SAFETY DATA SHEET

API MODIFIED 304

SECTION 1. IDENTIFICATION

Product name : API MODIFIED 304
SDS-Identcode : 330G

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
                    (24-hours/7 days)
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 OSHA Hazard Communication Standard (29 CFR
1910.1200)
Eye irritation : Category 2A
Carcinogenicity : Category 2
Reproductive toxicity : Category 1A
Effects on or via lactation
Specific target organ toxicity - repeated exposure : Category 1 (Kidney, Central nervous system, Blood)

GHS label elements
Hazard pictograms : 

Signal Word : Danger
Hazard Statements : H319 Causes serious eye irritation.
                     H351 Suspected of causing cancer.
                     H360FD May damage fertility. May damage the unborn child.
                     H362 May cause harm to breast-fed children.
H372 Causes damage to organs (Kidney, Central nervous system, Blood) through prolonged or repeated exposure.

Precautionary Statements:

**Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust, fume, gas, mist, vapors or spray.
P263 Avoid contact during pregnancy and while nursing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

**Response:**
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical attention.
P337 + P313 If eye irritation persists: Get medical attention.

**Storage:**
P405 Store locked up.

**Disposal:**
P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards
None known.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance / Mixture:** Mixture

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distillates (petroleum), hydrotreated heavy naphthenic</td>
<td>64742-52-5</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td></td>
<td>Lead</td>
<td>7439-92-1</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td></td>
<td>Graphite</td>
<td>7782-42-5</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td></td>
<td>Copper metal powder</td>
<td>7440-50-8</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td></td>
<td>Talc</td>
<td>14807-96-6</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td></td>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td></td>
<td>Quartz</td>
<td>14808-60-7</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td></td>
<td>12-Hydroxy lithium stearate</td>
<td>7620-77-1</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td></td>
<td>Actual concentration is withheld as a trade secret</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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
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.

Most important symptoms and effects, both acute and delayed: Causes serious eye irritation. Suspected of causing cancer. May damage fertility. May damage the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure.

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

Hazardous combustion products: Carbon oxides
Lead compounds
Metal 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).
SECTION 7. HANDLING AND STORAGE

Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSOAL 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, 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
- 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.

Conditions for safe storage:
- Keep in properly labeled containers.
- Store locked up.
- Keep tightly closed.
- Store in accordance with the particular national regulations.

Materials to avoid:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Organic peroxides
  - Explosives
  - Gases

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>OSHA Z-1</td>
</tr>
<tr>
<td>Substance</td>
<td>Exposure Type</td>
<td>Limit Value</td>
<td>Source</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------------</td>
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<tr>
<td>SAFETY DATA SHEET</td>
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<tr>
<td>API MODIFIED 304</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Inhalable particulate matter)</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Mist)</td>
<td>5 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ST (Mist)</td>
<td>10 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>TWA</td>
<td>0.05 mg/m³ (Lead)</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>0.05 mg/m³ (Lead)</td>
<td>OSHA CARC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.05 mg/m³ (Lead)</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td>Graphite</td>
<td>TWA (Respirable)</td>
<td>2.5 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Respirable particulate matter)</td>
<td>2 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Dust)</td>
<td>15 Million particles per cubic foot</td>
<td>OSHA Z-3</td>
<td></td>
</tr>
<tr>
<td>Copper metal powder</td>
<td>TWA (Dust and mist)</td>
<td>1 mg/m³ (Copper)</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Fumes)</td>
<td>0.2 mg/m³ (Copper)</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Dust)</td>
<td>1 mg/m³ (Copper)</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Mist)</td>
<td>1 mg/m³ (Copper)</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (dusts and mists)</td>
<td>1 mg/m³ (Copper)</td>
<td>OSHA Z-1</td>
<td></td>
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<tr>
<td></td>
<td>TWA (Fumes)</td>
<td>0.1 mg/m³ (Copper)</td>
<td>OSHA Z-1</td>
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<tr>
<td>Talc</td>
<td>TWA (Dust)</td>
<td>20 Million particles per cubic foot</td>
<td>OSHA Z-3</td>
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<tr>
<td></td>
<td>TWA (Respirable)</td>
<td>2 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Respirable particulate matter)</td>
<td>2 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>OSHA Z-1</td>
<td></td>
</tr>
<tr>
<td>Quartz</td>
<td>TWA (Respirable dust)</td>
<td>0.05 mg/m³</td>
<td>OSHA Z-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (respirable)</td>
<td>10 mg/m³ / %SiO2+2</td>
<td>OSHA Z-3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (respirable)</td>
<td>250 mppcf / %SiO2+5</td>
<td>OSHA Z-3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA (Respirable particulate matter)</td>
<td>0.025 mg/m³ (Silica)</td>
<td>ACGIH</td>
<td></td>
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<tr>
<td>Components</td>
<td>CAS-No.</td>
<td>Control parameters</td>
<td>Biological specimen</td>
<td>Sampling time</td>
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<td>--------------------</td>
<td>---------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Lead (Lead)</td>
<td>In blood</td>
<td>Not critical</td>
</tr>
</tbody>
</table>

