

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 02/24/2022

Reviewed on 02/24/2022

1 Identification

- **Product identifier**
- **Trade name: Phosphate HR P2**
- **Catalogue number:** 00515821, 515820BT, 515821BT, 00515829BT, 4515820BT, 4515821BT
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

* 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.
STOT RE 1 H372 Causes damage to the respiratory system through prolonged or repeated exposure.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).
- **Hazard pictograms**



GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**
boric acid
ammonium meta-vanadate
- **Hazard statements**
H360 May damage fertility or the unborn child.
H372 Causes damage to the respiratory system through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.
- **Precautionary statements**
P260 Do not breathe dust.
P280 Wear protective gloves/protective clothing/eye protection.
P201 Obtain special instructions before use.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
- **Other hazards** No further relevant information available.

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3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of inorganic compounds.
- **Composition and Information on Ingredients:**
Percent ranges are used due to the confidential product information.

CAS: 10043-35-3 EINECS: 233-139-2 Index number: 005-007-00-2 RTECS: ED 4550000	boric acid ⚠ Repr. 1B, H360FD	70–80%
CAS: 5329-14-6 EINECS: 226-218-8 Index number: 016-026-00-0 RTECS: WO5950000	sulfamic acid ⚠ Skin Irrit. 2, H315; ⚠ Eye Irrit. 2, H319; ⚠ Aquatic Chronic 3, H412	2.5–5%
CAS: 7803-55-6 EINECS: 232-261-3 RTECS: YW 0875000	ammonium meta-vanadate ⚠ Acute Tox. 3, H301; ⚠ STOT RE 1, H372; ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H332; ⚠ Eye Irrit. 2A, H319; ⚠ STOT SE 3, H335	≤2.5%

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

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air.
Seek medical treatment.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
Seek medical treatment.
- **After eye contact:** Rinse opened eye for several minutes (at least 15 min) under running water. Then consult a doctor.
- **After swallowing:**
Rinse out mouth and then drink 1-2 glasses of water.
Seek medical treatment.
Do not induce vomiting.
- **Most important symptoms and effects, both acute and delayed**
resorption
after inhalation:
mucosal irritations, cough, breathing difficulty
damage to the affected mucous membranes possible
after swallowing:
sickness
vomiting
diarrhoea
after absorption of large amounts:
gastric or intestinal disorders
fatigue
respiratory paralysis
ataxia (impaired locomotor coordination)
drop in temperature
cardiovascular disorders
drop in blood pressure
unconsciousness
pain
cramps
- **Danger:** Danger of pulmonary edema.
- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

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- **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.

In case of fire, the following can be released:

nitrous gases

Sulfur oxides (SO_x)

Nitrogen oxides (NO_x)

Ammonia (NH₃)

smoke of metal oxide

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

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

Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **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 formation of dust.

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

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

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

Ensure adequate ventilation.

Pick up mechanically.

Dispose contaminated material as waste according to item 13.

- **Reference to other sections**

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**

- **Advice on safe handling:**

Prevent formation of dust.

Provide suction extractors if dust is formed.

- **Hygiene measures:**

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

Take off immediately all contaminated clothing.

Store protective clothing separately.

Wash hands before breaks and at the end of work.

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

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

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

- **Information about storage in one common storage facility:** Do not store together with alkalis (caustic solutions).

- **Further information about storage conditions:**

Store under lock and key and with access restricted to technical experts or their assistants only.

Protect from heat and direct sunlight.

Store in cool, dry conditions in well sealed receptacles.

Protect from exposure to the light.

Protect from humidity and water.

This product is hygroscopic.

- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)

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

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

CAS: 10043-35-3 boric acid	
TLV (USA)	Short-term value: 6* mg/m ³ Long-term value: 2* mg/m ³ *as inhalable fraction, A4
EL (Canada)	Short-term value: 6 mg/m ³ Long-term value: 2 mg/m ³
EV (Canada)	Short-term value: 6 mg/m ³ Long-term value: 2 mg/m ³ inorganic, inhalable

- **Additional information:** The lists that were valid during the creation were used as basis.
- **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:**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter P3
- **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 any water course.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **Appearance:**
- **Form / Physical state:** Tablets
- **Color:** White
- **Odor:** Odorless
- **Odor threshold:** Not applicable.
- **pH-value (9.7 g/l) at 20°C (68°F):** 3.6
- **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.
- **Ignition temperature:** Not applicable (solid).
- **Decomposition temperature:** $>150^{\circ}\text{C}$ ($>302^{\circ}\text{F}$) (CAS 10043-35-3)
- **Auto-ignition temperature:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.

