CAL BRONZE

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

1.1 Product identifier

Trade name : CAL BRONZE

SDS-Identcode : 059G

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

Use of the Substance/Mixture : Industrial use, Thread Compound (Pipe Dope) and Jacking grease for use in Offshore industries, Mining, (without offshore industries)

Recommended restrictions on use : Do not use on oxygen lines or in oxygen enriched atmospheres.

1.3 Details of the supplier of the safety data sheet

Company : Bestolife Corporation        INTERTEK FRANCE
           2126 Vanco Drive         27400 HEUDEBOUVILLE
           75061,                FRANCE

Telephone : 855-243-9164/972-865-8961 +33 385 991270

Telefax : 214-631-3047 +33 385 991288

E-mail address of person responsible for the SDS : www.bestolife.com/christian.gimenez@intertek.com/if.reach@intertek.com

1.4 Emergency telephone number

CHEMTREC: +(44)-870-8200418; Internntl: +1-703-527-3887 NHS Drct: +44 0845 4647 (Medical only)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2
Reproductive toxicity, Category 1A
Effects on or via lactation
Specific target organ toxicity - repeated exposure, Category 1
Short-term (acute) aquatic hazard, Category 1
Long-term (chronic) aquatic hazard, Category 1

H319: Causes serious eye irritation.
H360FD: May damage fertility. May damage the unborn child.
H362: May cause harm to breast-fed children.
H372: Causes damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

**Hazard pictograms**: 

Signal word: Danger

**Hazard statements**:
- H319 Causes serious eye irritation.
- H360FD May damage fertility. May damage the unborn child.
- H362 May cause harm to breast-fed children.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements**:

- **Prevention**:
  - P201 Obtain special instructions before use.
  - P263 Avoid contact during pregnancy and while nursing.
  - P273 Avoid release to the environment.
  - P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

- **Response**:
  - P308 + P313 IF exposed or concerned: Get medical advice/attention.
  - P391 Collect spillage.

**Hazardous components which must be listed on the label**: 

- Lead

**Additional Labelling**

- EUH208 Contains Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate), Calcium petroleum sulfonates. May produce an allergic reaction.

Restricted to professional users.

### 2.3 Other hazards

None known.

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

**Components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration (%) w/w</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>231-100-4</td>
<td>Repr. 1A; H360FD Lact.H362</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Substance</td>
<td>CAS Number</td>
<td>STOT RE</td>
<td>H372 (Kidney, Central nervous system, Blood)</td>
<td>Aquatic Acute</td>
</tr>
<tr>
<td>------------------------------------------------</td>
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<td>----------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>STOT RE 1; H372</td>
<td>Aquatic Acute 1; H400</td>
<td>Aquatic Chronic 1; H410</td>
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<tr>
<td>Copper metal powder</td>
<td>7440-50-8</td>
<td>STOT RE 1; H372</td>
<td>Aquatic Acute 1; H400</td>
<td>Aquatic Chronic 1; H410</td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>STOT RE 1; H372</td>
<td>Aquatic Acute 1; H400</td>
<td>Aquatic Chronic 1; H410</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>Carc. 1A; H350i</td>
<td>STOT RE 1; H372</td>
<td>Aquatic Acute 1; H400</td>
</tr>
<tr>
<td>Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate)</td>
<td>01-2119980985-16</td>
<td>Skin Irrit. 2; H315</td>
<td>Eye Dam. 1; H318</td>
<td>STOT SE 3; H335</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>Skin Irrit. 2; H315</td>
<td>Eye Dam. 1; H318</td>
<td>Skin Sens. 1B; H317</td>
</tr>
<tr>
<td>Calcium petroleum sulfonates</td>
<td>61789-86-4</td>
<td>Aquatic Acute 1; H400</td>
<td>Aquatic Chronic 1; H410</td>
<td>M-Factor (Acute aquatic toxicity): 1</td>
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<tr>
<td></td>
<td>263-093-9</td>
<td>Skin Sens. 1B; H317</td>
<td>&gt;= 0.1 - &lt; 1</td>
<td></td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

