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

Printing date 26.08.2021 Version number 8 (replaces version 7) Revision: 10.08.2021

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

· **1.1 Product identifier**

· **Product name:** **Reagent BC1/CC1 Chloride Indicator**

· **Catalog number:** 100325E

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

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

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

· **Supplier:**

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

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

· **1.4 Emergency telephone number:**

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

## SECTION 2: Hazards identification

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

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

GHS08 health hazard

Muta. 1B H340 May cause genetic defects.
Carc. 1B H350i May cause cancer by inhalation.

GHS09 environment

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

GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

· **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**

GHS07 GHS08 GHS09

· **Signal word** Danger

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**Product name: Reagent BC1/CC1 Chloride Indicator**

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· **Hazard-determining components of labelling:**
potassium chromate
· **Hazard statements**
H317 May cause an allergic skin reaction.
H340 May cause genetic defects.
H350i May cause cancer by inhalation.
H411 Toxic to aquatic life with long lasting effects.
· **Precautionary statements**
P261 Avoid breathing mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection.
P273 Avoid release to the environment.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of water.
P405 Store locked up.
· **Additional information:**
Restricted to professional users.

· **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.
· **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:**
The percent content of the chromium compound mentioned below refers to the amount of chromate ions dissolved in water.

| | | |
|---|---|---|
| CAS: 7789-00-6<br>EINECS: 232-140-5<br>Index No: 024-006-00-8 | potassium chromate<br>Muta. 1B, H340; Carc. 1B, H350i; Aquatic Acute 1, H400 (M=10); Aquatic Chronic 1, H410 (M=10); Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335<br>Specific concentration limit: Skin Sens. 1; H317: C ≥ 0.5 % | 1–<2.5% |

· **SVHC**

| | |
|---|---|
| CAS: 7789-00-6 | potassium chromate |

· **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**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Instantly remove any clothing soiled by the product.
· **After inhalation** Supply fresh air or oxygen; call for doctor.
· **After skin contact**
Instantly rinse with water.
If skin irritation or rash occurs: Get medical advice/attention.
· **After eye contact**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
· **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Seek immediate medical advice.
· **4.2 Most important symptoms and effects, both acute and delayed:**
irritations
allergic reactions
after swallowing and inhalation:
absorption

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

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after inhalation:
mucosal irritations, Cough, Shortness of breath
after swallowing:
gastric or intestinal trouble
methaemoglobinaemia
bloody diarrhoea
cramps
· **Danger**
Danger of system failure.
risk of skin sensitization
· **4.3 Indication of any immediate medical attention and special treatment needed:**
No further relevant information available.

## SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
· **5.2 Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire:
chromium trioxide
Dipotassium oxide
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

## SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
· **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Ensure adequate ventilation
Use breathing protection against the effects of fumes/dust/aerosol.
· **Advice for emergency responders:** Protective equipment: see section 8

· **6.2 Environmental precautions:**
Do not allow product to reach sewage system or water bodies.
Inform respective authorities in case product reaches water or sewage system.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Do not allow to dry out
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:** Prevent formation of aerosols.
· **Hygiene measures:**
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.

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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 flammable substances.
· **Further information about storage conditions:**
Store in a locked cabinet or with access restricted to technical experts or their assistants.
Protect from heat and direct sunlight.
Protect from the effects of light.
Protect from humidity and keep away from water.
· **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: 7789-00-6 potassium chromate** | |
| WEL (Great Britain) | Long-term value: 0.01 0.025* mg/m³<br>as Cr; Carc, Sen, BMGV; *process generated |
| BOELV (European Union) | Long-term value: 0.005; 0.01*; 0.025** mg/m³<br>as Cr;*until 01/17/2025**processes generating fume |

· **Regulatory information**
WEL (Great Britain): EH40/2020
BOELV (European Union): 2004/37/EG (EU/2019/983)
· **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.

| · **Ingredients with biological limit values:** | |
|---|---|
| **CAS: 7789-00-6 potassium chromate** | |
| BMGV (Great Britain) | 10 µmol/mol creatinine<br>Medium: urine<br>Sampling time: post shift<br>Parameter: chromium |

· **Regulatory information** BMGV (Great Britain): EH40/2011

· **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
· **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: ≥ 0.11 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.

