SECTION 1. IDENTIFICATION

Product name: ZN-18

Other means of identification: No data available

SDS-Identcode: 030G

Manufacturer or supplier's details

Company name of supplier: Bestolife Corporation
Address: 2126 Vanco Drive
Irving TX 75061,
Telephone: 855-243-9164/972-865-8961
Telefax: 214-631-3047
E-mail address: www.bestolife.com

Recommended use of the chemical and restrictions on use

Recommended use: Industrial use
Thread Compound (Pipe Dope) and Jacking grease for use in Offshore industries
Mining, (without offshore industries)

Restrictions on use: Do not use on oxygen lines or in oxygen enriched atmos-
pheres.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Eye irritation: Category 2A
Skin sensitization: Sub-category 1B

GHS label elements

Hazard pictograms: !

Signal Word: Warning

Hazard Statements: H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

Precautionary Statements: Prevention:
P261 Avoid breathing dust, fume, gas, mist, vapors or spray.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, eye protection and face protec-

Response:
SAFETY DATA SHEET

ZN-18

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>64742-52-5</td>
<td>&gt;= 30 - &lt; 60 *</td>
</tr>
<tr>
<td>Talc</td>
<td>14807-96-6</td>
<td>&gt;= 10 - &lt; 30 *</td>
</tr>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>&gt;= 1 - &lt; 5 *</td>
</tr>
<tr>
<td>12-Hydroxy lithium stearate</td>
<td>7620-77-1</td>
<td>&gt;= 1 - &lt; 5 *</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>&gt;= 1 - &lt; 5 *</td>
</tr>
<tr>
<td>Calcium bis(di C8-C10, branched, C9 rich, alkynaphthalenesulphonate)</td>
<td>57855-77-3</td>
<td>&gt;= 1 - &lt; 5 *</td>
</tr>
<tr>
<td>Quartz</td>
<td>14808-60-7</td>
<td>&gt;= 1 - &lt; 5 *</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1314-13-2</td>
<td>&gt;= 1 - &lt; 5 *</td>
</tr>
</tbody>
</table>

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. 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.

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

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 if symptoms occur. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: May cause an allergic skin reaction. Causes serious eye irritation.

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).

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media: None known.

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

Hazardous combustion products: Carbon oxides
Metal oxides
Sulfur oxides

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.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

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 spills cannot be contained.

Methods and materials for containment and 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.
SECTION 7. HANDLING AND STORAGE

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

Advice on safe handling:
For outdoor use only
Do not get on skin or clothing.
Avoid breathing dust, fume, gas, mist, vapors 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.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage:
Keep in properly labeled containers.
Store in accordance with the particular national regulations.

Materials to avoid:
Do not store with the following product types:
Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>64742-52-5</td>
<td>TWA (Mist)</td>
<td>5 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL (Mist)</td>
<td>10 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA EV (Mist)</td>
<td>5 mg/m³</td>
<td>CA QC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEV (Mist)</td>
<td>10 mg/m³</td>
<td>CA QC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Mist)</td>
<td>1 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Inhalable particulate matter)</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Talc</td>
<td>14807-96-6</td>
<td>TWA EV (respirable dust)</td>
<td>3 mg/m³</td>
<td>CA QC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable particulates)</td>
<td>2 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable)</td>
<td>2 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>2 fibres per cubic centimeter</td>
<td>CA ON OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable fraction)</td>
<td>2 mg/m³</td>
<td>CA ON OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable)</td>
<td>2 mg/m³</td>
<td>ACGIH</td>
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<tr>
<td>Substance</td>
<td>TWA (Respirable particulate matter)</td>
<td>TWA (Respirable dust)</td>
<td>TWA (Inhalable particulate matter)</td>
<td>TWA (Respirable particulate matter)</td>
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<tr>
<td>---------------------------------</td>
<td>------------------------------------</td>
<td>-----------------------</td>
<td>------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Graphite</td>
<td>2 mg/m³</td>
<td>2 mg/m³</td>
<td>2 mg/m³</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>12-Hydroxy lithium stearate</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>2 mg/m³</td>
<td>2 mg/m³</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
</tr>
<tr>
<td>Quartz</td>
<td>0.025 mg/m³</td>
<td>0.1 mg/m³</td>
<td>0.1 mg/m³</td>
<td>0.025 mg/m³</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>2 mg/m³</td>
<td>10 mg/m³</td>
<td>2 mg/m³</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>
These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.

