

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

Printing date 18.07.2018

Version number 46

Revision: 17.07.2018

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

**1.1 Product identifier****Product name:** Vario Ferro F10, 25 ml**Catalog number:** 00530569, (4)530560, 530563, 00530579, (4)530570, 530562**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:**

Tintometer GmbH  
Schleefstraße 8-12  
44287 Dortmund  
Made in Germany  
www.lovibond.com

phone: +49 231 94510-0  
e-mail: sales@tintometer.de

Tintometer GmbH  
Division AQUALYTIC®  
Schleefstr. 12  
44287 Dortmund  
Made in Germany  
www.aqualytic.de

phone: +49 231 94510-755  
e-mail: sales@aqualytic.de

The Tintometer Limited  
Lovibond® House  
Sun Rise Way  
Amesbury  
Wiltshire SP4 7GR  
United Kingdom

phone : +44 1980 664800  
e-mail: SDS@tintometer.com

**Informing department:**

e-mail: sds@tintometer.de  
Product Safety Department

**1.4 Emergency telephone number:**

+44 1235 239670  
Languages: English

#### 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.

Aquatic Chronic 3      H412 Harmful 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.

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**Hazard pictograms**

GHS05 GHS07

**Signal word** Danger**Hazard-determining components of labelling:**

sodium dithionite  
disodium disulphite  
1,10-phenanthroline

**Hazard statements**

H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection.  
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.

**Additional information:**

EUH031 Contact with acids liberates toxic gas.  
EUH208 Contains methenamine. May produce an allergic reaction.

**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 organic and inorganic compounds**Dangerous components:**

CAS: 7775-14-6 EINECS: 231-890-0 Index No: 016-028-00-1 Reg.nr.: 01-21-19520510-57-XXXX	sodium dithionite ⚠ Self-heat. 1, H251; ⚠ Acute Tox. 4, H302	25-35%
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	20-<25%
CAS: 66-71-7 EINECS: 200-629-2 Index No: 613-092-00-8	1,10-phenanthroline ⚠ Acute Tox. 3, H301; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.1-≤2.5%
CAS: 100-97-0 EINECS: 202-905-8 Index No: 612-101-00-2 Reg.nr.: 01-2119474895-20-XXXX	methenamine ⚠ Flam. Sol. 2, H228; ⚠ Skin Sens. 1, H317	0.1-<1%

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

## SECTION 4: First aid measures

**4.1 Description of first aid measures****General information** 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 or rash occurs: Get medical advice/attention.

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- **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:**  
burns  
allergic reactions  
after inhalation:  
irritations  
coughing  
breathing difficulty  
after swallowing:  
absorption  
mucous membrane irritation  
sickness  
vomiting  
diarrhoea  
pain  
disorder of electrolyte balance
- **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**  
Fire-extinguishing powder  
Carbon dioxide (CO<sub>2</sub>)  
Dry sand
- **For safety reasons unsuitable extinguishing agents**  
Water.  
Foam
- **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<sub>x</sub>)  
Sodium oxide  
Carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>)
- **5.3 Advice for firefighters**
- **Protective equipment:**  
Wear self-contained breathing apparatus.  
Wear full protective suit.
- **Additional information**  
Collect contaminated fire fighting water separately. It must not enter drains.  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Ambient fire may liberate hazardous vapours.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Use breathing protection against the effects of fumes/dust/aerosol.  
Avoid causing dust.
- **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.

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**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 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:**

- Do not store together with acids.
- Store away from oxidising 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:**
**CAS: 7681-57-4 disodium disulphite**

 WEL (Great Britain) Long-term value: 5 mg/m<sup>3</sup>
**CAS: 100-97-0 methenamine**

 OEL (Sweden) Short-term value: 5 mg/m<sup>3</sup>  
 Long-term value: 3 mg/m<sup>3</sup>  
 S, V

**Regulatory information**

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

**DNELs**

Derived No Effect Level (DNEL)

**CAS: 7775-14-6 sodium dithionite**

 Inhalative DNEL 10 mg/m<sup>3</sup> (Worker / long-term /systemic effects)

**CAS: 7681-57-4 disodium disulphite**

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

**CAS: 100-97-0 methenamine**

Dermal DNEL 8.8 mg/kg (Worker / long-term /systemic effects)

