# SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

## Bio-San C-500

| | | | |
|---|---|---|---|
| Creation date | 04th November 2024 | Revision no. | |
| Revision date | | Version | 1.0 |

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

**1.1. Product identifier** — Bio-San C-500

Substance / mixture: mixture

UFI: JS00-V0W2-M00E-0MV1

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

**Mixture's intended use**

Waterproofing and protection of concrete

**Mixture uses advised against**

The product should not be used in ways other than those referred in Section 1.

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

**Manufacturer**

| | |
|---|---|
| Name or trade name | XYPEX CHEMICAL CORPORATION |
| Address | 13731 Mayfield Place, Richmond, BC V6V 2G9<br>Canada |
| Phone | +1(604) 273-5265 |
| E-mail | enquiry@xypex.com |

**Competent person responsible for the safety data sheet**

| | |
|---|---|
| Name | XYPEX CHEMICAL CORPORATION |
| E-mail | enquiry@xypex.com |

**1.4. Emergency telephone number**

National Health Service (NHS) 111

National poisoning information centre Scotland, NHS 24: 111

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**SECTION 2: Hazards identification**

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

**Classification of the mixture in accordance with Regulation (EC) No 1272/2008**

The mixture is classified as dangerous.

Skin Irrit. 2, H315
Skin Sens. 1B, H317
Eye Dam. 1, H318
Aquatic Acute 1, H400
Aquatic Chronic 1, H410

**Most serious adverse effects on human health and the environment**

Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

**2.2. Label elements**

**Hazard pictogram**



**Signal word**

Danger

**Hazardous substances**

Cement, portland, chemicals
Flue dust, portland cement

**Hazard statements**

| | |
|---|---|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H410 | Very toxic to aquatic life with long lasting effects. |

**Precautionary statements**

| | |
|---|---|
| P102 | Keep out of reach of children. |
| P260 | Do not breathe dust. |
| P264 | Wash hands and exposed parts of the body thoroughly after handling. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310 | Immediately call a doctor. |
| P501 | Dispose of contents/container to in accordance with national regulations. |

### 2.3. Other hazards

The mixture does not contain substances with endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.
Mixture does not contain any substance meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.
Does not contain any PMT or vPvM components.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

**Mixture contains these hazardous substances and substances with the highest permissible concentration in the working environment**

| Identification numbers | Substance name | Content in % weight | Classification according to Regulation (EC) No 1272/2008 | Note |
|---|---|---|---|---|
| CAS: 1317-61-9<br>EC: 215-277-5 | triiron tetraoxide | 15-30 | not classified as dangerous | |
| CAS: 1309-37-1<br>EC: 215-168-2 | diiron trioxide | 10-20 | not classified as dangerous | 1 |
| CAS: 65997-15-1<br>EC: 266-043-4<br>Registration number: 15.1 REACH | Cement, portland, chemicals | 5-15 | Skin Irrit. 2, H315<br>Skin Sens. 1B, H317<br>Eye Dam. 1, H318<br>STOT SE 3, H335 | 1 |
| Index: 029-016-00-6<br>CAS: 1317-38-0<br>EC: 215-269-1 | copper(II) oxide | 5-8 | Aquatic Acute 1, H400 (M=100)<br>Aquatic Chronic 1, H410 (M=10) | 1 |
| CAS: 68475-76-3<br>EC: 270-659-9<br>Registration number: 01-2119486767-17 | Flue dust, portland cement | <1 | Skin Irrit. 2, H315<br>Skin Sens. 1, H317<br>Eye Dam. 1, H318<br>STOT SE 3, H335 | |
| CAS: 1305-62-0<br>EC: 215-137-3<br>Registration number: 01-2119475151-45 | calcium-dihydroxide | <0.5 | Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>STOT SE 3, H335 | 1 |
| Index: 029-024-00-X<br>CAS: 7440-50-8<br>EC: 231-159-6 | granulated copper | <0.5 | Aquatic Chronic 2, H411 | 1 |
| CAS: 7440-22-4<br>EC: 231-131-3 | silver | <0.5 | not classified as dangerous | 1 |

**Notes**

1 *A substance for which exposure limits are set.*

Full text of all classifications and hazard statements is given in the section 16.

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance.

**If inhaled**

Terminate the exposure immediately; move the affected person to fresh air. Protect the person against growing cold. Provide medical treatment if irritation, dyspnoea or other symptoms persist.

**If on skin**

Remove contaminated clothes. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists.