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· Flammability or explosive limits:	
· Lower:	Not applicable.
· Upper:	Not applicable.
· Oxidizing properties: none	
· Vapor Pressure:	Not applicable (solid).
· Density:	Not determined.
· Relative density:	Not determined.
· Vapor density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies)	
· Water:	Soluble.
· Partition coefficient (n-octanol/water):	Not applicable (mixture).
· Viscosity:	Not applicable.
· Kinematic:	Not applicable (solid).
· Other information	
· Solids content:	100 %

10 Stability and reactivity

- **Reactivity** see section "Possibility of hazardous reactions"
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
Aqueous solution reacts acidic.
Hydrogen is formed in the presence of aluminum or zinc.
Reacts with acids, alkalis and oxidizing agents.
If moisture is present, boric acid can be corrosive to iron.
Violent reactions possible with:
nitrates
chlorine
- **Conditions to avoid** To avoid thermal decomposition do not overheat.
- **Incompatible materials:** metals
- **Hazardous decomposition products:**
Ammonia (NH₃)
In case of fire: see section 5.

* 11 Toxicological information

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

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

Oral	GHS ATE _(MIX)	2332 mg/kg (.)
Inhalative	GHS ATE _(MIX)	100 mg/l/4h (dust)

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

CAS: 10043-35-3 boric acid

Oral	LD50	2660 mg/kg (rat) (OECD 401) (GESTIS, ECHA registrant)
Dermal	LD50.	>2000 mg/kg (rat) (ECHA, registrant: no deaths occurred.)
	LD ₀	1500 mg/kg (child) (MERCK)
	NOAEL	9.6 mg/kg (rat) (NTP)

CAS: 5329-14-6 sulfamic acid

Oral	LD50	3160 mg/kg (rat) (GESTIS)
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CAS: 7803-55-6 ammonium meta-vanadate		
Oral	LD50	169 mg/kg (rat) (OECD 401) (Merck)
Dermal	LD50.	>2500 mg/kg (rat) (OECD402) (Registrant, ECHA: limit-test, all test animals survived at this concentration)
Inhalative	LC50/4h	2.5 mg/l (rat) (OECD 403) (Merck)

· **Primary irritant effect:**

- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Based on available data, the classification criteria are not met.

· **Information on components:**

CAS: 10043-35-3 boric acid		
Irritation of skin	OECD 404	(rabbit: no irritation) (Registrant, ECHA)
Irritation of eyes	OECD 405	(rabbit: slight irritation) (IUCLID)
CAS: 5329-14-6 sulfamic acid		
Irritation of skin	OECD 404	(rabbit: irritation)
Irritation of eyes	OECD 405	(rabbit: irritation)
CAS: 7803-55-6 ammonium meta-vanadate		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: irritation)

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

· **Information on components:**

CAS: 10043-35-3 boric acid		
Sensitization	OECD 406	(guinea pig: negative)

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **Other information:** see section 8 / 15

- **Synergistic Products:** None

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

The following statements refer to the mixture:

Repr. 1B

- **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** May damage fertility or 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**
Causes damage to the respiratory system through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

· **Information on components:**

CAS 10043-35-3: evaluation for carcinogenicity: negative in animals (NTP)

CAS: 10043-35-3 boric acid	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
OECD 476	(negative) (In Vitro Mammalian Cell Gene Mutation Test) (mouse lymphomea test)
OECD 414	(negative) (oral, rat) (ECHA, registrant: no evidence of developmental toxicity up to 55 mg/kg bw. At 76 mg/kg bw there was reduced fetal bodyweight, short and wavy ribs, and these effects disappeared during the postnatal period.)

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OECD 474	(negative) (in vivo, mice)
CAS: 5329-14-6 sulfamic acid	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) (Salmonella typhimurium)
OECD 476	(negative) (In Vitro Mammalian Cell Gene Mutation Test)
OECD 474	(negative) (mouse, oral)
OECD 487	(negative) (In Vitro Mammalian Cell Micronucleus Test)

Additional toxicological information:

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

CAS 10043-35-3: Absorption through gastro-intestinal tract, mucous membranes

Boric acid / Borate may cause developmental changes based on published data, at doses many times in excess of those that could occur through inhalation of dust in occupational settings.

CAS: 10043-35-3 boric acid

(source: GESTIS)
Main toxic effects:
Acute: Slightly irritating to the eyes and skin; gastrointestinal disturbances, CNS-effects and (later) skin damage after massive poisoning
Chronic: Irritation to the mucous membranes following inhalative exposure, effects to the gastrointestinal tract and CNS

Further Information (Merck):
"Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, and erythematous lesions on the skin and mucous membranes.
Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions, and coma.
Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams."
"Liver - Irregularities - Based on Human Evidence"

CAS: 5329-14-6 sulfamic acid

(source: GESTIS)
Main toxic effects
Acute: Irritative through to corrosive effects to the mucous membranes and skin;
insufficient information available on systemic effects
Chronic: No information available

Other information Other dangerous properties can not be excluded.