If inhaled: If inhaled, remove to fresh air. Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks: Causes serious eye irritation. May damage fertility. May damage the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure. May produce an allergic reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Dry chemical

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products:
- Carbon oxides
- Lead compounds
- Metal oxides

5.3 Advice for firefighters

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Specific extinguishing methods:
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Use water spray to cool unopened containers.
- Remove undamaged containers from fire area if it is safe to do so.
- Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Sweep up or vacuum up spillage and collect in suitable container for disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.
SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures:
- See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on safe handling:
- For outdoor use only
- Avoid contact during pregnancy and while nursing.
- Do not get on skin or clothing.
- Do not breathe dust, fume, gas, mist, vapours or spray.
- Do not swallow.
- Do not get in eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
- Keep container tightly closed.
- Do not eat, drink or smoke when using this product.
- Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures:
- If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
- Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.

Advice on common storage:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Organic peroxides
  - Explosives
  - Gases

7.3 Specific end use(s)

Specific use(s):
- No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talc</td>
<td>14807-96-6</td>
<td>TWA (Respirable dust)</td>
<td>1 mg/m3</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>

Further information: For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/4 General methods for sampling and gravimetric analysis or respira-
ble, thoracic and inhalable aerosols., Talc is defined as the mineral talc together with other hydrous phyllosilicates including chlorite and carbonate materials which occur with it, but excluding amphibole asbestos and crystalline silica., The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system, and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'., Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/4., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.

<table>
<thead>
<tr>
<th>Substance</th>
<th>UN number</th>
<th>TWA (inhalable dust)</th>
<th>GB EH40</th>
<th>Other limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>10 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable dust)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>0.15 mg/m3 (Lead)</td>
<td>98/24/EC I</td>
<td></td>
</tr>
<tr>
<td>Copper metal powder</td>
<td>7440-50-8</td>
<td>TWA (Fumes) 0.2 mg/m3 (Copper)</td>
<td>GB EH40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Dusts and mists) 1 mg/m3 (Copper)</td>
<td>GB EH40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL (Dusts and mists) 2 mg/m3 (Copper)</td>
<td>GB EH40</td>
<td></td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>TWA (Respirable dust) 0.1 mg/m3</td>
<td>2004/37/EC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL (Respirable fraction) 0.1 mg/m3 (Silica)</td>
<td>GB EH40</td>
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<td></td>
<td></td>
<td>Further information: Carcinogens or mutagens</td>
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<td></td>
<td></td>
<td>Further information: Capable of causing cancer and/or heritable genetic damage.</td>
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<tr>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>TWA 2 mg/m3</td>
<td></td>
<td>2017/164/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable fraction) 1 mg/m3</td>
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<tr>
<td></td>
<td></td>
<td>STEL (Respirable fraction) 4 mg/m3</td>
<td>2017/164/EU</td>
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<tr>
<td></td>
<td></td>
<td>Further information: Indicative</td>
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</tr>
</tbody>
</table>
These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Quartz

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Sampling time</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Lead (Lead): 0.7 mg/l (Blood)</td>
<td>98/24/EC II</td>
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</tbody>
</table>

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>0.3 mg/m3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Long-term systemic effects</td>
<td>813 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1.2 mg/m3</td>
</tr>
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</tr>
<tr>
<td>Zinc</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>5 mg/m3</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>2.5 mg/m3</td>
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<tr>
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<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
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</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.83 mg/kg bw/day</td>
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</tr>
<tr>
<td>Copper metal powder</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>20 mg/m3</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>137 mg/kg bw/day</td>
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</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Acute systemic effects</td>
<td>237 mg/kg bw/day</td>
</tr>
<tr>
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<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>20 mg/m3</td>
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</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m3</td>
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<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Acute local effects</td>
<td>1 mg/m3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>137 mg/kg bw/day</td>
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</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Acute systemic effects</td>
<td>273 mg/kg bw/day</td>
</tr>
<tr>
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</tr>
<tr>
<td>Calcium oxide</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>4 mg/m3</td>
</tr>
<tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m3</td>
</tr>
<tr>
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<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Acute local effects</td>
<td>4 mg/m3</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calcium bis(di C8-C10, branched, C9)</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
</tr>
</tbody>
</table>