**If in eyes**

Do not rub your eyes – it could lead to mechanical damage of the cornea. Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. No neutralization should be performed in any case! Rinsing should be continued for 10-30 minutes from the inner to the outer eye corner to make sure that the other eye is not involved. Depending on the situation, call medical rescue service or ensure medical treatment as promptly as possible. Everyone must be referred for treatment even if affected only a little.

**If swallowed**

DO NOT INDUCE VOMITING! If the affected person vomits, make sure to prevent inhalation of the vomit (as there is a danger of lung damage after inhalation of these liquids in the airways also in infinitesimal amount).
Rinse out the mouth with clean water. Drink 1 cup (240 - 300 ml) of water followed by dilution with milk if available. Do not provide anything by mouth if the person is unconscious or if having cramps. Depending on the situation, call medical rescue service or ensure medical treatment as promptly as possible.

**4.2. Most important symptoms and effects, both acute and delayed**

**If inhaled**

Precautions should be taken to ensure that dust is not inhaled; however, long-term exposure to high levels of dust may result in damage to the lungs.

**If on skin**

May cause an allergic skin reaction. Causes skin irritation. Irritation, itching, redness.

**If in eyes**

Causes serious eye damage.

**If swallowed**

Corrosion of the digestion system can occur.

**4.3. Indication of any immediate medical attention and special treatment needed**

Symptomatic treatment.
Terminate the exposure immediately; move the affected person to fresh air.

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**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**

Product is non-flammable under normal conditions.

**Unsuitable extinguishing media**

Not defined.

**5.2. Special hazards arising from the substance or mixture**

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

Alkaline earth compounds will cause explosive decomposition of maleic anhydride, nitroalkanes and nitroparaffins, in the presence of water, form salts with inorganic salts and with inorganic bases. The dry salts are explosive.

**5.3. Advice for firefighters**

Do not inhale smoke/gases produced by fire or heating. Do not intervene if it endangers your health or if you are not properly trained. Full protective clothing (EN 469:2020), helmet (EN 443:2008), protective boots (EN 15090:2012), gloves (EN 659:2003+A1:2008/AC:2009), and self-contained breathing apparatus (EN 137:2006). Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

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**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8.
Provide sufficient ventilation. Do not inhale dust. Prevent contact with skin and eyes.

**6.2. Environmental precautions**

Prevent contamination of the soil and entering surface or ground water. Do not allow to enter drains. In the event of substantial pollution, contact respective authorities and wastewater treatment plants.

**6.3. Methods and material for containment and cleaning up**

Place the product mechanically in an appropriate manner. Do not inhale dust. Prevent contact with skin and eyes. Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Keep the material dry if possible.

When the product is in a dry state, avoid airborne dust generation when cleaning up. Avoid dry sweeping. Examples of cleanup methods when in dry state are:
(A) Using a vacuum cleaner (Industrial portable units), equipped with high efficiency particulate filters (HEPA filter) or equivalent technique.
(B) Wipe up the dust by mopping, wet brushing or water sprays or hoses with a fine mist to avoid the dust becoming airborne and remove slurry. Ensure drains are covered.

If the product has become wet, clean up and place in watertight container. Allow material to dry and solidify before disposal. Check current regulations before disposing of spillage, whether in dry state or not.

Dispose of the collected material according to the instructions in the section 13.

**6.4. Reference to other sections**

See the Section 7, 8 and 13.

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**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

Prevent formation of gases and vapours in concentrations exceeding the occupational exposure limits.
Provide sufficient ventilation. Do not inhale dust. Prevent contact with skin and eyes.
Contaminated work clothing should not be allowed out of the workplace. Wash hands and exposed parts of the body thoroughly after handling. Do not eat, drink or smoke when using this product. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Use only outdoors or in a well-ventilated area. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection.

General – During work avoid kneeling in the product. If kneeling is absolutely necessary then appropriate impervious waterproof personal protective equipment must be worn.
Carrying the product may cause back injuries, strains, sprains or the like. Use correct handling techniques to avoid injury. Use handling equipment and controls if necessary to avoid injury.

Avoid mishandling of pails of bags so as to prevent accidental bursting and creation of dust.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose.
Store in a dry place. Protect from moisture. Keep container tightly closed.

Store this product in a draught free environment, clear of the ground, avoiding humid conditions and extremes of temperature.

**The specific requirements or rules relating to the substance/mixture**

Avoid humid and drafty environments during storage. Also avoid storage temperatures below 7°C.

