · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g</p>
<ul style="list-style-type: none"> · Transport category · Tunnel restriction code 	<p>3 E</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p>5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g</p>

SECTION 15: Regulatory information

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

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

None of the ingredients is listed.

- Directive 2012/18/EU (SEVESO III):

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

- Seveso category P8 OXIDISING LIQUIDS AND SOLIDS

- Qualifying quantity (tonnes) for the application of lower-tier requirements 50 t

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Product name: Vario Total N Persulfate RGT

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- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

- **Regulation (EU) No 649/2012**

None of the ingredients is listed.

- **National regulations**

- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

- **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.

- **Relevant phrases**

H272 May intensify fire; oxidiser.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

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

- **Abbreviations and acronyms:**

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 européen sur le transport 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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Ox. Sol. 3: Oxidizing solids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

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

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

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

- **Sources**

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

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

GESTIS- Stoffdatenbank (Substance Database, Germany)

IUCLID (International Uniform Chemical Information Database)

- *** Data compared to the previous version altered.**

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

Printing date 06.04.2019

Version number 20

Revision: 06.04.2019

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

· 1.1 Product identifier

· **Product name:** Vario Total Nitrogen Reagent A

· **Catalog number:** 251995, 251996

· **CAS No.:**
7681-57-4

· **Registration number** 01-2119531326-45-XXXX

· 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:**

Xylem Analytics Germany GmbH
WTW
Dr.-Karl-Slevogt-Straße 1
82362 Weilheim
Germany
Tel. +49 881 183-0

· **Informing department:** E-Mail: Info.WTW@Xyleminc.com

· **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture

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



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

· 2.2 Label elements

· **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS05

GHS07

· **Signal word** Danger

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

disodium disulphite

· **Hazard statements**

H302 Harmful if swallowed.

H318 Causes serious eye damage.

· **Precautionary statements**

P280

Wear protective gloves/protective clothing/eye protection.

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Safety data sheet

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Product name: Vario Total Nitrogen Reagent A

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P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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 doctor.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Additional information:**

EUH031 Contact with acids liberates toxic gas.

· **2.3 Other hazards** No further relevant information available.

· **Results of PBT and vPvB assessment**

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

SECTION 3: Composition/information on ingredients

· **3.1 Substances** inorganic salt

· **CAS No. Designation:**

7681-57-4 disodium disulphite

· **Identification number(s):**

· **EC No:** 231-673-0

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.

· **After skin contact**

Instantly rinse with water.

If skin irritation continues, consult a doctor.

· **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.

Seek medical treatment.

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

allergic reactions

after inhalation:

coughing

mucous membrane irritation

breathing difficulty

after swallowing:

irritations

absorption

gastric or intestinal trouble

· **Information for doctor** Sulphites are strong sensitizers.

· **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents**

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

· **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:

Sulphur oxides (SOx)

Sodium oxide

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained breathing apparatus.

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Product name: Vario Total Nitrogen Reagent A

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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.

Suppress (knock down) gases/vapours/mists with a water spray jet.

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

Avoid inhalation of dust.

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.

Collect mechanically.

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:

Prevent formation of dust.

Thorough dedusting.

Hygiene measures:

Avoid contact with the eyes.

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

Information about storage in one common storage facility: Do not store together with acids.

Further information about storage conditions:

Keep container tightly sealed.

Protect from heat and direct sunlight.

Protect from the effects of light.

Store under dry conditions.

Protect from humidity and keep away from water.

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

7.3 Specific end use(s) See exposure scenario in the Annex to this MSDS.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Components with limit values that require monitoring at the workplace:
CAS: 7681-57-4 disodium disulphite
WEL (Great Britain) Long-term value: 5 mg/m³
Regulatory information WEL (Great Britain): EH40/2011

DNELs

Derived No Effect Level (DNEL)

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Product name: Vario Total Nitrogen Reagent A

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CAS: 7681-57-4 disodium disulphite

Inhalative	DNEL	10 mg/m ³ (Worker / long-term /systemic effects) (MERCK)
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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

Predicted No Effect Concentration (PNEC)

CAS: 7681-57-4 disodium disulphite

PNEC	75.4 mg/l (Sewage treatment plant)
	0.1 mg/l (Marine water)
	1 mg/l (Fresh water)

· **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.

Personal protective equipment

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

Protection of hands:

Protective 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: ≥ 0.11 mm

Penetration time of glove material

Breakthrough time: > 480 min

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

· **Eye protection:** Tightly sealed safety glasses.

