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

1.1 Product identifier

Trade name: API MODIFIED 304

SDS-Identcode: 330G

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 Irving

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; Internnl: +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)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye irritation, Category 2</td>
<td>H319: Causes serious eye irritation.</td>
</tr>
<tr>
<td>Reproductive toxicity, Category 1A</td>
<td>H360FD: May damage fertility. May damage the unborn child.</td>
</tr>
<tr>
<td>Effects on or via lactation</td>
<td>H362: May cause harm to breast-fed children.</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure, Category 1</td>
<td>H372: Causes damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Short-term (acute) aquatic hazard, Category 1</td>
<td>H400: Very toxic to aquatic life.</td>
</tr>
<tr>
<td>Long-term (chronic) aquatic hazard, Category 1</td>
<td>H410: Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>
2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms:

- !: Warning
- !: Caution
- !: Danger

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. EC-No. Index-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1 231-100-4</td>
<td>Repr. 1A; H360FD Lact.H362</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Substance</td>
<td>CAS Number</td>
<td>R-phrases</td>
<td>Hazard Statements</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>Aquatic Acute 1; Aquatic Chronic 1; M-Factor (Acute aquatic toxicity): 10; M-Factor (Chronic aquatic toxicity): 10</td>
<td>STOT RE 1; H372 (Kidney, Central nervous system, Blood); Aquatic Acute 1; H400; Aquatic Chronic 1; H410</td>
</tr>
<tr>
<td>Copper metal powder</td>
<td>7440-50-8</td>
<td>Aquatic Acute 1; Aquatic Chronic 1; M-Factor (Acute aquatic toxicity): 10; M-Factor (Chronic aquatic toxicity): 1</td>
<td>Flam. Sol. 1; H228; STOT RE 1; H372</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H335</td>
<td></td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>Carc. 1A; STOT RE 1; H372 (Lungs)</td>
<td></td>
</tr>
<tr>
<td>Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate)</td>
<td>Not Assigned</td>
<td>Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1B; H317</td>
<td></td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>Aquatic Acute 1; Aquatic Chronic 1; M-Factor (Acute aquatic toxicity): 10; M-Factor (Chronic aquatic toxicity): 1</td>
<td></td>
</tr>
<tr>
<td>Calcium petroleum sulfonates</td>
<td>61789-86-4</td>
<td>Skin Sens. 1B; H317</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
Suitable extinguishing media
Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture
Specific hazards during fire-fighting : 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>Lead</td>
<td>7439-92-1</td>
<td>TWA</td>
<td>0.15 mg/m³ (Lead)</td>
<td>98/24/EC I</td>
</tr>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>TWA (inhalable dust)</td>
<td>10 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 respirable, 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.

### Copper metal powder

<table>
<thead>
<tr>
<th></th>
<th>TWA (Respirable dust)</th>
<th>4 mg/m(^3)</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA (Fumes)</td>
<td>0.2 mg/m(^3) (Copper)</td>
<td>GB EH40</td>
</tr>
<tr>
<td></td>
<td>TWA (Dusts and mists)</td>
<td>1 mg/m(^3) (Copper)</td>
<td>GB EH40</td>
</tr>
<tr>
<td></td>
<td>STEL (Dusts and mists)</td>
<td>2 mg/m(^3) (Copper)</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>

### Talc

<table>
<thead>
<tr>
<th></th>
<th>TWA (Respirable dust)</th>
<th>1 mg/m(^3)</th>
<th>GB EH40</th>
</tr>
</thead>
</table>

Further information: Indicative

### Calcium oxide

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>2 mg/m(^3)</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA (Respirable fraction)</td>
<td>1 mg/m(^3)</td>
<td>2017/164/EU</td>
</tr>
</tbody>
</table>

Further information: Indicative

### Quartz

<table>
<thead>
<tr>
<th></th>
<th>TWA (Respirable dust)</th>
<th>0.1 mg/m(^3)</th>
<th>2004/37/EC</th>
</tr>
</thead>
</table>