**7.3. Specific end use(s)**

not available

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**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

The mixture contains substances for which occupational exposure limits are set.

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| calcium−dihydroxide Respirable fraction (CAS: 1305−62−0) | WEL 8h | 1 mg/m³ |
| | WEL 15min | 4 mg/m³ |
| calcium−dihydroxide (CAS: 1305−62−0) | WEL 8h | 5 mg/m³ |

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| Silver, metallic (CAS: 7440−22−4) | WEL 8h | 0,1 mg/m³ |

*Notes*
*As Ag.*

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| Copper and compounds: dust and mists (CAS: 1317−38−0) | WEL 8h | 1 mg/m³ |
| | WEL 15min | 2 mg/m³ |
| granulated copper fume (CAS: 7440−50−8) | WEL 8h | 0,2 mg/m³ |

*Notes*
*As Cu.*

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| diiron trioxide (fume) (CAS: 1309−37−1) | WEL 8h | 5 mg/m³ |
| | WEL 15min | 10 mg/m³ |

*Notes*
*As Fe.*

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| Cement, portland, chemicals (CAS: 65997−15−1) | WEL 8h | 10 mg/m³ |

*Notes*
*Inhalable dust.*

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| Cement, portland, chemicals (CAS: 65997−15−1) | WEL 8h | 4 mg/m³ |

*Notes*
*Respirable dust.*

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| diiron trioxide (CAS: 1309−37−1) | WEL 8h | 4 mg/m³ |

*Notes*
*Respirable.*

**United Kingdom** **EH40/2005 Workplace exposure limits (Fourth Edition 2020)**

| Substance name (component) | Type | Value |
|---|---|---|
| diiron trioxide (CAS: 1309−37−1) | WEL 8h | 10 mg/m³ |

*Notes*
*Total inhalable.*

**8.2. Exposure controls**

Take off contaminated clothing and wash before reuse.
Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation.
If exposure limits cannot be observed in this mode, suitable protection of airways must be used.
Do not eat, drink and smoke during work.
Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

**Eye/face protection**

Tightly fitting safety glasses. Protective glasses with side shields. EN166 - Personal Eye Protection Standard.

**Skin protection**

Hand protection: Protective gloves resistant to the product. EN ISO 374-1. When choosing appropriate thickness, material and permeability of the gloves, observe recommendations of their particular manufacturer. Observe other recommendations of the manufacturer. Contaminated skin should be washed thoroughly.

To protect the skin from long-term contact with wet cement, wear impervious gloves resistant to abrasion and alkali (nitrile, made of material with a low content of soluble Cr(VI), CE marked), internally lined with cotton, high boots, clothing with closed sleeves and pants, as well as skin protection products (including protective creams).

In particular, it must be ensured that wet cement does not get into the shoes. Regarding gloves, research has shown that nitrile-impregnated cotton gloves (layer thickness of about 0.15 mm) provide sufficient protection for 480 minutes, under normal wear and tear, which may depend on the type of use. Always replace damaged or soaked gloves immediately. Always have spare gloves ready. In cases where contact cannot be avoided, e.g. when placing/applying concrete mix or screeds, use waterproof trousers and knee protection.

**Respiratory protection**

Always use respiratory protection. Do not inhale dust. Use an APPROVED NIOSH dust mask. Respiratory protective equipment must be in compliance with relevant national legislation. It is good practice to conduct fit-testing when selecting respiratory protective equipment. Half mask with filter (P1/P2) - EN standard (e.g. EN 149+A1, EN 140, EN 14387+A1, EN 1827+A1) or in accordance with national standards.

**Thermal hazard**

Not available.

**Environmental exposure controls**

Observe usual measures for protection of the environment, see Section 6.2.

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| Appearance | |
| physical state | solid at 20 °C |
| color | brown |
| Odour | without fragrance |
| pH | 9.1-9.8 (33% solution) (EPA method: 2 parts water to 1 part powder by volume weight) |
| Melting point/freezing point | data not available |
| Initial boiling point and boiling range | >1250 °C |
| Flash point | data not available |
| Flammability (solid, gas) | data not available |
| Upper/lower flammability or explosive limits | |
| explosive limits | data not available |
| Vapour pressure | data not available |
| Relative density | 3.64 |
| Solubility(ies) | |
| solubility in water | Powder forms a slurry with water and hardens over time |
| Partition coefficient: n-octanol/water | data not available |
| Auto-ignition temperature | data not available |
| Decomposition temperature | 580 °C |
| Viscosity | |
| Kinematic viscosity | data not available |

**9.2. Other information**

| | |
|---|---|
| molar weight | data not available |

| | |
|---|---|
| diiron trioxide (CAS: 1309-37-1) | 159.7 g/mol ($Fe_2O_3$) |
| triiron tetraoxide (CAS: 1317-61-9) | 231.55 g/mol ($Fe_3O_4$) |

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Alkaline earth compounds react vigorously with strong acids. They also attack aluminum, lead and brass in the presence of moisture.