· **Body protection:** Protective work clothing.

Limitation and supervision of exposure into the environment:

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
Appearance:

Form / Physical state:	Powder
Colour:	Colourless

Odour:	Light
Odour threshold:	Not determined.

pH-value (50 g/l) at 20°C:	3.5-5
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Melting point/Freezing point:	150°C Decomposition
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Initial boiling point and boiling range:	Not applicable Decomposition
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Flash point:	Not applicable
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Flammability (solid, gas):	The product is not combustible.
Ignition temperature:	Not applicable

Decomposition temperature:	> 150°C
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Auto-ignition temperature:	Product is not self-igniting.
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Explosive properties:	Product is not explosive.
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Product name: Vario Total Nitrogen Reagent A

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· Flammability or explosive limits:	
Lower:	Not applicable
Upper:	Not applicable
· Oxidising properties:	none
· Vapour pressure:	Not determined.
· Density at 20°C:	2.36 g/cm ³
· Relative density:	Not determined.
· Vapour density:	Not determined.
· Evaporation rate:	Not determined.
· Solubility(ies):	
Water at 20°C:	650 g/l Readily soluble
· Partition coefficient: n-octanol/water:	Not applicable.
· Viscosity:	Not applicable.
· Organic solvents:	0.0 %
· Solids content:	100.0 %
· 9.2 Other information	No further relevant information available.

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**
Contact with acids releases toxic gases
Reacts with acids releasing sulphur dioxide
Exothermic reaction with:
Oxidant, nitrites, nitrates, sulfides
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
Sulphur dioxide
In case of fire: see section 5.

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects

- **Acute toxicity**
Harmful if swallowed.

· **Acute toxicity estimate (ATE_(MX)) - Calculation method:**

Oral	CLP ATE _(MX)	1540 mg/kg (.)
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· **LD/LC50 values that are relevant for classification:**

CAS: 7681-57-4 disodium disulphite

Oral	LD50	1540 mg/kg (rat) (OECD 401) (MERCK)
Dermal	LD50.	>2000 mg/kg (rat) (RTECS)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**
Causes serious eye damage.
Risk of corneal clouding.

· **Information on components:**

CAS: 7681-57-4 disodium disulphite

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

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Product name: Vario Total Nitrogen Reagent A

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

· **Information on components:**

CAS: 7681-57-4 disodium disulphite

Sensitisation | OECD 406 | (guinea pig: negative)

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

· **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.

· **Information on components:**

CAS 7681-57-4: Did not show carcinogenic effects in animal experiments (IUCLID).

CAS 7681-57-4: No impairment of reproductive performance in animal experiments (IUCLID).

CAS 7681-57-4: Did not show teratogenic effects in animal experiments.

OECD 414: Teratogenicity testing

OECD 473: Mutagenicity testing

OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 7681-57-4 disodium disulphite

OECD 471 | (negative) (Bacterial Reverse Mutation Test - Ames test)

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

CAS: 7681-57-4 disodium disulphite

EC50 | 89 mg/l/48h (Daphnia magna) (OECD 202)
(MERCK)

IC50 | 48 mg/l/72h (Desmodesmus subspicatus) (OECD 201)
(MERCK)

LC50 | 150–220 mg/l/96h (rainbow trout) (DIN 38412 Teil 15)
(Merck)

· **Bacterial toxicity:**

CAS: 7681-57-4 disodium disulphite

EC50 | 56 mg/l (Pseudomonas putida) (17h)
(IUCLID)

· **12.2 Persistence and degradability** No further relevant information available.

· **Other information:** Methods for the determination of biodegradability are not applicable to inorganic substances.

· **12.3 Bioaccumulative potential** No further relevant information available.

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

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

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

· **12.6 Other adverse effects** 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 hazardous substances

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Printing date 06.04.2019

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Revision: 06.04.2019

Product name: Vario Total Nitrogen Reagent A

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

<ul style="list-style-type: none"> · 14.1 UN-Number · ADR, IMDG, IATA 	Void
<ul style="list-style-type: none"> · 14.2 UN proper shipping name · ADR, IMDG, IATA 	Void
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · ADR, IMDG, IATA · Class 	Void
<ul style="list-style-type: none"> · 14.4 Packing group · ADR, IMDG, IATA 	Void
<ul style="list-style-type: none"> · 14.5 Environmental hazards: 	Not applicable.
<ul style="list-style-type: none"> · 14.6 Special precautions for user 	Not applicable.
<ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code 	Not applicable.
<ul style="list-style-type: none"> · Transport/Additional information: 	Not dangerous according to the above specifications.

