

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

Printing date 13.02.2021

Version number 18

Revision: 09.02.2021

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

· **1.1 Product identifier**

· **Product name:** Vario Ascorbic Acid

· **Catalog number:** 251417

· **CAS No.:**
50-81-7

· **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** The substance is not classified, according to the CLP regulation.

· **2.2 Label elements**

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

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

· **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.

· **Determination of endocrine-disrupting properties**

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.1 Substances**

· **CAS No. Designation:**
50-81-7 ascorbic acid

· **Identification number(s):**

· **EC No:** 200-066-2

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 wash with water and soap and rinse thoroughly.

· **After eye contact**

Rinse opened eye for several minutes under running water (at least 15 min). If symptoms persist, consult doctor.

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- **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
In case of persistent symptoms consult doctor.
- **4.2 Most important symptoms and effects, both acute and delayed:**
after swallowing:
general feeling of sickness
gastric or intestinal trouble
diarrhoea
- **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**
combustible
Formation of toxic gases is possible during heating or in case of fire.
Carbon monoxide (CO) and carbon dioxide (CO₂)
- **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 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:** No special precautions necessary if used correctly.
- **Hygiene measures:**
Do not eat, drink or smoke when using this product.
The usual precautionary measures should be adhered to general rules for handling chemicals.
Wash hands during breaks and at the end of the work.
- **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:** Not required.
- **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.

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- This product is hygroscopic.
- **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:** Not required.
- **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**
Safety glasses
use against the effects of fumes / dust
- **Hand protection**
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.
- **Other skin protection (body protection):** Protective work clothing.
- **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P1
- **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** Solid.
- **Form:** Powder
- **Colour:** White
- **Odour:** Odourless
- **Odour threshold:** Not applicable
- **Melting point/Freezing point:** 190–192°C
- **Boiling point or initial boiling point and boiling range** Not applicable
Decomposition
- **Flammability** May form combustible dust concentrations in air.
- **Explosive properties:** Product is not explosive.
The following applies in general to flammable organic substances / preparations: Dust explosion possible if in powder or granular form (fine distribution), mixed with air.
- **Lower and upper explosion limit**
- **Lower:** Not determined.
- **Upper:** Not determined.
- **Flash point:** Not applicable
- **Ignition temperature:** 380°C
- **Decomposition temperature:** > 190°C
- **pH (50 g/l) at 20°C** 2.2-2.5
- **Kinematic viscosity** Not applicable (solid).

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· Solubility	
· Water at 20°C:	333 g/l Readily soluble
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure at 20°C:	n.a. hPa
· Density and/or relative density	
· Density at 20°C:	1.65 g/cm ³
· Relative density:	Not determined.
· Relative gas density	Not applicable (solid).
· Particle characteristics	Not determined.
· 9.2 Other information	
· Information with regard to physical hazard classes	
· Corrosive to metals	Void
· Other safety characteristics	
· Oxidising properties:	none
· Additional information	
· Solids content:	100.0 %

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Dust can combine with air to form an explosive mixture.
- **10.2 Chemical stability**
Stable at ambient temperature (room temperature).
sensitivity to light
sensitive to air
sensitive to moisture
- **10.3 Possibility of hazardous reactions**
Aqueous solution reacts acidic.
Reacts with oxidizing agents
- **10.4 Conditions to avoid** Strong heating (decomposition)
- **10.5 Incompatible materials:** aluminium, copper, zinc, metal ions
- **10.6 Hazardous decomposition products:** see section 5

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

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

CAS: 50-81-7 ascorbic acid

Oral	LD50	11900 mg/kg (rat)
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- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.

· **Information on components:**

CAS: 50-81-7 ascorbic acid

Irritation of skin	OECD 404	(rabbit: no irritation)
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Irritation of eyes	OECD 405	(rabbit: slight irritation)
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- **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.

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Additional toxicological information:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

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

Substance is not listed.