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rich, alkylnaphthalenesulphonate)

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Fresh water</td>
<td>6.5 µg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>3.4 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>100 µg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>174 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>164 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>147 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Oral (Secondary Poisoning)</td>
<td>10.9 mg/kg food</td>
</tr>
<tr>
<td>Zinc</td>
<td>Fresh water</td>
<td>20.6 µg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>6.1 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>100 µg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>117.8 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>56.5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>35.6 mg/kg</td>
</tr>
<tr>
<td>Copper metal powder</td>
<td>Fresh water</td>
<td>7.8 µg/l</td>
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<tr>
<td></td>
<td>Marine water</td>
<td>5.2 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>230 µg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>87 mg/kg</td>
</tr>
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<td>Marine sediment</td>
<td>676 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>65 mg/kg</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>Fresh water</td>
<td>0.37 mg/l</td>
</tr>
</tbody>
</table>
Marine water | 0.24 mg/l
---|---
Intermittent use/release | 0.37 mg/l
Sewage treatment plant | 2.27 mg/l
Soil | 817.4 mg/kg dry weight (d.w.)
Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate) | Fresh water | 4 µg/l
---|---
Freshwater - intermittent | 2.7 µg/l
Marine water | 0.4 µg/l
Sewage treatment plant | 10 mg/l
Fresh water sediment | 69 mg/kg dry weight (d.w.)
Marine sediment | 6.9 mg/kg dry weight (d.w.)
Soil | 13.9 mg/kg dry weight (d.w.)
Oral (Secondary Poisoning) | 22.2 mg/kg food
Zinc oxide | Fresh water | 20.6 µg/l
---|---
Marine water | 6.1 µg/l
Sewage treatment plant | 100 µg/l
Fresh water sediment | 117.8 mg/kg dry weight (d.w.)
Marine sediment | 56.5 mg/kg dry weight (d.w.)
Soil | 35.6 mg/kg dry weight (d.w.)
Calcium petroleum sulfonates | Fresh water | 1 mg/l
---|---
Marine water | 1 mg/l
Intermittent use/release | 10 mg/l
Sewage treatment plant | 1000 mg/l
Fresh water sediment | 226000000 mg/kg
Marine sediment | 226000000 mg/kg
Soil | 271000000 mg/kg
Oral (Secondary Poisoning) | 16.667 mg/kg food

8.2 Exposure controls

**Engineering measures**
Minimize workplace exposure concentrations.

**Personal protective equipment**

Eye protection : Wear the following personal protective equipment:
Safety goggles
Equipment should conform to BS EN 166

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending
on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Wash hands before breaks and at the end of workday.

Skin and body protection:
Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Respiratory protection:
If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to BS EN 14387

Filter type:
Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Viscous semi-solid
Colour: copper
Odour: Petroleum
Odour Threshold: No data available

pH: Not applicable (not an aqueous solution)

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: >= 200 °C
Method: ASTM D 92, Cleveland open cup
Distillates (petroleum), hydrotreated heavy naphthenic

Evaporation rate: Not applicable

Flammability (solid, gas): Not classified as a flammability hazard

Upper explosion limit / Upper flammability limit: No data available

Lower explosion limit / Lower flammability limit: No data available

Vapour pressure: Not applicable

Relative vapour density: Not applicable

Relative density: 1.4

Density: No data available
**SAFETY DATA SHEET**
according to Regulation (EC) No. 1907/2006

**CAL BRONZE**

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<thead>
<tr>
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</thead>
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<tr>
<td>10.0</td>
<td>05.11.2020</td>
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<td>06.05.2020</td>
<td>18.05.2015</td>
</tr>
</tbody>
</table>

### Solubility(ies)
- **Water solubility**: negligible
- **Partition coefficient: n-octanol/water**: Not applicable
- **Auto-ignition temperature**: No data available
- **Decomposition temperature**: No data available

### Viscosity
- **Viscosity, dynamic**: No data available
- **Viscosity, kinematic**: Not applicable

### Flow time
- No data available

### Explosive properties
- Not explosive

### Oxidizing properties
- The substance or mixture is not classified as oxidizing.

#### 9.2 Other information
- **Molecular weight**: No data available
- **Particle size**: No data available

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**
- Not classified as a reactivity hazard.