SECTION 15: Regulatory information

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

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

Substance is not listed.

- **Directive 2012/18/EU (SEVESO III):**
- **Named dangerous substances - ANNEX I** Substance is not listed.

- **Regulation (EU) No 649/2012**

Substance is not listed.

- **National regulations**

- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

- **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.

- **Abbreviations and acronyms:**

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 européen sur le transport 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

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Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.04.2019

Version number 20

Revision: 06.04.2019

Product name: Vario Total Nitrogen Reagent A

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
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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Sources

Data arise from safety data sheets, reference works and literature.
IUCLID (International Uniform Chemical Information Database)
RTECS (Registry of Toxic Effects of Chemical Substances)

— GB —

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

Printing date 06.04.2019



Version number 16

Revision: 06.04.2019

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

- **1.1 Product identifier**
- **Product name:** Vario Total Nitrogen Reagent B
- **Catalog number:** 251995, 251996
- **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:**
Xylem Analytics Germany GmbH
WTW
Dr.-Karl-Slevogt-Straße 1
82362 Weilheim
Germany
Tel. +49 881 183-0
- **Informing department:** E-Mail: Info.WTW@Xyleminc.com
- **1.4 Emergency telephone number:** Chemtrec (USA & Canada) 800-424-9300 (INTERNATIONAL) 001 703-527-3887

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
-  GHS05 corrosion
- 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:**
disodium disulphite
- **Hazard statements**
H318 Causes serious eye damage.
- **Precautionary statements**
P280 Wear eye protection / face protection.
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.
- **Additional information:**
EUH031 Contact with acids liberates toxic gas.
- **2.3 Other hazards** No further relevant information available.

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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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description: Mixture of organic and inorganic compounds

Dangerous components:

CAS: 7681-57-4 EINECS: 231-673-0 Index No: 016-063-00-2 Reg.nr.: 01-2119531326-45-XXXX	disodium disulphite ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302	5-10%
CAS: 5808-22-0 EINECS: 204-972-9	Disodium 4,5-dihydroxynaphthalene-2,7-disulphonate ⚠ Skin Irrit. 2, H315; ⚠ Eye Irrit. 2, H319; STOT SE 3, H335	5-10%
CAS: 14808-60-7 EINECS: 238-878-4	Quartz (SiO ₂) substance with a Community workplace exposure limit	30-40%

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; consult doctor in case of symptoms.

After skin contact

Instantly rinse with water.

If skin irritation continues, consult a doctor.

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.

Seek immediate medical advice.

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

Irritation and corrosion

allergic reactions

after inhalation:

mucous membrane irritation

coughing

breathing difficulty

after swallowing of large amounts:

sickness

vomiting

diarrhoea

absorption

Information for doctor Sulphites are strong sensitizers.

4.3 Indication of any immediate medical attention and special treatment needed: No further relevant information available.

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:

Sulphur oxides (SO_x)

Nitrogen oxides (NO_x)

Sodium oxide

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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:

- Avoid substance contact.
- Ensure adequate ventilation

Advice for emergency responders:

- Put on breathing apparatus.
- 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.
- Collect mechanically.
- 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:

- Prevent formation of dust.
- Thorough dedusting.

Hygiene measures:

- Avoid contact with the eyes.
- 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
Storage
Requirements to be met by storerooms and containers: Store in cool location.

Information about storage in one common storage facility:

- Do not store together with acids.
- Store away from oxidising agents.

Further information about storage conditions:

- Protect from heat and direct sunlight.
- Protect from the effects of light.
- Store under dry conditions.
- 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: 14808-60-7 Quartz (SiO₂) (30-40%)

OEL (Sweden)	Long-term value: 0.1 mg/m ³ C, M, respirabelt
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CAS: 7681-57-4 disodium disulphite (5-10%)
WEL (Great Britain) Long-term value: 5 mg/m³
· DNELs

Derived No Effect Level (DNEL)

CAS: 7681-57-4 disodium disulphite

Inhalative	DNEL	10 mg/m ³ (Worker / long-term /systemic effects) (MERCK)
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· 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

Predicted No Effect Concentration (PNEC)

CAS: 7681-57-4 disodium disulphite

PNEC	75.4 mg/l (Sewage treatment plant)
	0.1 mg/l (Marine water)
	1 mg/l (Fresh water)

· 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.