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· **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:** Filter P3

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

## SECTION 9: Physical and chemical properties

| | |
|---|---|
| · **9.1 Information on basic physical and chemical properties** | |
| · **Physical state** | Fluid |
| · **Form:** | Solution |
| · **Colour:** | Yellow |
| · **Odour:** | Odourless |
| · **Odour threshold:** | Not applicable. |
| · **Melting point/Freezing point:** | Not determined. |
| · **Boiling point or initial boiling point and boiling range** | ~100°C |
| · **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** | 9.5 |
| · **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/cm³ |
| · **Relative density:** | Not determined. |
| · **Relative gas density** | Not determined. |
| · **Particle characteristics** | Not applicable (liquid). |

· **9.2 Other information**

| | |
|---|---|
| · **Information with regard to physical hazard classes** | |
| · **Corrosive to metals** | Void |
| · **Other safety characteristics** | |
| · **Oxidising properties:** | none |
| · **Additional information** | |
| · **Solids content:** | < 3 % |
| · **Solvent content:** | |
| · **Organic solvents:** | 0 % |
| · **Water:** | > 97 % |

## 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 reducing agents
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** organic substances
· **10.6 Hazardous decomposition products:** see section 5



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**Product name: Reagent BC1/CC1 Chloride Indicator**

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## 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: 7789-00-6 potassium chromate** | | |
| Oral | LD50. | 180 mg/kg (mouse) |

· **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.

· **Respiratory or skin sensitisation** May cause an allergic skin reaction.
· **Information on components:**
CAS 7789-00-6: Sensitizing effect by inhalation and skin contact is possible by prolonged exposure.

· **Germ cell mutagenicity** May cause genetic defects.
· **Carcinogenicity** May cause cancer by inhalation.
· **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:**
Inhalable chromium (VI) compounds have claerly shown themselves to be carcinogenic in animal experiments.
Poor tendency for ulcers to heal following penetration of substance into the wound.
Lethal dose (man): 0.5 g
Antidotes: chelating agents such as EDTA, DMPS
Other dangerous properties can not be excluded.
This substance / mixture 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: 7789-00-6 potassium chromate** | |
| EC50 | 0.02 mg/l/48h (Daphnia magna) (Ecotox) |
| | 0.18 mg/l/48h (Daphnia pulex) |
| LC50 | 39.8 mg/l/96h (fathhead minnow) (ECOTOX) |

· **12.2 Persistence and degradability** .
· **Other information:**
Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **12.6 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, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.



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## according to 1907/2006/EC, Article 31

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**Product name: Reagent BC1/CC1 Chloride Indicator**

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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.
Disposal recommendation: as waste containing heavy metals (contains very small amounts of heavy metals)

| · **European waste catalogue** | |
|---|---|
| 16 05 07* | discarded inorganic chemicals consisting of or containing hazardous substances |

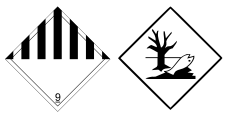
· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

* 
## SECTION 14: Transport information

· **14.1 UN number or ID number**
· **ADR, IMDG, IATA** UN3082

· **14.2 UN proper shipping name**
· **ADR** 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (potassium chromate)
· **IMDG** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (potassium chromate), MARINE POLLUTANT
· **IATA** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (potassium chromate)

· **14.3 Transport hazard class(es)**
· **ADR**




· **Class** 9 (M6) Miscellaneous dangerous substances and articles.
· **Label** 9

· **IMDG, IATA**


· **Class** 9 Miscellaneous dangerous substances and articles.
· **Label** 9

· **14.4 Packing group**
· **ADR, IMDG, IATA** III

· **14.5 Environmental hazards:** Product contains environmentally hazardous substances: potassium chromate
· **Marine pollutant:** Symbol (fish and tree)
· **Special marking (ADR):** Symbol (fish and tree)
· **Special marking (IATA):** Symbol (fish and tree)

· **14.6 Special precautions for user** Warning: Miscellaneous dangerous substances and articles.
· **Kemler Number:** 90
· **EMS Number:** F-A,S-F
· **Stowage Category** A

· **14.7 Maritime transport in bulk according to IMO instruments** Not applicable.

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**Product name: Reagent BC1/CC1 Chloride Indicator**

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· **Transport/Additional information:**

| | |
|---|---|
| · **ADR** | |
| · **Limited quantities (LQ)** | 5L |
| · **Excepted quantities (EQ)** | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml |
| · **Transport category** | 3 |
| · **Tunnel restriction code** | E |
| · **IMDG** | |
| · **Limited quantities (LQ)** | 5L |
| · **Excepted quantities (EQ)** | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>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** not regulated

· **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** E2 Hazardous to the Aquatic Environment
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

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

| | |
|---|---|
| CAS: 7789-00-6 | potassium chromate |

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 28, 29, 47, 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.