Quartz

Engineering measures:
Minimize workplace exposure concentrations. Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment. Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m³ - total dust, 5 mg/m³ - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m³ - respirable particles, 10 mg/m³ - inhalable particles.

Personal protective equipment
Respiratory protection:
If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Filter type:
Combined particulates and organic vapor type
Hand protection:
Material:
Chemical-resistant gloves
Remarks:
Choose gloves to protect hands against chemicals depending on the concentration 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.

Eye protection:
Wear the following personal protective equipment:
Safety goggles
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).

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.
Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: Viscous semi-solid
- **Color**: gray
- **Odor**: Petroleum
- **Odor 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**: $\geq 200 ^\circ C$
  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
- **Vapor pressure**: Not applicable
- **Relative vapor density**: Not applicable
- **Relative density** : 1.5
- **Density**: No data available
- **Solubility(ies)**
  - **Water solubility**: negligible
- **Partition coefficient: n-octanol/water**: Not applicable
- **Autoignition temperature**: No data available
- **Decomposition temperature**: No data available
- **Viscosity**
  - **Viscosity, dynamic**: No data available
SECTION 10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: Can react with strong oxidizing agents.
Conditions to avoid: None known.
Incompatible materials: Oxidizing agents
Hazardous decomposition products: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Skin contact
Ingestion
Eye contact

Acute toxicity
Not classified based on available information.
Components:

Distillates (petroleum), hydrotreated heavy naphthenic:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
   Method: OECD Test Guideline 401
   Remarks: Based on data from similar materials

Acute inhalation toxicity: LC50 (Rat): > 5.53 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
   Remarks: Based on data from similar materials

Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg
   Method: OECD Test Guideline 402
   Remarks: Based on data from similar materials
Talc:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Remarks: Based on data from similar materials

Graphite:
Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity: LC50 (Rat): > 2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

12-Hydroxy lithium stearate:
Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Calcium oxide:
Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity: > 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

Quartz:
Acute oral toxicity: LD50 (Rat): > 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
**SAFETY DATA SHEET**

**ZN-18**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.0</td>
<td>11/02/2020</td>
<td>134624-00020</td>
<td>05/06/2020</td>
<td>05/27/2015</td>
</tr>
</tbody>
</table>

**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

**Skin corrosion/irritation**
- Not classified based on available information.

**Components:**

**Distillates (petroleum), hydrotreated heavy naphthenic:**
- **Species:** Rabbit
- **Result:** No skin irritation
- **Remarks:** Based on data from similar materials

**Talc:**
- **Species:** Rabbit
- **Result:** No skin irritation

**Graphite:**
- **Species:** Rabbit
- **Method:** OECD Test Guideline 404
- **Result:** No skin irritation

**12-Hydroxy lithium stearate:**
- **Species:** Rabbit
- **Result:** No skin irritation
- **Remarks:** Based on data from similar materials

**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
SAFETY DATA SHEET

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Version 13.0  Revision Date: 11/02/2020  SDS Number: 134624-00020  Date of last issue: 05/06/2020

Date of first issue: 05/27/2015

Serious eye damage/eye irritation

Causes serious eye irritation.