* SECTION 12: Ecological information

12.1 Toxicity**Aquatic toxicity:****CAS: 50-81-7 ascorbic acid**

EC50 360 mg/l/48h (Daphnia magna)

IC50 1750 mg/l/72h (Desmodesmus subspicatus)

LC50 1020 mg/l/96h (rainbow trout) (OECD 203)

Bacterial toxicity:**CAS: 50-81-7 ascorbic acid**

EC50 140 mg/l (Pseudomonas putida) (16h)

12.2 Persistence and degradability**CAS: 50-81-7 ascorbic acid**

OECD 302 B 97 % / 5 d (readily eliminated from water) (Zahn-Wellens / EMPA Test)

12.3 Bioaccumulative potential

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

CAS: 50-81-7 ascorbic acid

log Pow -2.15 (.)

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 Endocrine disrupting properties The product does not contain substances with endocrine disrupting properties.**12.7 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.

Disposal must be made according to official regulations.

European waste catalogue

16 05 09 discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

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**

Void

14.2 UN proper shipping name**ADR, IMDG, IATA**

Void

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· 14.3 Transport hazard class(es)	
· ADR, IMDG, IATA	
· Class	Void
· 14.4 Packing group	
· ADR, IMDG, IATA	Void
· 14.5 Environmental hazards:	Not applicable.
· 14.6 Special precautions for user	Not applicable.
· 14.7 Maritime transport in bulk according to IMO instruments	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 (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)**

Substance is not listed.

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

· **explosives precursors - ANNEX I**

Substance is not listed.

· **explosives precursors - ANNEX II**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

· **Named dangerous substances - ANNEX I** Substance is not listed.

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

Substance is not 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).

· **Information about limitation of use:** Not required.

· **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.

· **Date of previous version:** 15.04.2020

· **Version number of previous version:** 17

· **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 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

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IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial 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
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative

Sources

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

* **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 PAN Indicator Solution 0.1%

· **Catalog number:** 251417

· **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**



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08 health hazard

Repr. 1B H360D May damage the unborn child.



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.

· **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**



GHS02



GHS05



GHS08



GHS09

· **Signal word** Danger

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Hazard-determining components of labelling:

N,N-dimethylformamide
Octylphenol polyethoxyethanol

Hazard statements

H226 Flammable liquid and vapour.
H318 Causes serious eye damage.
H360D May damage the unborn child.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/protective clothing/eye 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.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.

Additional information:

Restricted to professional users.

2.3 Other hazards

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.

Results of PBT and vPvB assessment

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

Determination of endocrine-disrupting properties

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description: aqueous solution

Dangerous components:

CAS: 68-12-2 EINECS: 200-679-5 Index No: 616-001-00-X Reg.nr.: 01-2119475605-32-XXXX	N,N-dimethylformamide ⚠ Flam. Liq. 3, H226; ⚠ Repr. 1B, H360D; ⚠ Acute Tox. 4, H312; Acute Tox. 4, H332; Eye Irrit. 2, H319	40-50%
CAS: 9036-19-5 EINECS: 264-520-1	Octylphenol polyethoxyethanol ⚠ Eye Dam. 1, H318; ⚠ Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=1); ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315	5-<10%

SVHC

CAS 9036-19-5: Polymer of ethylene glycol and (1,1,3,3-tetramethylbutyl)phenol

CAS: 68-12-2	N,N-dimethylformamide
CAS: 9036-19-5	Octylphenol polyethoxyethanol

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.

Seek medical treatment.

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:

after swallowing:

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drowsiness
 mucous membrane irritation
 after inhalation:
 dizziness
 burns
 headache
 sickness
 vomiting
 diarrhoea
 cramps

· **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**
 Can form explosive gas-air mixtures.
 combustible
 Formation of toxic gases is possible during heating or in case of fire.
 Can be released in case of fire:
 nitrous gases
 Nitrogen oxides (NO_x)
 dimethylamine
- **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.
 Prevent material from reaching sewage system, holes and cellars.
- **6.3 Methods and material for containment and cleaning up:**
 Ensure adequate ventilation.
 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:**
 Open and handle container with care.
 Ensure good ventilation/exhaustion at the workplace.
 Protect from heat.