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

· **Relevant phrases**
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H340 May cause genetic defects.
H350i May cause cancer by inhalation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· **Abbreviations and acronyms:**
EC50: effective concentration, 50 percent (in vivo)

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**Product name: Reagent BC1/CC1 Chloride Indicator**

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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: hallf 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)
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
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Muta. 1B: Germ cell mutagenicity – Category 1B
Carc. 1B: Carcinogenicity – Category 1B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
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.
ECOTOX Database

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

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

Printing date 26.08.2021 Version number 5 (replaces version 4) Revision: 06.07.2021

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

· **1.1 Product identifier**

· **Product name:** **Reagent BC2 Chloride HR Titrant**

· **Catalog number:** 100320E

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

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

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

· **Supplier:**

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

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

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

* 
## SECTION 2: Hazards identification

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

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

GHS05 corrosion

| | |
|---|---|
| Met. Corr.1 | H290 May be corrosive to metals. |
| 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. |

GHS07

| | |
|---|---|
| Skin Irrit. 2 | H315 Causes skin irritation. |

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

GHS05 GHS09

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

Printing date 26.08.2021 Version number 5 (replaces version 4) Revision: 06.07.2021

**Product name: Reagent BC2 Chloride HR Titrant**

(Contd. of page 1)

· **Signal word** Danger
· **Hazard-determining components of labelling:**
silver nitrate
· **Hazard statements**
H290 May be corrosive to metals.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.
· **Precautionary statements**

| | |
|---|---|
| P280 | Wear protective gloves/protective clothing/eye protection. |
| P273 | Avoid release to the environment. |
| 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. |
| P302+P352 | IF ON SKIN: Wash with plenty of water. |
| P501 | Dispose of contents/container in accordance with local/regional/national/international regulations. |

· **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.
· **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: 7761-88-8<br>EINECS: 231-853-9<br>Index No: 047-001-00-2<br>Reg.nr.: 01-2119513705-43-XXXX | silver nitrate<br>Ox. Sol. 2, H272; Skin Corr. 1B, H314; Aquatic Acute 1, H400 (M=1000); Aquatic Chronic 1, H410 (M=100); Acute Tox. 4, H302 | 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** Instantly remove any clothing soiled by the product.
· **After inhalation** Supply fresh air; consult doctor in case of symptoms.
· **After skin contact**
Instantly rinse with water.
If skin irritation continues, consult a doctor.
· **After eye contact**
Rinse opened eye for several minutes (at least 15 min) under running water.
Call a doctor immediately.
· **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
In case of persistent symptoms consult doctor.
· **4.2 Most important symptoms and effects, both acute and delayed:**
burns
after swallowing of large amounts:
methaemoglobinaemia
gastric or intestinal trouble
irritations
diarrhoea
cardiovascular disorders
· **4.3 Indication of any immediate medical attention and special treatment needed:**
No further relevant information available.


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## SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
· **5.2 Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire:
Nitrogen oxides (NOx)
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

## SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
· **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
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.
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.
See Section 13 for information on disposal.

## SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
· **Advice on safe handling:** No special precautions necessary if used correctly.
· **Hygiene measures:**
Avoid contact with the skin.
Avoid contact with the eyes.
Take off immediately all contaminated clothing.
Wash hands during breaks and at the end of the work.
Do not eat, drink or smoke when using this product.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and containers:** Store in cool location.
· **Information about storage in one common storage facility:** Store away from metals.
· **Further information about storage conditions:**
Protect from heat and direct sunlight.
Protect from the effects of light.
Protect from humidity and keep away from water.
· **Recommended storage temperature:** 20°C +/- 5°C

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



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## SECTION 8: Exposure controls/personal protection

### · 8.1 Control parameters

| · **Components with limit values that require monitoring at the workplace:** | |
|---|---|
| **CAS: 7761-88-8 silver nitrate** | |
| WEL (Great Britain) | Long-term value: 0.01 mg/m³<br>as Ag |
| IOELV (European Union) | Long-term value: 0.01 mg/m³<br>as Ag |
| OEL (Sweden) | Long-term value: 0.01 mg/m³<br>som Ag; totaldamm |

· **Regulatory information**
WEL (Great Britain): EH40/2011
IOELV (European Union): (EU) 2017/164
OEL (Sweden): AFS2015:7

| · **DNELs** | | |
|---|---|---|
| **CAS: 7761-88-8 silver nitrate** | | |
| Inhalative | DNEL | 0.016 mg/m³ (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.