In the presence of water, calcium aluminates react chemically and harden to form stable calcium aluminate hydrates. This reaction is exo-thermal and may last up to 24 hours. The total heat released is < 500 kj/kg.

**10.2. Chemical stability**

The product is stable under normal conditions.
When mixed with water it will harden, with time, into a stable mass.

**10.3. Possibility of hazardous reactions**

Alkaline earth compounds will cause explosive decomposition of maleic anhydride, nitroalkanes and nitroparaffins, in the presence of water, form salts with inorganic salts and with inorganic bases. The dry salts are explosive.

Alkaline earth compound is stable up to 580°C.
Alkaline earth compounds decompose with loss of water at approximately 580°C to form calcium oxide.

**10.4. Conditions to avoid**

The product is stable and no degradation occurs under normal use.
Avoid humid and drafty environments during storage. Also avoid storage temperatures below 7°C.

**10.5. Incompatible materials**

Protect against strong acids.

It should be noted that the uncontrolled use of aluminium powder in wet cement should be avoided as hydrogen is produced.

**10.6. Hazardous decomposition products**

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time. No toxicological data is available for the mixture.

**Acute toxicity**

Based on the available data, the criteria for classification of the mixture are not met.

| **calcium-dihydroxide** | | | | | | |
|---|---|---|---|---|---|---|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex |
| Oral | $LD_{50}$ | OECD 425 | >2000 mg/kg bw | | Rat | |
| Dermal | $LD_{50}$ | OECD 402 | >2500 mg/kg bw | | Rabbit | |

| **copper(II) oxide** | | | | | | |
|---|---|---|---|---|---|---|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex |
| Oral | $LD_{50}$ | | ≥2500 mg/kg | | Rat | |
| Dermal | $LD_{50}$ | | ≥2000 mg/kg | | Rat | |

| **granulated copper** | | | | | | |
|---|---|---|---|---|---|---|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex |
| Oral | $LD_{50}$ | OECD 402 | ≥2000 mg/kg | | Rat | |
| Dermal | $LC_{50}$ | OECD 436 | ≥5.11 mg/l | 4 hours | Rat | |

| silver | | | | | | |
|---|---|---|---|---|---|---|
| Route of exposure | Parameter | Method | Value | Exposure time | Species | Sex |
| Oral | $LD_{50}$ | | ≥2000 mg/kg | | Rat | |

**Skin corrosion/irritation**

Causes skin irritation.
When skin is exposed to the product in its dry or wet state, thickening, cracking or fissuring of the skin may occur. Prolonged contact in combination with abrasion can cause severe burns.

Cement may have an irritating effect on moist skin (due to transpiration of humidity) after prolonged contact.
Prolonged skin contact with wet cement or fresh concrete may cause serious burns because they develop without pain being felt. Repeated skin contact with wet cement may cause dermatitis.

**Serious eye damage/irritation**

Causes serious eye damage.

Direct contact with product may cause corneal damage by mechanical stress, immediate or delayed irritation or inflammation. Direct contact either in dry or wet form may cause effects ranging from moderate eye irritation (eg. conjunctivitis or blepharitis) to chemical burns or blindness.

**Respiratory or skin sensitisation**

May cause an allergic skin reaction.

**Germ cell mutagenicity**

Based on the available data, the criteria for classification of the mixture are not met.

| calcium-dihydroxide | | | | | |
|---|---|---|---|---|---|
| Result | Method | Exposure time | Specific target organ | Species | Sex |
| Negative | OECD 471 | | | Bacteria (Salmonella typhimurium) | |

**Carcinogenicity**

Based on the available data, the criteria for classification of the mixture are not met.

**Reproductive toxicity**

Based on the available data, the criteria for classification of the mixture are not met.