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Keep ignition sources away - Do not smoke.

Hygiene measures:

- Do not inhale gases / fumes / aerosols.
- Do not get in eyes, on skin, or on clothing.
- Take off immediately all contaminated clothing.
- Store protective clothing separately.
- 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 oxidising agents.

Further information about storage conditions:

- Protect from heat and direct sunlight.
- Protect from the effects of light.
- Store in a locked cabinet or with access restricted to technical experts or their assistants.
- 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: 68-12-2 N,N-dimethylformamide

WEL (Great Britain)	Short-term value: 30 mg/m ³ , 10 ppm Long-term value: 15 mg/m ³ , 5 ppm Sk
IOELV (European Union)	Short-term value: 30 mg/m ³ , 10 ppm Long-term value: 15 mg/m ³ , 5 ppm Skin
OEL (Sweden)	Short-term value: 30 mg/m ³ , 10 ppm Long-term value: 15 mg/m ³ , 5 ppm H, R

Regulatory information

- WEL (Great Britain): EH40/2011
- IOELV (European Union): 91/322/EEC, 2000/39/EC, 2006/15/EC
- OEL (Sweden): AFS2015:7

DNELs

Derived No Effect Level (DNEL)

CAS: 68-12-2 N,N-dimethylformamide

Dermal	DNEL	3.31 mg/kg (Worker / long-term /systemic effects)
Inhalative	DNEL	15 mg/m ³ (Worker / long-term /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: 68-12-2 N,N-dimethylformamide

PNEC	123 mg/l (Sewage treatment plant)
	3 mg/l (Marine water)
	30 mg/l (Aquatic intermittent release)
	30 mg/l (Fresh water)
PNEC	16.25 mg/kg (Soil)
	25.05 mg/kg (Fresh water sediment)

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

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· 8.2 Exposure controls

· Engineering measures:

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

· Individual protection measures, such as personal protective equipment

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

· Eye/face protection

Tightly sealed safety glasses.

· Hand protection

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: ≥ 0.5 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):

Protective work clothing.

· Breathing equipment:

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

· Recommended filter device for short term use:

Combination filter A-P2

· Environmental exposure controls

Do not allow product to reach sewage system or water bodies.

Risk of explosion.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· Physical state	Fluid
· Form:	Solution
· Colour:	Dark orange
· Odour:	Amine-like
· Odour threshold:	CAS 68-12-2: 0.329 ppm
· Melting point/Freezing point:	Not determined
· Boiling point or initial boiling point and boiling range	~100°C
· Flammability	Flammable liquid and vapour.
· Explosive properties:	Product is not explosive. However, formation of explosive air/steam mixtures is possible.
· Lower and upper explosion limit	
· Lower:	2.2 Vol % (CAS: 68-12-2 N,N-dimethylformamide)
· Upper:	16 Vol % (CAS: 68-12-2 N,N-dimethylformamide)
· Flash point:	58°C (DIN EN ISO 2719, CAS: 68-12-2 N,N-dimethylformamide)
· Ignition temperature:	Not determined.
· Decomposition temperature:	Not determined.
· pH at 20°C	8
· 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:	1.05 g/cm ³
· 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 Void

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· Other safety characteristics	
· Oxidising properties:	none
· Additional information	
· Solids content:	< 20 %
· Solvent content:	
· Organic solvents:	< 50 %
· Water:	< 30 %

SECTION 10: Stability and reactivity

- **10.1 Reactivity** Fumes can combine with air to form an explosive mixture.
- **10.2 Chemical stability** Stable at ambient temperature (room temperature).
- **10.3 Possibility of hazardous reactions**
Flammable vapour-air mixtures may develop.
Reacts with reducing agents
Reacts with oxidizing agents
Reacts with halogenated compounds
Violent reactions possible with:
chlorine
nitrates
- **10.4 Conditions to avoid** Heating.
- **10.5 Incompatible materials:**
alkali metals
copper
various plastics
- **10.6 Hazardous decomposition products:**
formaldehyde
Ammonia (NH₃)
In case of fire: see section 5.

* SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

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

CAS: 68-12-2 N,N-dimethylformamide

Oral	LD50	2800 mg/kg (rat)
Dermal	LD50	1500 mg/kg (rabbit)

CAS: 9036-19-5 Octylphenol polyethoxyethanol

Oral	LD50	1900–5000 mg/kg (rat)
Dermal	LD50	>3000 mg/kg (rabbit)

- **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: 9036-19-5 Octylphenol polyethoxyethanol

Irritation of skin	OECD 404	(rabbit: irritation) (ECHA: read across CAS 140-66-9)
--------------------	----------	--

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

- **Information on components:**

CAS: 9036-19-5 Octylphenol polyethoxyethanol

Sensitisation	Patch test (human)	(negative)
---------------	--------------------	------------

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

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- **Reproductive toxicity** May damage the unborn child.
- **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:** CAS 68-12-2: Danger by skin resorption.

- **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: 68-12-2 N,N-dimethylformamide

EC50	13100 mg/l/48h (Daphnia magna) (Merck)
LC50	7100 mg/l/96h (bluegill)

LC50	7100 mg/l/96h (bluegill)
------	--------------------------

CAS: 9036-19-5 Octylphenol polyethoxyethanol

EC50 (static)	0.011 mg/l/48h (Daphnia magna) (ECHA: read across CAS 140-66-9)
EC50	1.9 mg/l/96h (Pseudokirchneriella subcapitata) (ECHA: read across CAS 140-66-9)
NOEC	0.012 mg/l (zebrafish) (OECD 210) (ECHA: read across CAS 140-66-9)
	0.03 mg/l (Daphnia magna) (OECD 202, 21d) (ECHA: read across CAS 140-66-9)
LC50	0.26 mg/l/96h (gold orfe) (OECD 203) 4–8.9 mg/l/96h (fathhead minnow)

- **12.2 Persistence and degradability**

CAS: 68-12-2 N,N-dimethylformamide

OECD 301 E	100 % / 21 d, anerob (readily biodegradable) (Modified OECD Screening Test)
------------	---

CAS: 9036-19-5 Octylphenol polyethoxyethanol

OECD 301 C	22 % / 28 d (not readily biodegradable) (aerob)
------------	---

- **12.3 Bioaccumulative potential**

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

log Pow 1-3 = Not worth-mentioning accumulating in organisms.

CAS: 68-12-2 N,N-dimethylformamide

log Pow	-0.85 (.)
---------	-----------

CAS: 9036-19-5 Octylphenol polyethoxyethanol

log Pow	2.7 (.) (calculated)
---------	----------------------

- **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** Avoid transfer into the environment.

- **Water hazard:**

Do not allow product to reach ground water, water bodies or sewage system.

Danger to drinking water if even small quantities leak into soil.

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SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.

· European waste catalogue

16 05 06* laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals

· 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

UN1993

· 14.2 UN proper shipping name

· ADR

1993 FLAMMABLE LIQUID, N.O.S. (not viscous) (N,N-DIMETHYLFORMAMIDE), ENVIRONMENTALLY HAZARDOUS

· IMDG

FLAMMABLE LIQUID, N.O.S. (N,N-DIMETHYLFORMAMIDE), MARINE POLLUTANT

· IATA

FLAMMABLE LIQUID, N.O.S. (N,N-DIMETHYLFORMAMIDE)

· 14.3 Transport hazard class(es)

· ADR



· Class

3 (F1) Flammable liquids.

· Label

3

· IMDG



· Class

3 Flammable liquids.

· Label

3

· IATA



· Class

3 Flammable liquids.

· Label

3

· 14.4 Packing group

· ADR, IMDG, IATA

III

· 14.5 Environmental hazards:

Product contains environmentally hazardous substances: Octylphenol polyethoxyethanol

· Marine pollutant:

Symbol (fish and tree)

· Special marking (ADR):

Symbol (fish and tree)

· 14.6 Special precautions for user

Warning: Flammable liquids.