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

### · 8.2 Exposure controls

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

· **Individual protection measures, such as personal protective equipment**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Eye/face protection** Tightly sealed safety glasses.
· **Hand protection**
Protective gloves.
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
· **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
· **Penetration time of glove material**
Value for the permeation: Level = 1 ( < 10 min )
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **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 P2

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

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## 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** | 100°C (CAS: 7732-18-5 water) |
| · **Flammability** | Not applicable. |
| · **Explosive properties:** | Product is not explosive. |

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| | |
|---|---|
| · **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** | 5 |
| · **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 g/cm³ |
| · **Relative density:** | Not determined. |
| · **Relative gas density** | Not determined. |
| · **Particle characteristics** | Not applicable (liquid). |

### · 9.2 Other information

| | |
|---|---|
| · **Information with regard to physical hazard classes** | |
| · **Corrosive to metals** | |
| May be corrosive to metals. | |
| · **Other safety characteristics** | |
| · **Oxidising properties:** | none |
| · **Additional information** | |
| · **Solids content:** | < 5 % |
| · **Solvent content:** | |
| · **Organic solvents:** | 0.0 % |
| · **Water:** | > 95 % |

## SECTION 10: Stability and reactivity

· **10.1 Reactivity** see section 10.3
· **10.2 Chemical stability**
Stable at ambient temperature (room temperature).
sensitivity to light
· **10.3 Possibility of hazardous reactions**
Corrosive action on metals
Reacts with alcohols
· **10.4 Conditions to avoid** Strong heating (decomposition)
· **10.5 Incompatible materials:**
aluminium
steel
· **10.6 Hazardous decomposition products:** see section 5

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## 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: 7761-88-8 silver nitrate** | | |
| Oral | LD50 | 1173 mg/kg (rat)<br>(RTECS) |

· **Skin corrosion/irritation** Causes skin irritation.
· **Serious eye damage/irritation**
Causes serious eye damage.
Risk of corneal clouding.

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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.

· **11.2 Information on other hazards**

| · **Endocrine disrupting properties** |
|---|
| None of the ingredients is listed. |

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## SECTION 12: Ecological information

· **12.1 Toxicity**

| · **Aquatic toxicity:** | |
|---|---|
| **CAS: 7761-88-8 silver nitrate** | |
| LC50 | 0.00022 mg/l/48h (Daphnia magna) (OECD 202)<br>(Merck, Ag-Ion) |
| EC10 | 0.0021 mg/l (Daphnia magna) (21)<br>(Registrant, ECHA) |
| NOEC | 0.00037 mg/l (fathhead minnow) (OECD 210)<br>(Merck) |
| LC50 | 0.0012 mg/l/96h (fathhead minnow) (US-EPA)<br>(Merck, Ag-Ion) |

· **12.2 Persistence and degradability** .
· **Other information:**
Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of water supplies.
Avoid transfer into the environment.
· **Water hazard:**
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.

## SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
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.

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

## SECTION 14: Transport information

· **14.1 UN number or ID number**
· **ADR, IMDG, IATA** UN1760

· **14.2 UN proper shipping name**
· **ADR** 1760 CORROSIVE LIQUID, N.O.S. (SILVER NITRATE), ENVIRONMENTALLY HAZARDOUS
· **IMDG** CORROSIVE LIQUID, N.O.S. (SILVER NITRATE), MARINE POLLUTANT
· **IATA** CORROSIVE LIQUID, N.O.S. (SILVER NITRATE)

· **14.3 Transport hazard class(es)**

· **ADR**

· **Class** 8 (C9) Corrosive substances.
· **Label** 8

· **IMDG**

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

· **IATA**

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

· **14.4 Packing group**
· **ADR, IMDG, IATA** III

· **14.5 Environmental hazards:**
· **Marine pollutant:** Symbol (fish and tree)
· **Special marking (ADR):** Symbol (fish and tree)

· **14.6 Special precautions for user** Warning: Corrosive substances.
· **Kemler Number:** 80
· **EMS Number:** F-A,S-B
· **Stowage Category** A
· **Stowage Code** SW2 Clear of living quarters.

· **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

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| | |
|---|---|
| · **Tunnel restriction code** | E |
| · **IMDG** | |
| · **Limited quantities (LQ)** | 5L |
| · **Excepted quantities (EQ)** | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml |

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## SECTION 15: Regulatory information

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

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

None of the ingredients is listed.

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

None of the ingredients is listed.

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

None of the ingredients is listed.

· **Directive 2012/18/EU (SEVESO III):**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category** E1 Hazardous to the Aquatic Environment
· **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)**

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 ≥ 0.1% (w / w).
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **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.

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

· **Relevant phrases**
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

· **Abbreviations and acronyms:**
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: hallf 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

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PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Ox. Sol. 2: Oxidizing solids – Category 2
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
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.
RTECS (Registry of Toxic Effects of Chemical Substances )

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