**10.2 Chemical stability**
- Stable under normal conditions.

**10.3 Possibility of hazardous reactions**
- **Hazardous reactions**: Can react with strong oxidizing agents.

**10.4 Conditions to avoid**
- **Conditions to avoid**: None known.

**10.5 Incompatible materials**
- **Materials to avoid**: Oxidizing agents

**10.6 Hazardous decomposition products**
- No hazardous decomposition products are known.

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**
- **Information on likely routes of**: Skin contact
**Acute toxicity**
Not classified based on available information.

**Components:**

**Lead:**
- Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
  Remarks: Based on data from similar materials
- Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
  Remarks: Based on data from similar materials

**Zinc:**
- Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 401
  Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity: LC50 (Rat): > 5.41 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: OECD Test Guideline 403
  Assessment: The substance or mixture has no acute inhalation toxicity

**Copper metal powder:**
- Acute oral toxicity: LD50 (Rat): > 2,500 mg/kg
  Method: OECD Test Guideline 423
  Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity: LC50 (Rat): > 5.11 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: OECD Test Guideline 436
  Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 402
  Assessment: The substance or mixture has no acute dermal toxicity

**Quartz:**
- Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg

**Calcium oxide:**
- Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 425
Acute inhalation toxicity: (Rat): > 5 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Method: OECD Test Guideline 436
   Remarks: Based on data from similar materials

Acute dermal toxicity: LD50 (Rabbit): > 2,500 mg/kg
   Method: OECD Test Guideline 402
   Assessment: The substance or mixture has no acute dermal toxicity
   Remarks: Based on data from similar materials

**Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):**

Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg

Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

**Zinc oxide:**

Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity: LC50 (Rat): > 5.7 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
   Method: OECD Test Guideline 402
   Assessment: The substance or mixture has no acute dermal toxicity

**Calcium petroleum sulfonates:**

Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
   Method: OECD Test Guideline 401

Acute inhalation toxicity: LC50 (Rat): > 1.9 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Assessment: The substance or mixture has no acute inhalation toxicity
   Remarks: Based on data from similar materials

Acute dermal toxicity: LD50 (Rabbit): > 4,000 mg/kg
   Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Not classified based on available information.
Components:

Lead:
- Species: Rabbit
- Method: OECD Test Guideline 404
- Result: No skin irritation
- Remarks: Based on data from similar materials

Copper metal powder:
- Species: Rabbit
- Method: OECD Test Guideline 404
- Result: No skin irritation

Calcium oxide:
- Species: Rabbit
- Method: OECD Test Guideline 404
- Result: Skin irritation
- Remarks: Based on data from similar materials

Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):
- Species: Rabbit
- Result: Skin irritation
- Remarks: Based on data from similar materials

Zinc oxide:
- Species: Rabbit
- Method: OECD Test Guideline 404
- Result: No skin irritation

Calcium petroleum sulfonates:
- Species: Rabbit
- Method: OECD Test Guideline 404
- Result: No skin irritation
- Remarks: Based on data from similar materials

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:

Lead:
- Species: Rabbit
- Method: OECD Test Guideline 405
- Result: No eye irritation
- Remarks: Based on data from similar materials

Zinc:
- Species: Rabbit
- Method: OECD Test Guideline 405
**Result:** No eye irritation

### Copper metal powder:
- **Species:** Rabbit
- **Method:** OECD Test Guideline 405
- **Result:** No eye irritation

### Calcium oxide:
- **Species:** Rabbit
- **Method:** OECD Test Guideline 405
- **Result:** Irreversible effects on the eye

### Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):
- **Species:** Rabbit
- **Result:** Irritation to eyes, reversing within 21 days
- **Remarks:** Based on data from similar materials