· Kemler Number:

30

· EMS Number:

F-E,S-E

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· Stowage Category	A
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· 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	D/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 (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)

None of the ingredients is listed.

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

· explosives precursors - ANNEX I

None of the ingredients is listed.

· explosives precursors - ANNEX II

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.

· Seveso category

E1 Hazardous to the Aquatic Environment
P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

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

· LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)

CAS: 9036-19-5 | Octylphenol polyethoxyethanol

Sunset date: 2021-01-04

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 30, 72

· Information about limitation of use:

Employment restrictions concerning pregnant and lactating women must be observed (92/85/EEC).
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.

· **Date of previous version:** 02.04.2020

· **Version number of previous version:** 38

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

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· Relevant phrases

H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H312 Harmful in contact with skin.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H360D May damage the unborn child.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

· 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
 c.c.: closed cup
 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
 Flam. Liq. 3: Flammable liquids – Category 3
 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
 Repr. 1B: Reproductive toxicity – Category 1B
 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
 Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
 Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· Sources

Data arise from safety data sheets, reference works and literature.
 ECHA: European CHemicals Agency <http://echa.europa.eu>
 IUCLID (International Uniform Chemical Information Database)
 RTECS (Registry of Toxic Effects of Chemical Substances)

· * 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 Alkaline-Cyanide Reagent Solution**Catalog number:** 251417**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**

GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 2 H310 Fatal in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.



GHS05 corrosion

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



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.
Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

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 GHS06 GHS09

Signal word Danger

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Hazard-determining components of labelling:

 sodium cyanide
 sodium hydroxide

Hazard statements

 H290 May be corrosive to metals.
 H301+H331 Toxic if swallowed or if inhaled.
 H310 Fatal in contact with skin.
 H314 Causes severe skin burns and eye damage.
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

 P260 Do not breathe mist/vapours/spray.
 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.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P310 IF exposed or concerned: Immediately call a POISON CENTER/doctor.

Additional information:

EUH032 Contact with acids liberates very toxic gas.

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

Results of PBT and vPvB assessment

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

Determination of endocrine-disrupting properties

The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.2 Mixtures
Description: aqueous solution

Dangerous components:

CAS: 143-33-9 EINECS: 205-599-4 Index No: 006-007-00-5	sodium cyanide ⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ⚠ Met. Corr.1, H290; ⚠ Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10), EUH032	5-10%
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 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 %	2.5-5%

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

SECTION 4: First aid measures

4.1 Description of first aid measures
General information

 Personal protection for the First Aider!
 Provide oxygen treatment if affected person has difficulty breathing.
 Instantly remove any clothing soiled by the product.
 Keep warm, position comfortably and cover well.
 Remove breathing apparatus only after soiled clothing has been completely removed.

After inhalation

 Supply fresh air or oxygen.
 In case of unconsciousness bring patient into stable side position for transport.
 Call a doctor immediately.

After skin contact

 Instantly rinse with water.
 Call a doctor immediately.

After eye contact

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

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- Call a doctor immediately.
- **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Call a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed:**
after absorption:
breathing difficulty
drowsiness
headache
unconsciousness
absorption
burns
vomiting
coma
CNS disorders
cardiovascular disorders
cramps
- **Danger**
blockade of cellular respiration
Danger of disturbed cardiac rhythm.
Danger of gastric perforation.
- **4.3 Indication of any immediate medical attention and special treatment needed:**
If blue colouring appears (lips, ear-lobes, finger-nails), oxygen respiration treatment as quickly as possible.
antidotes: sodium thiosulfate, dimethylaminophenol

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.
Hydrogen cyanide (HCN)
cyanide compounds, sodium monoxide
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Ensure adequate ventilation
Use breathing protection against the effects of fumes/dust/aerosol.
- **Advice for emergency responders:**
Put on breathing apparatus.
Protective equipment: see section 8
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or water bodies.
Inform respective authorities in case product reaches water or sewage system.
- **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
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.