**Product:**
Result: Irritation to eyes, reversing within 21 days

**Components:**

**Distillates (petroleum), hydrotreated heavy naphthenic:**
Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

**Talc:**
Species: Rabbit
Result: No eye irritation

**Graphite:**
Species: Rabbit
Result: No eye irritation

**12-Hydroxy lithium stearate:**
Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

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

**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
Result: No eye irritation
Method: OECD Test Guideline 405

**Respiratory or skin sensitization**

**Skin sensitization**
May cause an allergic skin reaction.

**Respiratory sensitization**
Not classified based on available information.
### Components:

#### Distillates (petroleum), hydrotreated heavy naphthenic:
- **Test Type**: Buehler Test
- **Routes of exposure**: Skin contact
- **Species**: Guinea pig
- **Result**: negative
- **Remarks**: Based on data from similar materials

#### Talc:
- **Routes of exposure**: Skin contact
- **Species**: Humans
- **Result**: negative

#### Graphite:
- **Test Type**: Local lymph node assay (LLNA)
- **Species**: Mouse
- **Result**: negative

#### 12-Hydroxy lithium stearate:
- **Test Type**: Local lymph node assay (LLNA)
- **Species**: Mouse
- **Method**: OECD Test Guideline 429
- **Result**: negative

#### Calcium oxide:
- **Test Type**: Local lymph node assay (LLNA)
- **Species**: Mouse
- **Method**: OECD Test Guideline 429
- **Result**: negative
- **Remarks**: Based on data from similar materials

#### Calcium bis(di C8-C10, branched, C9 rich, alkyl naphthalenesulphonate):
- **Test Type**: Buehler Test
- **Species**: Guinea pig
- **Result**: positive
- **Remarks**: Based on data from similar materials

#### Assessment:
- Probability or evidence of low to moderate skin sensitization rate in humans

#### Zinc oxide:
- **Test Type**: Maximization Test
- **Species**: Guinea pig
- **Method**: OECD Test Guideline 406
SAFETY DATA SHEET

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Result: negative

**Germ cell mutagenicity**
Not classified based on available information.

**Components:**

**Distillates (petroleum), hydrotreated heavy naphthenic:**
- 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: Intraperitoneal injection
  Method: OECD Test Guideline 474
  Result: negative
  Remarks: Based on data from similar materials

**Talc:**
- Genotoxicity in vitro: Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
  Result: negative
- Genotoxicity in vivo: Test Type: Chromosome aberration test in vitro
  Species: Rat
  Application Route: Ingestion
  Result: negative

**Graphite:**
- Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
  Method: OECD Test Guideline 471
  Result: negative
  Test Type: In vitro mammalian cell gene mutation test
  Method: OECD Test Guideline 476
  Result: negative
  Test Type: Chromosome aberration test in vitro
  Method: OECD Test Guideline 473
  Result: negative

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

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).

Weight of evidence does not support classification as a carcinogen

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:
Species: Mouse
Application Route: Skin contact
Exposure time: 78 weeks
Method: OECD Test Guideline 451
Result: negative

Talc:
Species: Mouse
Application Route: Inhalation (dust/mist/fume)
Exposure time: 2 Years
Result: negative

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 Year
Result: negative
Remarks: Based on data from similar materials
Reproductive toxicity
Not classified based on available information.

Components:

Talc:
Effects on fetal development: Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative

Graphite:
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

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 fetal development: Test Type: Embryo-fetal 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 fetal 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

Effects on fetal development: Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (dust/mist/fume)
Method: OECD Test Guideline 414
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
Not classified based on available information.

Components:
12-Hydroxy lithium stearate:
Routes of exposure: Ingestion
Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Quartz:
Routes of exposure: 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:**

**Distillates (petroleum), hydrotreated heavy naphthenic:**
- **Species:** Rat
- **NOAEL:** > 0.98 mg/l
- **Application Route:** inhalation (dust/mist/fume)
- **Exposure time:** 28 Days
- **Remarks:** Based on data from similar materials

**12-Hydroxy lithium stearate:**
- **Species:** Rat
- **NOAEL:** > 88 mg/kg
- **Application Route:** Ingestion
- **Exposure time:** 90 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

**Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):**
- **Species:** Rat
- **NOAEL:** 100 mg/kg
- **LOAEL:** 300 mg/kg
- **Application Route:** Ingestion
- **Exposure time:** 90 Days
- **Method:** OECD Test Guideline 408