### Zinc oxide:
- **Species:** Rabbit
- **Method:** OECD Test Guideline 405
- **Result:** No eye irritation

### Calcium petroleum sulfonates:
- **Species:** Rabbit
- **Method:** OECD Test Guideline 405
- **Result:** No eye irritation
- **Remarks:** Based on data from similar materials

**Respiratory or skin sensitisation**

**Skin sensitisation**
Not classified based on available information.

**Respiratory sensitisation**
Not classified based on available information.

**Components:**

### Lead:
- **Test Type:** Maximisation Test
- **Exposure routes:** Skin contact
- **Species:** Guinea pig
- **Method:** OECD Test Guideline 406
- **Result:** negative
- **Remarks:** Based on data from similar materials

### Copper metal powder:
- **Test Type:** Maximisation Test
- **Exposure routes:** Skin contact
- **Species:** Guinea pig
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#### Test Results:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium oxide:</td>
<td>OECD Test Guideline 429</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate)</td>
<td>Buehler Test</td>
<td>positive</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Zinc oxide:</td>
<td>Maximisation Test</td>
<td>negative</td>
<td>Probability or evidence of low to moderate skin sensitisation rate in humans</td>
</tr>
<tr>
<td>Calcium petroleum sulfonates:</td>
<td>Buehler Test</td>
<td>positive</td>
<td>Probability or evidence of low to moderate skin sensitisation rate in humans</td>
</tr>
</tbody>
</table>

#### Genotoxicity:

<table>
<thead>
<tr>
<th>Component</th>
<th>Genotoxicity in vitro</th>
<th>Genotoxicity in vivo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Test Type: In vitro sister chromatid exchange assay in mammalian cells</td>
<td>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td>Species: Rat</td>
</tr>
<tr>
<td></td>
<td>Remarks: Based on data from similar materials</td>
<td></td>
</tr>
</tbody>
</table>

### Germ cell mutagenicity

Not classified based on available information.

### Components:

**Lead:**

- Genotoxicity in vitro
  - Test Type: In vitro sister chromatid exchange assay in mammalian cells
  - Result: negative
  - Remarks: Based on data from similar materials

- Genotoxicity in vivo
  - Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Rat
Zinc:

Genotoxicity in vitro: Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive
Remarks: Based on data from similar materials

Genotoxicity in vivo: Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Germ cell mutagenicity- Assessment: Weight of evidence does not support classification as a germ cell mutagen.

Copper metal powder:

Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Calcium oxide:

Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials
**Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):**

Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  Method: OECD Test Guideline 471
  Result: negative
  Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

**Zinc oxide:**

Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: equivocal

Test Type: Chromosome aberration test in vitro
Result: equivocal

Genotoxicity in vivo:
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  Species: Rat
  Application Route: inhalation (dust/mist/fume)
  Method: OECD Test Guideline 474
  Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: inhalation (dust/mist/fume)
Result: positive

Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity- Assessment: Weight of evidence does not support classification as a germ cell mutagen.

**Calcium petroleum sulfonates:**
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Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Result: negative

Carcinogenicity  
Not classified based on available information.

Product:  
Carcinogenicity - Assessment: Petroleum distillates have been classified as not carcinogenic based on DMSO extract content < 3% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note L).

Components:  
Quartz:  
Species: Humans  
Application Route: inhalation (dust/mist/fume)  
Result: positive  
Remarks: These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Carcinogenicity - Assessment: Positive evidence from human epidemiological studies (inhalation)

Calcium oxide:  
Species: Rat  
Application Route: Ingestion  
Exposure time: 104 weeks  
Result: negative  
Remarks: Based on data from similar materials

Zinc oxide:  
Species: Mouse  
Application Route: Ingestion  
Exposure time: 1 Years  
Result: negative  
Remarks: Based on data from similar materials

Reproductive toxicity  
May damage fertility. May damage the unborn child.  
May cause harm to breast-fed children.