 Inhalative DNEL 31 mg/m<sup>3</sup> (Worker / long-term /systemic effects)

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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)

<b>CAS: 7775-14-6 sodium dithionite</b>	
PNEC	45.3 mg/l (Sewage treatment plant) 0.1 mg/l (Marine water)
<b>CAS: 7681-57-4 disodium disulphite</b>	
PNEC	75.4 mg/l (Sewage treatment plant) 0.1 mg/l (Marine water) 1 mg/l (Fresh water)
<b>CAS: 100-97-0 methenamine</b>	
PNEC	100 mg/l (Sewage treatment plant) 0.5 mg/l (Marine water) 2.4 mg/l (Fresh water sediment) 3 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:** Combination filter ABEK-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:  $\geq 0.11$  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:** 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.

Risk of explosion.

## SECTION 9: Physical and chemical properties

**9.1 Information on basic physical and chemical properties****Appearance:**

**Form / Physical state:** Powder

**Colour:** Whitish

**Odour:** Pungent

**Odour threshold:** Not determined.

**pH-value (12 g/l) at 20°C:** 5.6

**Melting point/Freezing point:** Not determined

**Initial boiling point and boiling range:** Not determined

**Flash point:** Not applicable

**Flammability (solid, gas):** Not determined.

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· <b>Ignition temperature:</b>	Not applicable
· <b>Decomposition temperature:</b>	> 80°C (CAS 7775-14-6)
· <b>Auto-ignition temperature:</b>	Product is not self-igniting.
· <b>Explosive properties:</b>	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.
· <b>Flammability or explosive limits:</b>	
<b>Lower:</b>	Not determined.
<b>Upper:</b>	Not determined.
· <b>Oxidising properties:</b>	none
· <b>Vapour pressure:</b>	Not applicable.
· <b>Density:</b>	Not determined
· <b>Relative density:</b>	Not determined.
· <b>Vapour density:</b>	Not applicable.
· <b>Evaporation rate:</b>	Not applicable.
· <b>Solubility(ies):</b>	
<b>Water:</b>	Soluble
· <b>Partition coefficient: n-octanol/water:</b>	Not applicable.
· <b>Viscosity:</b>	Not applicable.
· <b>Solvent content:</b>	
<b>Organic solvents:</b>	0.0 %
<b>Solids content:</b>	100.0 %
· <b>9.2 Other information</b>	No further relevant information available.

### 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).  
sensitive to moisture
- **10.3 Possibility of hazardous reactions**  
Contact with acids releases toxic gases  
Reacts with acids releasing sulphur dioxide  
Reacts with oxidizing agents  
Reacts with moist air
- **10.4 Conditions to avoid**  
Exposure to moisture.  
Strong heating (decomposition)
- **10.5 Incompatible materials:**  
sodium nitrite  
sodium chlorite
- **10.6 Hazardous decomposition products:**  
Sulphur dioxide  
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<sub>(mix)</sub>) - Calculation method:**

Oral	CLP ATE <sub>(mix)</sub>	1144 mg/kg (.)
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<b>LD/LC50 values that are relevant for classification:</b>		
<b>CAS: 7775-14-6 sodium dithionite</b>		
Oral	LD50	500 mg/kg (ATE)
	LD50.	2500 mg/kg (rat) (IUCLID)
<b>CAS: 7681-57-4 disodium disulphite</b>		
Oral	LD50	1540 mg/kg (rat) (OECD 401) (MERCK)
Dermal	LD50.	>2000 mg/kg (rat) (RTECS)
<b>CAS: 66-71-7 1,10-phenanthroline</b>		
Oral	LD50	132 mg/kg (rat)
<b>CAS: 100-97-0 methenamine</b>		
Oral	LD50	9200 mg/kg (rat) (IUCLID)
Dermal	LD50.	>2000 mg/kg (rat) (OECD 402)

**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.

<b>Information on components:</b>		
<b>CAS: 7775-14-6 sodium dithionite</b>		
Irritation of skin	OECD 404	(rabbit: no irritation)
<b>CAS: 7681-57-4 disodium disulphite</b>		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: severe irritations)
<b>CAS: 100-97-0 methenamine</b>		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: no irritation)

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

• **Information on components:**

Contains methenamine. May produce an allergic reaction.