**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.

**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

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

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:

- **Toxicity to fish**: LC50 (Pimephales promelas (fathead minnow)): > 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)): > 10,000 mg/l
  - Exposure time: 48 h
  - Method: OECD Test Guideline 203
  - Remarks: Based on data from similar materials

- **Toxicity to algae/aquatic plants**: EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
  - Exposure time: 72 h
  - Method: OECD Test Guideline 201
  - Remarks: Based on data from similar materials

- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**: NOEC (Daphnia magna (Water flea)): 10 mg/l
  - Exposure time: 21 d
  - Method: OECD Test Guideline 201
  - Remarks: Based on data from similar materials

- **Toxicity to microorganisms**: NOEC: > 1.93 mg/l
  - Exposure time: 10 min
  - Method: OECD Test Guideline 201
  - Remarks: Based on data from similar materials

Talc:

- **Toxicity to fish**: LC50 (Brachydanio rerio (zebrafish)): > 100,000 mg/l
  - Exposure time: 24 h

Graphite:

- **Toxicity to fish**: LL50 (Danio rerio (zebra fish)): > 100 mg/l
  - Exposure time: 96 h
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 203

- **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

- **Toxicity to algae/aquatic plants**: EL50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
  - Exposure time: 72 h
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 201

  NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

Toxicity to microorganisms:
EC50: > 1,012.5 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

12-Hydroxy lithium stearate:
Toxicity to fish:
LL50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
EL50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
NOELR (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

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: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants:
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 daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Crangon crangon (shrimp)): > 1 mg/l
Exposure time: 14 d
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
Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):

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

**Toxicity to microorganisms**
- **NOEC**: > 100 mg/l
- Exposure time: 3 h
- Method: OECD Test Guideline 209
- 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.

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

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

Persistence and degradability

Components:

Distillates (petroleum), hydrotreated heavy naphthenic:
- Biodegradability: Result: Not readily biodegradable.
  - Biodegradation: 2 - 4%
  - Exposure time: 28 d
  - Method: OECD Test Guideline 301B

12-Hydroxy lithium stearate:
- Biodegradability: Result: Readily biodegradable.
  - Biodegradation: 78%
  - Exposure time: 28 d
  - Method: OECD Test Guideline 301C

Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):
- Biodegradability: Result: Not readily biodegradable.
  - Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate):
- Partition coefficient: n-octanol/water: log Pow: > 6.6

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

Mobility in soil
- No data available

Other adverse effects
- No data available
SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: Dispose of in accordance with local regulations.
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

International Regulations

UN/RTDG
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc, Zinc oxide)
Class: 9
Packing group: III
Labels: 9

IATA-DGR
UN/ID No.: UN 3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Zinc, Zinc oxide)
Class: 9
Packing group: III
Labels: Miscellaneous
Packing instruction (cargo aircraft): 956
Packing instruction (passenger aircraft): 956
Environmentally hazardous: yes

IMDG-Code
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc, Zinc oxide)
Class: 9
Packing group: III
Labels: 9
EmS Code: F-A, S-F
Marine pollutant: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

TDG
UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc, Zinc oxide)
Class : 9
Packing group : III
Labels : 9
ERG Code : 171
Marine pollutant : yes (Zinc, Zinc oxide)

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.

SECTION 15. REGULATORY INFORMATION

The ingredients 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.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH : USA, ACGIH Threshold Limit Values (TLV)
CA AB OEL : Canada, Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL : Canada, British Columbia OEL
CA ON OEL : Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
CA QC OEL : Québec, Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants

ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
CA AB OEL / TWA : 8-hour Occupational exposure limit
CA AB OEL / STEL : 15-minute occupational exposure limit
CA BC OEL / TWA : 8-hour time weighted average
CA BC OEL / STEL : short-term exposure limit
CA ON OEL / TWA : Time-Weighted Average Limit (TWA)
CA QC OEL / TWAEV : Time-weighted average exposure value
CA QC OEL / STEV : Short-term exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with