Components:  
Lead:
### Reproductive toxicity - Assessment

- **Copper metal powder:**
  - Effects on fertility: Test Type: Two-generation reproduction toxicity study
    - Species: Rat
    - Application Route: Ingestion
    - Result: negative
    - Remarks: Based on data from similar materials
  - Effects on foetal development: Test Type: Embryo-foetal development
    - Species: Rabbit
    - Application Route: Ingestion
    - Result: negative

- **Calcium oxide:**
  - Effects on fertility: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
    - Species: Rat
    - Application Route: Ingestion
    - Method: OECD Test Guideline 422
    - Result: negative
    - Remarks: Based on data from similar materials
  - Effects on foetal development: Test Type: Embryo-foetal development
    - Species: Mouse
    - Application Route: Ingestion
    - Method: OECD Test Guideline 414
    - Result: negative

- **Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):**
  - Effects on fertility: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
    - Species: Rat
    - Application Route: Ingestion
    - Method: OECD Test Guideline 422
    - Result: negative
Remarks: Based on data from similar materials

Effects on foetal development:
- Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
- Species: Rat
- Application Route: Ingestion
- Method: OECD Test Guideline 422
- Result: negative
- Remarks: Based on data from similar materials

Zinc oxide:

- Effects on fertility:
  - Test Type: Two-generation reproduction toxicity study
  - Species: Rat
  - Application Route: Ingestion
  - Result: negative
  - Remarks: Based on data from similar materials

Calcium petroleum sulfonates:

- Effects on fertility:
  - Test Type: One-generation reproduction toxicity study
  - Species: Rat
  - Application Route: Ingestion
  - Method: OECD Test Guideline 415
  - Result: negative
  - Remarks: Based on data from similar materials

STOT - single exposure
Not classified based on available information.

Components:

Calcium oxide:
- Assessment: May cause respiratory irritation.

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

Components:

Lead:
- Target Organs: Kidney, Central nervous system, Blood
- Assessment: Causes damage to organs through prolonged or repeated exposure.
**Quartz:**

**Exposure routes:** inhalation (dust/mist/fume)

**Target Organs:** Lungs

**Assessment:** Shown to produce significant health effects in animals at concentrations of 0.02 mg/l/6h/d or less.

---

**Zinc oxide:**

**Assessment:** No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

---

**Repeated dose toxicity**

**Components:**

**Lead:**

- **Species:** Rat
- **NOAEL:** 0.0015 mg/kg
- **LOAEL:** 0.005 mg/kg
- **Application Route:** Ingestion
- **Exposure time:** 6 - 12 Months
- **Remarks:** Based on data from similar materials

**Zinc:**

- **Species:** Rat
- **NOAEL:** 31 mg/kg
- **Application Route:** Ingestion
- **Exposure time:** 90 Days

**Copper metal powder:**

- **Species:** Rat
- **NOAEL:** >= 2 mg/m3
- **Application Route:** inhalation (dust/mist/fume)
- **Exposure time:** 28 Days

**Quartz:**

- **Species:** Humans
- **LOAEL:** 0.053 mg/m3
- **Application Route:** inhalation (dust/mist/fume)
- **Remarks:** These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

**Calcium oxide:**

- **Species:** Rat
- **NOAEL:** >= 0.399 mg/l
- **Application Route:** inhalation (dust/mist/fume)
- **Exposure time:** 90 Days
- **Method:** OECD Test Guideline 413
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Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):
- **Species**: Rat
- **NOAEL**: 100 mg/kg
- **LOAEL**: 300 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days
- **Method**: OECD Test Guideline 408

Zinc oxide:
- **Species**: Rat, male
- **NOAEL**: 0.0015 mg/l
- **Application Route**: Inhalation (dust/mist/fume)
- **Exposure time**: 3 Months
- **Method**: OECD Test Guideline 413

Calcium petroleum sulfonates:
- **Species**: Rat
- **Application Route**: Skin contact
- **Exposure time**: 28 Days
- **Method**: OECD Test Guideline 410
- **Remarks**: Based on data from similar materials