**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**

General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

**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. Wash contaminated clothing before re-use. See 29 CFR 1910.1025 for additional requirements relating to lead exposure.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Viscous semi-solid
Color: dark
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: $\geq 392 ^\circ F / \geq 200 ^\circ C$
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
## 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
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

Lead:
- Acute oral toxicity:
  - LD50 (Rat): > 2,000 mg/kg
  - Method: OECD Test Guideline 402
  - Remarks: Based on data from similar materials
- Acute dermal toxicity:
  - LD50 (Rat): > 2,000 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

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

Talc:
Acute oral toxicity:  
LD50 (Rat): > 5,000 mg/kg  
Remarks: Based on data from similar materials

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

Acute inhalation toxicity:  
(Rat): > 5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 436  
Remarks: Based on data from similar materials

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

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

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

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

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

Copper metal powder:  
Species: Rabbit
<table>
<thead>
<tr>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Test Guideline 404</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

**Talc:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

**Calcium oxide:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>Skin irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**12-Hydroxy lithium stearate:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No skin irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Components:**

**Distillates (petroleum), hydrotreated heavy naphthenic:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No eye irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Lead:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No eye irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Graphite:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No eye irritation</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
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**Copper metal powder:**

<table>
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<tr>
<th>Species</th>
<th>Result</th>
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</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No eye irritation</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
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</table>

**Talc:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No eye irritation</td>
</tr>
</tbody>
</table>
Calcium oxide:
Species: Rabbit
Result: Irreversible effects on the eye
Method: OECD Test Guideline 405

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

Respiratory or skin sensitization
Skin sensitization
Not classified based on available information.

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

Lead:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative
Remarks: Based on data from similar materials

Graphite:
Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Result: negative

Copper metal powder:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Talc:
Routes of exposure: Skin contact
Species: Humans
Calcium oxide:
- Test Type: Local lymph node assay (LLNA)
- Routes of exposure: Skin contact
- Species: Mouse
- Method: OECD Test Guideline 429
- Result: negative
- Remarks: Based on data from similar materials

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

**Lead:**
- Genotoxicity in vitro: Test Type: In vitro sister chromatid exchange assay in mammalian cells
  Result: negative
  Remarks: Based on data from similar materials
- Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  Species: Rat
  Application Route: Ingestion
  Result: positive
  Remarks: Based on data from similar materials

**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

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

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

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

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

Carcinogenicity
Suspected of causing cancer.

Product:
Carcinogenicity - Assessment:  
Petroleum distillates have been classified as not carcinogenic
Components:

### Distillates (petroleum), hydrotreated heavy naphthenic:

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Exposure time</td>
<td>78 weeks</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 451</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

### Lead:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>Result</td>
<td>positive</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

### Talc:

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Inhalation (dust/mist/fume)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

### Calcium oxide:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>104 weeks</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

### Quartz:

<table>
<thead>
<tr>
<th>Species</th>
<th>Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Inhalation (dust/mist/fume)</td>
</tr>
<tr>
<td>Result</td>
<td>positive</td>
</tr>
<tr>
<td>Remarks</td>
<td>These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.</td>
</tr>
</tbody>
</table>

### Carcinogenicity - Assessment:

- **Talc:** Limited evidence of carcinogenicity in animal studies
- **Calcium oxide:** Based on data from similar materials

**IARC**

- Group 1: Carcinogenic to humans
  - Quartz (Silica dust, crystalline): 14808-60-7
  - Lead: 7439-92-1

**OSHA**

OSHA specifically regulated carcinogen
Reproductive toxicity

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

Components:

**Lead:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Two-generation reproduction toxicity study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Mouse</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Result</td>
<td>positive</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Graphite:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 422</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Copper metal powder:**

Lead (Lead and inorganic lead compounds)
OSHA specifically regulated carcinogen
Quartz (crystalline silica)

NTP

Reasonably anticipated to be a human carcinogen
Lead
Known to be human carcinogen
Quartz (Silica, Crystalline (Respirable Size))
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: Rabbit
Application Route: Ingestion
Result: negative

Talc:
Effects on fetal development: Test Type: Embryo-fetal development
Species: Rat
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 fetal development: Test Type: Embryo-fetal development
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

STOT-single exposure
Not classified based on available information.