<b>CAS: 7681-57-4 disodium disulphite</b>		
Sensitisation	OECD 406	(guinea pig: negative)
<b>CAS: 100-97-0 methenamine</b>		
Sensitisation	OECD 406	(guinea pig: positive)
	Patch test (human)	(positive) (IUCLID)

• **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 7681-57-4: 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

<b>CAS: 7681-57-4 disodium disulphite</b>		
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)	

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**CAS: 100-97-0 methenamine**

OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
OECD 474	(negative) (Mammalian Erythrocyte Micronucleus Test) (IUCLID)

## SECTION 12: Ecological information

**12.1 Toxicity****Aquatic toxicity:****CAS: 7775-14-6 sodium dithionite**

EC50	98 mg/l/48h (Daphnia magna) MERCK
IC50	206 mg/l/72h (Desmodesmus subspicatus) MERCK
LC50	46–68 mg/l/96h (gold orfe) (DIN 38412) (Merck)

**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)

**CAS: 100-97-0 methenamine**

EC50	36 mg/l/48h (Daphnia magna) (IUCLID)
EC10	5 mg/l (fish)
LC50 (static)	41 mg/l/96h (bluegill) (US-EPA)

**Bacterial toxicity:**

sulphates toxic &gt; 2.5 g/l

**CAS: 7775-14-6 sodium dithionite**

EC50	107 mg/l (Pseudomonas putida) IUCLID
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**CAS: 7681-57-4 disodium disulphite**

EC50	56 mg/l (Pseudomonas putida) (17h) (IUCLID)
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**CAS: 100-97-0 methenamine**

EC50 (static)	>5000 mg/l (Bacterial toxicity) (DIN 38412) (Merck, Vibrio fischeri)
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**Other information:**

Toxic for fish:

sulphates &gt; 7 g/l

**12.2 Persistence and degradability****CAS: 100-97-0 methenamine**

OECD 302 C	39–47 % / 28 d (not readily biodegradable) (Modified MITI Test (II))
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**12.3 Bioaccumulative potential**

Pow = n-octanol/wasser partition coefficient

log Pow &lt; 1 = Does not accumulate in organisms.

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

**CAS: 7775-14-6 sodium dithionite**

log Pow	<-4.7 (.) (calculated)
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**CAS: 66-71-7 1,10-phenanthroline**

log Pow	1.78 (.) (Merck)
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**CAS: 100-97-0 methenamine**log Pow -2.84 (.) (experimental)  
(IUCLID)

- **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 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

- |  |  |
|--|--|
| • <b>14.1 UN-Number</b>  | Void   |
| • <b>ADR, IMDG, IATA</b>   |  |
| • <b>14.2 UN proper shipping name</b>  | Void   |
| • <b>ADR, IMDG, IATA</b>   |  |
| • <b>14.3 Transport hazard class(es)</b>   |  |
| • <b>ADR, IMDG, IATA</b>   |  |
| • <b>Class</b>   | Void   |
| • <b>14.4 Packing group</b>  |  |
| • <b>ADR, IMDG, IATA</b>   | Void   |
| • <b>14.5 Environmental hazards:</b>   | Not applicable.                                      |
| • <b>14.6 Special precautions for user</b>                                       | Not applicable.                                      |
| • <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b> | Not applicable.                                      |
| • <b>Transport/Additional information:</b>                                       | 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.

• **Directive 2012/18/EU (SEVESO III):**• **Named dangerous substances - ANNEX I** None of the ingredients is listed.• **Regulation (EU) No 649/2012**

None of the ingredients is listed.

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- **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**

H228 Flammable solid.  
 H251 Self-heating: may catch fire.  
 H301 Toxic if swallowed.  
 H302 Harmful if swallowed.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H400 Very toxic to aquatic life.  
 H410 Very toxic to aquatic life with long lasting effects.

- **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)  
 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  
 Flam. Sol. 2: Flammable solids – Category 2  
 Self-heat. 1: Self-heating substances and mixtures – Category 1  
 Acute Tox. 3: Acute toxicity – Category 3  
 Acute Tox. 4: Acute toxicity – Category 4  
 Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
 Skin Sens. 1: Skin sensitisation – 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  
 Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

- **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)