**Aspiration toxicity**
Not classified based on available information.

SECTION 12: Ecological information

12.1 Toxicity

**Components:**

**Lead:**
- **Toxicity to fish**: LC50 (Oncorhynchus mykiss (rainbow trout)): 0.107 mg/l
  Exposure time: 96 h
- **Toxicity to daphnia and other aquatic invertebrates**: EC50 (Ceriodaphnia dubia (water flea)): 0.029 mg/l
  Exposure time: 48 h
- **Toxicity to algae/aquatic plants**: ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.025 mg/l
  Exposure time: 72 h
  EC10 (Pseudokirchneriella subcapitata (green algae)): 6.1 µg/l
  Exposure time: 72 h
- **M-Factor (Acute aquatic toxicity)**: 10
- **Toxicity to fish (Chronic toxicity)**: EC10: 20 µg/l
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- EC10: 1.7 µg/l
- Exposure time: 7 d
- Species: Ceriodaphnia dubia (water flea)

M-Factor (Chronic aquatic toxicity): 10

Zinc:

Toxicity to fish:
- LC50 (Pimephales promelas): 0.78 mg/l
- Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna): 1.83 mg/l
- Exposure time: 48 h
- Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
- IC50 (Pseudokirchneriella subcapitata): 0.15 mg/l
- Exposure time: 72 h
- Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity): 1

Toxicity to microorganisms:
- EC50: 5.2 mg/l
- Exposure time: 3 h
- Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity):
- NOEC: 0.199 mg/l
- Exposure time: 30 d
- Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: 0.1 mg/l
- Exposure time: 21 d
- Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity): 1

Copper metal powder:

Toxicity to fish:
- LC50: > 10 - 100 µg/l
- Exposure time: 96 h

M-Factor (Acute aquatic toxicity): 10

Toxicity to fish (Chronic toxicity):
- NOEC: > 1 - 10 µg/l

M-Factor (Chronic aquatic toxicity): 10
## Quarts:

### Ecotoxicology Assessment

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute aquatic toxicity</td>
<td>No toxicity at the limit of solubility</td>
<td></td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>No toxicity at the limit of solubility</td>
<td></td>
</tr>
</tbody>
</table>

## Calcium oxide:

### Toxicity to fish

<table>
<thead>
<tr>
<th>Test substance</th>
<th>LC50 (Oncorhynchus mykiss (rainbow trout)): &gt; 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials</th>
</tr>
</thead>
</table>

### Toxicity to daphnia and other aquatic invertebrates

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EC50 (Daphnia magna (Water flea)): &gt; 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials</th>
</tr>
</thead>
</table>

### Toxicity to algae/aquatic plants

<table>
<thead>
<tr>
<th>Test substance</th>
<th>ErC50 (Pseudokirchneriella subcapitata (green algae)): &gt; 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EC10 (Pseudokirchneriella subcapitata (green algae)): &gt; 1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials</td>
</tr>
</tbody>
</table>

### Toxicity to microorganisms

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EC50: &gt; 100 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: Based on data from similar materials</th>
</tr>
</thead>
</table>

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

<table>
<thead>
<tr>
<th>Test substance</th>
<th>NOEC: &gt; 1 mg/l Exposure time: 14 d Species: Crangon crangon (shrimp) Remarks: Based on data from similar materials</th>
</tr>
</thead>
</table>

## Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):

### Toxicity to fish

<table>
<thead>
<tr>
<th>Test substance</th>
<th>LL50 (Cyprinus carpio (Carp)): &gt; 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203 Remarks: Based on data from similar materials</th>
</tr>
</thead>
</table>

### Toxicity to daphnia and other aquatic invertebrates

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EL50 (Daphnia magna (Water flea)): &gt; 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202 Remarks: Based on data from similar materials</th>
</tr>
</thead>
</table>
Toxicity to algae/aquatic plants
EL50 (Pseudokirchneriella subcapitata (green algae)): > 10 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EL10 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to microorganisms
NOEC: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
NOELR: 2.2 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 211