**Toxicity for specific target organ - single exposure**

Based on the available data, the criteria for classification of the mixture are not met.
Inhalation may lead to irritation, inflammation or burns. Coughing, sneezing and shortness of breath may occur following exposures in excess of occupational exposure limits.

**Toxicity for specific target organ - repeated exposure**

Based on the available data, the criteria for classification of the mixture are not met.
Prolonged or repeated inhalation exposure may cause damage to the lungs, including chronic obstructive pulmonary disease (COPD).

**Aspiration hazard**

Based on the available data, the criteria for classification of the mixture are not met.

**SECTION 12: Ecological information**

**12.1. Toxicity**

Very toxic to aquatic life with long lasting effects.

Do not allow the material to enter water course. If water is contaminated inform the relevant authorities immediately. The addition of a significant amount of cementitious products to water may cause a rise in the pH value and therefore may be toxic to aquatic life under certain circumstances.

Alkaline conditions may also have effects on vegetation.

**Acute toxicity**

| **calcium-dihydroxide** | | | | | |
|---|---|---|---|---|---|
| Parameter | Value | Exposure time | Species | Environment | Value determination |
| $LC_{50}$ | 50.6 mg/l | 96 hours | Fish | Fresh water | |
| $LC_{50}$ | 457 mg/l | 96 hours | Fish | Salt water | |
| $EC_{50}$ | 49.1 mg/l | 48 hours | Aquatic invertebrates | Fresh water | |
| $LC_{50}$ | 158 mg/l | 96 hours | Aquatic invertebrates | Salt water | |
| $EC_{50}$ | 184.57 mg/l | 72 hours | Algae and other aquatic plants | Fresh water | |
| NOEC | 48 mg/l | 72 hours | Algae and other aquatic plants | Salt water | |
| $EC_{10}/LC_{10}$ | 2000 mg/kg of dry substance of soil | | Microorganisms | | |

| **copper(II) oxide** | | | | | |
|---|---|---|---|---|---|
| Parameter | Value | Exposure time | Species | Environment | Value determination |
| $EC_{50}$ | 0.03-0.06 mg/l | 48 hours | Daphnia (Daphnia magna) | | |
| $LC_{50}$ | 1 mg/l | 96 hours | Fish (Lepomis macrochirus) | | |
| $LC_{50}$ | 0.297-0.513 mg/l | 96 hours | Fish (Pimephales promelas) | | |

| **granulated copper** | | | | | |
|---|---|---|---|---|---|
| Parameter | Value | Exposure time | Species | Environment | Value determination |
| $EC_{50}$ | 0.03 mg/l | 48 hours | Daphnia (Daphnia magna) | | Static system |
| $EC_{50}$ | 0.0426-0.0535 mg/l | 72 hours | Algae (Pseudokirchneriella subcapitata) | | Static system |
| $LC_{50}$ | 0.8 mg/l | 96 hours | Crustaceans (Cyprinus carpio) | | Static system |
| $LC_{50}$ | 1.25 mg/l | 96 hours | Fish (Lepomis macrochirus) | | Static system |
| $LC_{50}$ | 0.2 mg/l | 96 hours | Fish (Pimephales promelas) | | Static system |
| $LC_{50}$ | 0.112 mg/l | 96 hours | Fish (Poecilia reticulata) | | Static system |
| $LC_{50}$ | 0.052 mg/l | 96 hours | Fish (Oncorhynchus mykiss) | | Static system |

**Chronic toxicity**

| calcium-dihydroxide | | | | |
|---|---|---|---|---|
| Parameter | Value | Exposure time | Species | Environment |
| NOEC | 32 mg/l | 14 days | Aquatic invertebrates | Salt water |
| NOEC | 1080 mg/kg | 21 days | Higher plants | |

**12.2. Persistence and degradability**

No data are available for either the mixture or the components.

Alkaline earth material is non bio-degradable; it reacts with atmosphere and dissolved carbon dioxide to form calcium carbonate (chalk).

**12.3. Bioaccumulative potential**

Does not contain bioaccumulating components.

**12.4. Mobility in soil**

No data are available for either the mixture or the components.

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

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

**12.6. Other adverse effects**

Not available.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity.
Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste.
Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Product – Unused Residue or Dry Spillage
Pick up dry and put in containers. Mark container clearly. In case of disposal, harden with water to avoid dust creation. Dispose of at a licensed waste facility accepting cementitious and alkaline earth based waste. Dispose of all materials in accordance with current local regulations / legislation.