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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.
 - Work only in fume cupboard.
 - 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.
 - Store protective clothing separately.
 - 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.
 - Store only in the original container.
 - Unsuitable material for container: metals, metal alloys
 - Unsuitable material for container: aluminium.
- **Information about storage in one common storage facility:**
 - Store away from metals.
 - Do not store together with acids.
- **Further information about storage conditions:**
 - Protect from heat and direct sunlight.
 - Protect from the effects of light.
 - Store in a locked cabinet or with access restricted to technical experts or their assistants.
 - Protect from humidity and keep away from water.
- **Recommended storage temperature:** 20°C +/- 3°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: 143-33-9 sodium cyanide (5-10%)		
WEL (Great Britain)	Long-term value: 5 mg/m ³ as CN; Sk	
OEL (Sweden)	Long-term value: 2 mg/m ³ Ceiling limit som CN; inhalerbar damm; H	: 4 mg/m ³
CAS: 1310-73-2 sodium hydroxide (2.5-5%)		
WEL (Great Britain)	Short-term value: 2 mg/m ³	
OEL (Sweden)	Long-term value: 1 mg/m ³ Ceiling limit inhalerbar damm	: 2 mg/m ³

· 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.

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· 8.2 Exposure controls

· Engineering measures:

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

· Individual protection measures, such as personal protective equipment

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

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

· Hand protection

Alkaline resistant gloves

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

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

· Material of gloves

nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.35 mm

· Penetration time of glove material

Value for the permeation: Level = 1 (< 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):** Alkaline resistant protective clothing

· Breathing equipment:

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

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-P3

· Environmental exposure controls

Avoid release to 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

· Physical state	Fluid
· Form:	Solution
· Colour:	Colourless
· Odour:	Odourless
· Odour threshold:	Not applicable
· 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	13.7
· 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:	1.04 g/cm ³
· Relative density:	Not determined.
· Relative gas density	Not determined.
· Particle characteristics	Not applicable (liquid).

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· 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

· Solids content:

< 10 %

· Solvent content:

· Organic solvents:

0 %

· Water:

> 90 %

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

Exothermic reaction with acids

Corrodes aluminium

Reacts with acids releasing Hydrogen cyanide (prussic acid).

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

· 10.5 Incompatible materials:

metals

light metals

aluminium

zinc

organic substances

· 10.6 Hazardous decomposition products:

hydrogen cyanide (prussic acid HCN)

In case of fire: see section 5.

SECTION 11: Toxicological information

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

· Acute toxicity

Classification according to calculation procedure:

Toxic if swallowed or if inhaled.

Fatal in contact with skin.

· Acute toxicity estimate (ATE_(MIX)) - Calculation method:

Oral	CLP ATE _(MIX)	92 mg/kg (.)
Dermal	CLP ATE _(MIX)	133 mg/kg (.)
Inhalative	CLP ATE _(MIX)	0.9 mg/l/4h (aerosol)

· LD/LC50 values that are relevant for classification:

CAS: 143-33-9 sodium cyanide

Oral	LD50	5.09 mg/kg (rat)
	LDo	2.8 mg/kg (human)
	LDLo	500 mg/kg (rabbit)
Dermal	LD50	7.35 mg/kg (rabbit)

CAS: 1310-73-2 sodium hydroxide

Oral	LDLo	500 mg/kg (rabbit)
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· **Skin corrosion/irritation** Causes severe skin burns and eye damage.

· Serious eye damage/irritation

Causes serious eye damage.

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Risk of blindness!

- **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)

- **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:**

The following complies to cyanogen compounds / nitriles in general:

Utmost caution! Release of hydrocyanic acid is possible - blockade of cellular respiration.

CAS 143-33-9: Danger by skin resorption.

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

This substance should be handled with particular care.