Zinc oxide:
Toxicity to fish
LC50: > 0.1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants
ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.136 mg/l
Exposure time: 72 h
NOEC (Pseudokirchneriella subcapitata (green algae)): > 0.01 - 0.1 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity): 1

Toxicity to fish (Chronic toxicity)
NOEC: > 0.01 - 0.1 mg/l
Exposure time: 14 Weeks
Species: Jordanella floridae (flagfish)
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
NOEC: > 0.01 - 0.1 mg/l
Exposure time: 7 d
Species: Ceriodaphnia dubia (water flea)
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic): 1
28 / 34

12.2 Persistence and degradability

Components:

**Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):**

Biodegradability  
Result: Not readily biodegradable.  
Remarks: Based on data from similar materials

**Calcium petroleum sulfonates:**

Biodegradability  
Result: Not readily biodegradable.  
Biodegradation: 8.6%  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

12.3 Bioaccumulative potential

Components:

**Zinc:**

Bioaccumulation  
Species: Fish  
Bioconcentration factor (BCF): 177
12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
Not relevant

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product : Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities. Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADN : UN 3077
ADR : UN 3077
RID : UN 3077
IMDG : UN 3077
IATA : UN 3077

14.2 UN proper shipping name
ADN : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

CAL BRONZE

Version: 10.0
Revision Date: 05.11.2020
SDS Number: 120686-00018
Date of last issue: 06.05.2020
Date of first issue: 18.05.2015

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
IATA : Environmentally hazardous substance, solid, n.o.s. (Lead, Copper metal powder)

14.3 Transport hazard class(es)

ADR : 9
ADR : 9
RID : 9
IMDG : 9
IATA : 9

14.4 Packing group

ADR
Packing group : III
Classification Code : M7
Hazard Identification Number : 90
Labels : 9

RID
Packing group : III
Classification Code : M7
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

IMDG
Packing group : III
Labels : 9

IATA (Cargo)
Packing instruction (cargo aircraft) : 956
Packing instruction (LQ) : Y956
Packing group : III
Labels : Miscellaneous

IATA (Passenger)
14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

IATA (Passenger)
Environmentally hazardous : yes

IATA (Cargo)
Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Lead (Number on list 72, 30)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Lead

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Lead


Quantity 1
Quantity 2
E1  ENVIRONMENTAL HAZARDS  100 t  200 t

Other regulations:
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.
Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:
- DSL: All components of this product are on the Canadian DSL
- TSCA: All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
- AICS: All ingredients listed or exempt.

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information
Other information: Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements
- H228: Flammable solid.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H319: Causes serious eye irritation.
- H335: May cause respiratory irritation.
- H350i: May cause cancer by inhalation.
- H360FD: May damage fertility. May damage the unborn child.
- H362: May cause harm to breast-fed children.
- H372: Causes damage to organs through prolonged or repeated exposure.
- H372: Causes damage to organs through prolonged or repeated exposure if inhaled.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations
- Aquatic Acute: Short-term (acute) aquatic hazard
- Aquatic Chronic: Long-term (chronic) aquatic hazard
- Carc.: Carcinogenicity
- Eye Dam.: Serious eye damage
- Eye Irrit.: Eye irritation
- Flam. Sol.: Flammable solids
- Lact.: Effects on or via lactation
Repr. : Reproductive toxicity
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation
STOT RE : Specific target organ toxicity - repeated exposure
STOT SE : Specific target organ toxicity - single exposure
2004/37/EC : Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
98/24/EC II : Chemical Agents Directive - Annex II: Binding biological limit values
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
2004/37/EC / TWA : Long term exposure limit
2017/164/EU / STEL : Short term exposure limit
2017/164/EU / TWA : Limit Value - eight hours
98/24/EC I / TWA : Occupational Exposure Limit Value
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative
Further information

Sources of key data used to compile the Safety Data Sheet:
- Internal technical data
- Data from raw material SDSs
- OECD eChem Portal search results

Classification of the mixture:

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
<th>Calculation method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>H319</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Repr. 1A</td>
<td>H360FD</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Lact.</td>
<td>H362</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE 1</td>
<td>H372</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>H410</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.