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

· Recommended filter device for short term use: Filter P2

· Protection of hands:

Protective 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: ≥ 0.11 mm

· Penetration time of glove material

Value for the permeation: Level = 1 (< 10 min)

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

· Eye protection: Tightly sealed safety glasses.

· Body protection: Protective work clothing.

· Limitation and supervision of exposure into the environment:

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
· Appearance:

Form / Physical state:	Crystalline powder
Colour:	yellowish - brown

· Odour: Odourless

· Odour threshold: Not applicable

· pH-value: Not determined.

· Melting point/Freezing point: Not determined

· Initial boiling point and boiling range: Not determined

· Flash point: Not applicable

· Flammability (solid, gas): The product is not combustible.

· Decomposition temperature: Not determined.

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· Auto-ignition temperature:	Product is not self-igniting.
· Explosive properties:	Product is not explosive.
· Flammability or explosive limits:	
Lower:	Not applicable
Upper:	Not applicable
· Oxidising properties:	none
· Vapour pressure:	Not applicable.
· Density:	Not determined
· Relative density:	Not determined.
· Vapour density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies):	
Water:	Partially insoluble.
· Partition coefficient: n-octanol/water:	Not applicable.
· Viscosity:	Not applicable.
· Solvent content:	
Organic solvents:	0 %
Solids content:	100 %
· 9.2 Other information	No further relevant information available.

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**
Contact with acids releases toxic gases
Reacts with acids releasing sulphur dioxide
Reacts with oxidizing agents
- **10.4 Conditions to avoid** strong heating
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
Sulphur dioxide
Ammonia (NH₃)
In case of fire: see section 5.

SECTION 11: Toxicological information

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

· LD/LC50 values that are relevant for classification:

CAS: 7681-57-4 disodium disulphite

Oral	LD50	1540 mg/kg (rat) (OECD 401) (MERCK)
Dermal	LD50.	>2000 mg/kg (rat) (RTECS)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**
Causes serious eye damage.
Risk of corneal clouding.

· Information on components:

CAS: 7681-57-4 disodium disulphite

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

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

- **Information on components:**

CAS: 7681-57-4 disodium disulphite

Sensitisation | OECD 406 | (guinea pig: negative)

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** The following statements refer to the mixture:
- **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.

- **Information on components:**

CAS 7681-75-4: Did not show carcinogenic effects in animal experiments (IUCLID).

CAS 7681-75-4: No impairment of reproductive performance in animal experiments (IUCLID).

CAS 7681-75-4: Did not show teratogenic effects in animal experiments.

CAS: 7681-57-4 disodium disulphite

OECD 471 | (negative) (Bacterial Reverse Mutation Test - Ames test)

- **Additional toxicological information:**
- **Experience with humans:** CAS 14808-60-7: May cause lung damages.

SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

CAS: 7681-57-4 disodium disulphite
EC50 | 89 mg/l/48h (Daphnia magna) (OECD 202)
(MERCK)IC50 | 48 mg/l/72h (Desmodesmus subspicatus) (OECD 201)
(MERCK)LC50 | 150–220 mg/l/96h (rainbow trout) (DIN 38412 Teil 15)
(Merck)

- **Bacterial toxicity:**

CAS: 7681-57-4 disodium disulphite
EC50 | 56 mg/l (Pseudomonas putida) (17h)
(IUCLID)

- **12.2 Persistence and degradability** No further relevant information available.

- **12.3 Bioaccumulative potential**

CAS: 5808-22-0 Disodium 4,5-dihydroxynaphthalene-2,7-disulphonate
log Pow | -4.48 (.) (calculated)
(anhydrous substance)

- **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 Other adverse effects** Avoid transfer into the environment.
- **Water hazard:**
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.

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.

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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

· Uncleaned packagings:
· Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN-Number · ADR, IMDG, IATA	Void
· 14.2 UN proper shipping name · ADR, IMDG, IATA	Void
· 14.3 Transport hazard class(es) · ADR, IMDG, IATA · Class	Void
· 14.4 Packing group · ADR, IMDG, IATA	Void
· 14.5 Environmental hazards: · Marine pollutant:	No
· 14.6 Special precautions for user	Not applicable.
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
· Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:

None of the ingredients is listed.

· Regulation (EU) No 649/2012

None of the ingredients is listed.

· National regulations
· Information about limitation of use: Employment restrictions concerning young persons must be observed.

· 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.

· Relevant phrases

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

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

· 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

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EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ADR: Accord européen sur le transport 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
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
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

Sources

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

RTECS (Registry of Toxic Effects of Chemical Substances)

IUCLID (International Uniform Chemical Information Database)