12 Ecological information

Toxicity**Aquatic toxicity:****CAS: 10043-35-3 boric acid**

EC50	133 mg/l/48h (Daphnia magna) (ECOTOX)
LC50	50–100 mg/l/96h (rainbow trout) (ECOTOX)

CAS: 5329-14-6 sulfamic acid

EC50	71.6 mg/l/48h (Daphnia magna) (OECD 202)
EC50	14.2 mg/l/96h (fish) (GESTIS)
LC50	70.3 mg/l/96h (fathead minnow) (OECD 203) (Merck)

CAS: 7803-55-6 ammonium meta-vanadate

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

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· Bacterial toxicity:	
CAS: 5329-14-6 sulfamic acid	
EC10	≥1000 mg/l (Pseudomonas putida) (16h) (IUCLID)
· Other information: Toxic for fish: molybdenum compounds in general: > 25 mg/l NH ₄ ⁺ > 0.3 mg/l	
· Persistence and degradability .	
· Other information: Mixture of inorganic compounds. Methods for the determination of biodegradability are not applicable to inorganic substances.	
· Bioaccumulative potential Pow = n-octanol/wasser partition coefficient log Pow < 1 = Does not accumulate in organisms.	
CAS: 10043-35-3 boric acid	
log Pow	-1.09 (.) (OECD 107, 22°C) (Merck)
CAS: 5329-14-6 sulfamic acid	
log Pow	0.1 (.) (experimental) (Merck)
· Mobility in soil No further relevant information available.	
· Other adverse effects Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of water supplies. Avoid transfer into the environment.	

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	none
· UN proper shipping name	
· DOT, IMDG, IATA	none
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	none
· Packing group	
· DOT, IMDG, IATA	none
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not dangerous according to the above specifications.

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*15 Regulatory information

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

· Section 355 (Extremely hazardous substances):
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None of the ingredients is listed.

· Section 313 (Specific toxic chemical listings):
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CAS: 7803-55-6 ammonium meta-vanadate

· TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

· Hazardous Air Pollutants

None of the ingredients is listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:
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None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:
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None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· New Jersey Right-to-Know List:

CAS: 5329-14-6 sulfamic acid

CAS: 7803-55-6 ammonium meta-vanadate

· New Jersey Special Hazardous Substance List:

CAS: 5329-14-6 sulfamic acid		CO
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· Pennsylvania Right-to-Know List:

CAS: 7803-55-6 ammonium meta-vanadate

· Pennsylvania Special Hazardous Substance List:

CAS: 7803-55-6 ammonium meta-vanadate		E
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· EPA (Environmental Protection Agency)
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CAS: 10043-35-3 boric acid		I (oral)
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· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· Information about limitation of use:

Employment restrictions concerning pregnant and lactating women must be observed.

Employment restrictions concerning young persons must be observed.
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- | |
|---|
| · Chemical safety assessment: A Chemical Safety Assessment has not been carried out. |
|---|

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H301 Toxic if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.
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H360FD May damage fertility. May damage the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.
--

H411 Toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

- | |
|---|
| · Recommended restriction of use: professional/industrial use only |
|---|

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· **Date of preparation / last revision** 02/24/2022 / 2

· **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
 ACGIH® - American Conference of Governmental Industrial Hygienists
 •A1 - Confirmed human carcinogen
 •A2 - Suspected human carcinogen
 •A3 - Confirmed animal carcinogen with unknown relevance to humans
 •A4 - Not classifiable as a human carcinogen
 •A5 - Not suspected as a human carcinogen
 IARC - International Agency for Research on Cancer
 •Group 1 - Carcinogenic to humans
 •Group 2A - Probably carcinogenic to humans
 •Group 2B - Possibly carcinogenic to humans
 •Group 3 - Not classifiable as to carcinogenicity to humans
 •Group 4 - Probably not carcinogenic to humans
 NTP - National Toxicology Program, U.S. Department of Health and Human Services
 •Group K - Known to be Human Carcinogens
 •Group R - Reasonably Anticipated to be Human Carcinogens
 IMDG: International Maritime Code for Dangerous Goods
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 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
 NIOSH: National Institute for Occupational Safety
 OSHA: Occupational Safety & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 Acute Tox. 3: Acute toxicity – 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
 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
 Repr. 1B: Reproductive toxicity – Category 1B
 Repr. 1B: Reproductive toxicity – Category 1B
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
 STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
 Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
 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.
 ECHA: European CHemicals Agency <http://echa.europa.eu>
 GESTIS- Stoffdatenbank (Substance Database, Germany)
 IUCLID (International Uniform Chemical Information Database)
 ECOTOX Database

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