Further information: Carcinogens or mutagens

### Further information: Capable of causing cancer and/or heritable genetic dam-

---

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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>
<td></td>
</tr>
</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>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</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>
<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>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>2.5 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.83 mg/kg bw/day</td>
</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>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>137 mg/kg bw/day</td>
</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>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute systemic effects</td>
<td>20 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1 mg/m3</td>
</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>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>4 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>4 mg/m3</td>
</tr>
</tbody>
</table>
### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<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>
</tr>
<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>
<tr>
<td></td>
<td>Marine sediment</td>
<td>676 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>65 mg/kg</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>Fresh water</td>
<td>0.37 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.24 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.37 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>2.27 mg/l</td>
</tr>
<tr>
<td>Soil</td>
<td>817.4 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate)</td>
<td>Fresh water</td>
<td>4 µg/l</td>
</tr>
<tr>
<td></td>
<td>Freshwater - intermittent</td>
<td>2.7 µg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.4 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>10 mg/l</td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>69 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>6.9 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>13.9 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Oral (Secondary Poisoning)</td>
<td>22.2 mg/kg food</td>
<td></td>
</tr>
<tr>
<td>Zinc oxide</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>Fresh water sediment</td>
<td>117.8 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>56.5 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>35.6 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Calcium petroleum sulfonates</td>
<td>Fresh water</td>
<td>1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>10 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>1000 mg/l</td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>226000000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>226000000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>271000000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Oral (Secondary Poisoning)</td>
<td>16.667 mg/kg food</td>
<td></td>
</tr>
</tbody>
</table>

### 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**: 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: dark
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: 1.9
Density: No data available
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 exposure:
- Skin contact
- Ingestion
- Eye 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
  Remarks: Based on data from similar materials
  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

**Calcium oxide:**
**Acute oral toxicity**

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

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

**Quartz:**

- **LD50 (Rat):** > 5,000 mg/kg

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

- **LD50 (Rat):** > 5,000 mg/kg
- **LD50 (Rabbit):** > 5,000 mg/kg

**Zinc oxide:**

- **LD50 (Rat):** > 5,000 mg/kg
- **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
- **LD50 (Rabbit):** > 2,000 mg/kg
  - Method: OECD Test Guideline 402
  - Assessment: The substance or mixture has no acute dermal toxicity

**Calcium petroleum sulfonates:**

- **LD50 (Rat):** > 5,000 mg/kg
  - Method: OECD Test Guideline 401
- **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
- **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, alkylnaphthalenesulphonate):
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:
API MODIFIED 304

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

Calcium oxide:
Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Method : OECD Test Guideline 429
Result : negative
Remarks : Based on data from similar materials

Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):
Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive
Remarks : Based on data from similar materials

Zinc oxide:
Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

Calcium petroleum sulfonates:
Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive

Assessment : Probability or evidence of low to moderate skin sensitisation rate in humans

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
Zinc:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genotoxicity in vitro</td>
<td>Chromosome aberration test in vitro</td>
<td>OECD Test Guideline 473</td>
<td>positive</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Weight of evidence does not support classification as a germ cell mutagen.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Copper metal powder:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genotoxicity in vitro</td>
<td>Bacterial reverse mutation assay (AMES)</td>
<td>OECD Test Guideline 471</td>
<td>negative</td>
</tr>
</tbody>
</table>

Calcium oxide:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genotoxicity in vitro</td>
<td>Bacterial reverse mutation assay (AMES)</td>
<td>OECD Test Guideline 471</td>
<td>negative</td>
</tr>
</tbody>
</table>

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

- **Genotoxicity in vitro**
  - Test Type: Bacterial reverse mutation assay (AMES)
  - Method: OECD Test Guideline 476
  - Result: negative
  - Remarks: Based on data from similar materials

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

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

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)

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

Reproductive toxicity - Assessment: Positive evidence of adverse effects on sexual function and fertility from human epidemiological studies., Positive evidence of adverse effects on development from human epidemiological studies., Studies indicating a hazard to babies during the lactation period

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:

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

Effects on foetal development

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

Calcium oxide:

Species: Rat
NOAEL: >= 0.399 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 90 Days
Method: OECD Test Guideline 413

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 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
Exposure time: 30 d
Species: Pimephales promelas (fathead minnow)

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 (fathead minnow)): 0.78 mg/l
Exposure time: 96 h

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

Toxicity to algae/aquatic plants : IC50 (Pseudokirchneriella subcapitata (green algae)): 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

Calcium oxide:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants:
ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to microorganisms:
EC50: > 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):
NOEC: > 1 mg/l
Exposure time: 14 d
Species: Crangon crangon (shrimp)
Remarks: Based on data from similar materials

Quartz:
Ecotoxicology Assessment
Acute aquatic toxicity: No toxicity at the limit of solubility
Chronic aquatic toxicity: No toxicity at the limit of solubility

Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate):
Toxicity to fish:
LL50 (Cyprinus carpio (Carp)): > 100 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates:
EL50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants:
EL50 (Pseudokirchneriella subcapitata (green algae)): > 10
plants

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

<table>
<thead>
<tr>
<th>Toxicity to microorganisms</th>
<th>NOEC: &gt; 100 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 3 h</td>
<td>Method: OECD Test Guideline 209</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
<th>NOELR: 2.2 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 21 d</td>
<td>Species: Daphnia magna (Water flea)</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td>Test substance: Water Accommodated Fraction</td>
</tr>
<tr>
<td>Method: OECD Test Guideline 211</td>
<td></td>
</tr>
</tbody>
</table>

**Zinc oxide:**

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>LC50: &gt; 0.1 - 1 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 96 h</td>
<td>Remarks: Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxicity to algae/aquatic plants</th>
<th>ErC50: 0.136 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 72 h</td>
<td>NOEC: &gt; 0.01 - 0.1 mg/l</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M-Factor (Acute aquatic toxicity)</th>
<th>1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Toxicity to fish (Chronic toxicity)</th>
<th>NOEC: &gt; 0.01 - 0.1 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 14 Weeks</td>
<td>Species: Jordanella floridae (flagfish)</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
<th>NOEC: &gt; 0.01 - 0.1 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time: 7 d</td>
<td>Species: Ceriodaphnia dubia (water flea)</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td>Method: OECD Test Guideline 211</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M-Factor (Chronic aquatic toxicity)</th>
<th>1</th>
</tr>
</thead>
</table>
Calcium petroleum sulfonates:

Toxicity to fish

**LL50 (Cyprinodon variegatus (sheepshead minnow)):** > 10,000 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

**EC50 (Daphnia magna (Water flea)):** > 1,000 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants

**EC50 (Pseudokirchneriella subcapitata (green algae)):** > 1,000 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Remarks: Based on data from similar materials

**NOEC (Pseudokirchneriella subcapitata (green algae)):** 1,000 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Toxicity to microorganisms

**EC50:** > 10,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

12.2 Persistence and degradability

**Components:**

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

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

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

Partition coefficient: n-

log Pow: > 6.6
Zinc oxide:

Bioaccumulation:
Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 78 - 2,060

Calcium petroleum sulfonates:
Partition coefficient: n-octanol/water
log Pow: > 6.65

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

<table>
<thead>
<tr>
<th>ADN</th>
<th>ADR</th>
<th>RID</th>
<th>IMDG</th>
<th>IATA</th>
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14.2 UN proper shipping name

<table>
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<tr>
<th>ADN</th>
<th>ADR</th>
</tr>
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<tbody>
<tr>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.</td>
</tr>
</tbody>
</table>
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)

- **ADN**: 9
- **ADR**: 9
- **RID**: 9
- **IMDG**: 9
- **IATA**: 9

### 14.4 Packing group

**ADN**

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

**ADR**

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

**RID**

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

**IMDG**

- **Packing group**: III
- **Labels**: 9
- **EmS Code**: F-A, S-F

**IATA (Cargo)**

- **Packing instruction (cargo aircraft)**: 956
- **Packing instruction (LQ)**: Y956
- **Packing group**: III
- **Labels**: Miscellaneous

**IATA (Passenger)**

- **Packing instruction (passen-**: 956
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Revision Date: 04.11.2020  SDS Number: 120522-00020  Date of last issue: 06.05.2020

Date of first issue: 18.05.2015

ger aircraft)
Packing instruction (LQ): Y956
Packing group: III
Labels: Miscellaneous

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


<table>
<thead>
<tr>
<th>E1</th>
<th>ENVIRONMENTAL</th>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>100 t</td>
<td>200 t</td>
</tr>
</tbody>
</table>

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HAZARDS

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)

Further information
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<table>
<thead>
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<th>Version</th>
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<th>SDS Number</th>
<th>Date of last issue</th>
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<td>120522-00020</td>
<td>06.05.2020</td>
<td>18.05.2015</td>
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Sources of key data used to compile the Safety Data Sheet:

Classification of the mixture:

<table>
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<th>Code</th>
<th>Calculation method</th>
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<td>H319</td>
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<td>Repr. 1A</td>
<td>H360FD</td>
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<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</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.

GB / EN