- **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: 143-33-9 sodium cyanide	
NOEC	0.011 mg/l/96h (fish)
LC50	0.083 mg/l/96h (bluegill)
	0.057 mg/l/96h (rainbow trout)
	0.12 mg/l/96h (fathhead minnow)
CAS: 1310-73-2 sodium hydroxide	
LC50	40.4 mg/l/48h (Ceriodaphnia sp.) (ECHA)

· Bacterial toxicity:	
CAS: 1310-73-2 sodium hydroxide	
EC50	22 mg/l (Photobacterium phosphoreum) (15 min)

- **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**

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

CAS: 143-33-9 sodium cyanide	
log Pow	0.44 (.)

- **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**

Forms corrosive mixtures with water even if diluted.

Harmful effect due to pH shift.

Reacts with water to form toxic decomposition products.

Avoid transfer into the environment.

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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.
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** UN2922

14.2 UN proper shipping name

· **ADR** 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM CYANIDE), ENVIRONMENTALLY HAZARDOUS
 · **IMDG** CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM CYANIDE), MARINE POLLUTANT
 · **IATA** CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, SODIUM CYANIDE)

14.3 Transport hazard class(es)
ADR


· **Class** 8 (CT1) Corrosive substances.
 · **Label** 8+6.1

IMDG


· **Class** 8 Corrosive substances.
 · **Label** 8/6.1

IATA


· **Class** 8 Corrosive substances.
 · **Label** 8 (6.1)

14.4 Packing group

· **ADR, IMDG, IATA** II

14.5 Environmental hazards:

· **Marine pollutant:** Product contains environmentally hazardous substances: sodium cyanide
 Yes
 Symbol (fish and tree)

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· Special marking (ADR):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Corrosive substances.
· Kemler Number:	86
· EMS Number:	F-A,S-B
· Segregation groups	Alkalis, cyanides
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	
· ADR	
· Excepted quantities (EQ):	E2
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· Transport category	2
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

SECTION 15: Regulatory information

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

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

None of the ingredients is listed.

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

· explosives precursors - ANNEX I

None of the ingredients is listed.

· explosives precursors - ANNEX II

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):

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 50 t· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· 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 pregnant and lactating women must be observed (92/85/EEC).

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.

— GB —
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SECTION 16: Other information

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

- **Date of previous version:** 28.10.2020
- **Version number of previous version:** 38
- **Training hints** Provide adequate information, instruction and training for operators.

- **Relevant phrases**

H290 May be corrosive to metals.
 H300 Fatal if swallowed.
 H310 Fatal in contact with skin.
 H314 Causes severe skin burns and eye damage.
 H330 Fatal if inhaled.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 EUH032 Contact with acids liberates very toxic gas.

- **Abbreviations and acronyms:**

EC50: effective concentration, 50 percent (in vivo)
 OECD: Organisation for Economic Co-operation and Development
 STOT: specific target organ toxicity
 SE: single exposure
 RE: repeated exposure
 EC50: half maximal effective concentration
 IC50: half maximal inhibitory concentration
 NOEL or NOEC: No Observed Effect Level or Concentration
 ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 DNEL: Derived No-Effect Level (REACH)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 SVHC: Substances of Very High Concern
 vPvB: very Persistent and very Bioaccumulative
 Met. Corr. 1: Corrosive to metals – Category 1
 Acute Tox. 2: Acute toxicity – Category 2
 Acute Tox. 3: Acute toxicity – Category 3
 Acute Tox. 1: Acute toxicity – Category 1
 Skin Corr. 1A: Skin corrosion/irritation – Category 1A
 Skin Corr. 1B: Skin corrosion/irritation – Category 1B
 Eye Dam. 1: Serious eye damage/eye irritation – Category 1
 Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
 Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

- **Sources**

Data arise from safety data sheets, reference works and literature.
 IUCLID (International Uniform Chemical Information Database)
 ECHA: European Chemicals Agency <http://echa.europa.eu>
 GESTIS- Stoffdatenbank (Substance Database, Germany)

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