Components:
Calcium oxide:
Assessment: May cause respiratory irritation.

STOT-repeated exposure
Causes damage to organs (Kidney, Central nervous system, Blood) 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:
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.

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.

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

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

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

Aspiration toxicity
Not classified based on available information.

SECTION 12. ECOLOGICAL 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
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
Remarks: Based on data from similar materials

Toxicity to microorganisms: NOEC: > 1.93 mg/l
Exposure time: 10 min
Remarks: Based on data from similar materials

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
Toxicity to fish (Chronic toxicity):
- EC10 (Pimephales promelas (fathead minnow)): 20 µg/l
  Exposure time: 30 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- EC10 (Ceriodaphnia dubia (water flea)): 1.7 µg/l
  Exposure time: 7 d

**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

**Copper metal powder:**

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

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

**Talc:**

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

**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 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

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

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

Persistence and degradability

Components:
Distillates (petroleum), hydrotreated heavy naphthenic:
- Biodegradability: Result: Not readily biodegradable.
  Biodegradation: 2 - 4 %
  Exposure time: 28 d
12-Hydroxy lithium stearate:

**Biodegradability**: Result: Readily biodegradable.
Biodegradation: 78 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

**Bioaccumulative potential**
No data available

**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**

**UNRTDG**
- **UN number**: UN 3077
- **Proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead, Copper metal powder)
- **Class**: 9
- **Packing group**: III
- **Labels**: 9

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

IMDG-Code
UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Lead, Copper metal powder)

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

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

Domestic regulation

49 CFR
UN/ID/NA number : UN 3077
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.
(Lead, Copper metal powder)

Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes (Lead, Copper metal powder)

Remarks : THE ABOVE INFORMATION ONLY APPLIES TO PACKAGE SIZES WHERE THE HAZARDOUS SUBSTANCE MEETS THE REPORTABLE QUANTITY.

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

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>1000</td>
<td>8197</td>
</tr>
<tr>
<td>Copper metal powder</td>
<td>7440-50-8</td>
<td>5000</td>
<td>150724</td>
</tr>
</tbody>
</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation
SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:

- **Lead** 7439-92-1 >= 30 - < 50 %
- **Zinc** 7440-66-6 >= 10 - < 20 %
- **Copper metal powder** 7440-50-8 >= 1 - < 5 %

**US State Regulations**

**Pennsylvania Right To Know**

- Distillates (petroleum), hydrotreated heavy naphthenic 64742-52-5
- Lead 7439-92-1
- Graphite 7782-42-5
- Zinc 7440-66-6
- Copper metal powder 7440-50-8
- Talc 14807-96-6
- Calcium oxide 1305-78-8
- Quartz 14808-60-7
- Zinc oxide 1314-13-2

**California Prop. 65**

WARNING: This product can expose you to chemicals including Lead, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**California List of Hazardous Substances**

- Distillates (petroleum), hydrotreated heavy naphthenic 64742-52-5
- Lead 7439-92-1
- Graphite 7782-42-5
- Zinc 7440-66-6
- Copper metal powder 7440-50-8
- Talc 14807-96-6
- Calcium oxide 1305-78-8

**California Permissible Exposure Limits for Chemical Contaminants**

- Distillates (petroleum), hydrotreated heavy naphthenic 64742-52-5
- Lead 7439-92-1
- Graphite 7782-42-5
- Copper metal powder 7440-50-8
- Talc 14807-96-6
- Calcium oxide 1305-78-8
- Quartz 14808-60-7

**California Regulated Carcinogens**

- Lead 7439-92-1
- Quartz 14808-60-7

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
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AICS: All ingredients listed or exempt.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:  HMIS® IV:

Flammability  HEALTH

Instability  FLAMMABILITY

Health  4

Special hazard  PHYSICAL HAZARD

0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the """" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA CARC : OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA : 8-hour, time-weighted average
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA CARC / PEL : Permissible exposure limit (PEL)
OSHA Z-1 / TWA : 8-hour time weighted average
OSHA Z-3 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with

Revision Date: 11/04/2020

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

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.