Product – Slurries
Allow to harden.Avoid entry into sewage and drainage systems or into bodies of water and dispose of as indicated for hardened product.

Product – After Addition of Water, Hardened
Dispose of at a licensed waste facility accepting cementitious and alkaline earth based waste. Dispose of all materials in accordance with current regulations / legislation. Avoid entry into sewage and drainage systems or into bodies of water.

**Waste management legislation**

Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (S.I. No. 871 of 2007).
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended.
Decision 2000/532/EC establishing a list of wastes, as amended.

## SECTION 14: Transport information

**14.1. UN number**

UN 3077

**14.2. UN proper shipping name**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper(II) oxide)

**14.3. Transport hazard class(es)**

9 Miscellaneous dangerous substances and articles

**14.4. Packing group**

III

**14.5. Environmental hazards**

not relevant

**14.6. Special precautions for user**

Reference in the Sections 4 to 8.

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

not relevant

**Additional information**

| | |
|---|---|
| Hazard identification No. | **90** |
| UN number | **3077** |
| Classification code | M7 |
| Safety signs | 9+hazardous for the environment |




| | |
|---|---|
| Tunnel restriction code | (-) |

**Air transport - ICAO/IATA**

| | |
|---|---|
| Packaging instructions passenger | 956 |
| Cargo packaging instructions | 956 |

**Marine transport - IMDG**

| | |
|---|---|
| EmS (emergency plan) | F-A, S-F |
| Marine pollutant | Yes |

## SECTION 15: Regulatory information

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

Clean Air Act 1993 as amended.
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 as amended.
Public health act 1961. Environmental Protection Act 1990 as amended. Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended.
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended.
Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

**15.2. Chemical safety assessment**

A chemical safety assessment has not been carried out.

## SECTION 16: Other information

**A list of standard risk phrases used in the safety data sheet**

| | |
|---|---|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H411 | Toxic to aquatic life with long lasting effects. |

**Guidelines for safe handling used in the safety data sheet**

| | |
|---|---|
| P102 | Keep out of reach of children. |

| | |
|---|---|
| P260 | Do not breathe dust. |
| P264 | Wash hands and exposed parts of the body thoroughly after handling. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310 | Immediately call a doctor. |
| P501 | Dispose of contents/container to in accordance with national regulations. |

**Other important information about human health protection**

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

**Key to abbreviations and acronyms used in the safety data sheet**

| | |
|---|---|
| ADR | European agreement concerning the international carriage of dangerous goods by road |
| Aquatic Acute | Hazardous to the aquatic environment |
| Aquatic Chronic | Hazardous to the aquatic environment (chronic) |
| BCF | Bioconcentration Factor |
| CAS | Chemical Abstracts Service |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures |
| EC | Identification code for each substance listed in EINECS |
| $EC_{50}$ | Concentration of a substance when it is affected 50 % of the population |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| EmS | Emergency plan |
| EU | European Union |
| EuPCS | European Product Categorisation System |
| Eye Dam. | Serious eye damage |
| IATA | International Air Transport Association |
| IBC | International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods |
| INCI | International Nomenclature of Cosmetic Ingredients |
| ISO | International Organization for Standardization |
| IUPAC | International Union of Pure and Applied Chemistry |
| $LC_{10}$ | Lethal concentration of a substance in which it can be expected death of 10% of the population |
| $LC_{50}$ | Lethal concentration of a substance in which it can be expected death of 50% of the population |
| $LD_{50}$ | Lethal dose of a substance in which it can be expected death of 50% of the population |
| log Kow | Octanol-water partition coefficient |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| NOEC | No observed effect concentration |
| OEL | Occupational Exposure Limits |
| PBT | Persistent, bioaccumulative and toxic |
| PMT | Persistent, mobile and toxic |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Agreement on the transport of dangerous goods by rail |
| Skin Irrit. | Skin irritation |
| Skin Sens. | Skin sensitization |
| STOT SE | Specific target organ toxicity - single exposure |
| UN | Four-figure identification number of the substance or article taken from the UN Model Regulations |

| | |
|---|---|
| UVCB | Substances of unknown or variable composition, complex reaction products or biological materials |
| VOC | Volatile organic compounds |
| vPvB | Very persistent and very bioaccumulative |
| vPvM | Very persistent and very mobile |

**Training guidelines**

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

**Recommended restrictions of use**

not available

**Information about data sources used to compile the Safety Data Sheet**

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended.
Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

**More information**

Classification procedure - calculation method.

**Statement**

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.