

# SAFETY DATA SHEET



## ZN-18

Version 15.0      Revision Date: 11/02/2020      SDS Number: 134644-00020      Date of last issue: 05/06/2020  
Date of first issue: 05/27/2015

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### SECTION 1. IDENTIFICATION

Product name : ZN-18  
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  
Emergency telephone : CHEMTREC U.S.: 800-424-9300, International 703-527-3887  
(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.


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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Eye irritation : Category 2A  
Skin sensitization : Category 1

#### 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 must not be allowed out of  
the workplace.  
P280 Wear protective gloves, eye protection and face protec-  
tion.

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### Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P333 + P313 If skin irritation or rash occurs: Get medical attention.  
P337 + P313 If eye irritation persists: Get medical attention.  
P363 Wash contaminated clothing before reuse.

### 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

### Components

Chemical name	CAS-No.	Concentration (% w/w)
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	>= 30 - < 50
Talc	14807-96-6	>= 20 - < 30
Dolomite	16389-88-1	>= 5 - < 10
Graphite	7782-42-5	>= 1 - < 5
12-Hydroxy lithium stearate	7620-77-1	>= 1 - < 5
Calcium oxide	1305-78-8	>= 1 - < 5
Calcium bis(di C8-C10, branched, C9 rich, alkylnaphthalenesulphonate)	57855-77-3	>= 1 - < 5
Quartz	14808-60-7	>= 1 - < 5
Zinc oxide	1314-13-2	>= 1 - < 5

Actual concentration 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.

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- If swallowed : Get medical attention.  
: 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.
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### SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray  
: Alcohol-resistant foam  
: Carbon dioxide (CO<sub>2</sub>)  
: 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.
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### 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 spillages 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.

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### 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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	TWA (Mist)	5 mg/m <sup>3</sup>	OSHA Z-1
		TWA (Inhalable particulate matter)	5 mg/m <sup>3</sup>	ACGIH
		TWA (Mist)	5 mg/m <sup>3</sup>	NIOSH REL
		ST (Mist)	10 mg/m <sup>3</sup>	NIOSH REL
Talc	14807-96-6	TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
		TWA (Respirable)	2 mg/m <sup>3</sup>	NIOSH REL
		TWA (Respirable particulate matter)	2 mg/m <sup>3</sup>	ACGIH
Dolomite	16389-88-1	TWA (Respirable)	5 mg/m <sup>3</sup> (Calcium carbonate)	NIOSH REL
		TWA (total)	10 mg/m <sup>3</sup> (Calcium carbonate)	NIOSH REL
Graphite	7782-42-5	TWA (Respirable)	2.5 mg/m <sup>3</sup>	NIOSH REL
		TWA (Res-	2 mg/m <sup>3</sup>	ACGIH

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		pirable particulate matter)		
		TWA (Dust)	15 Million particles per cubic foot	OSHA Z-3
12-Hydroxy lithium stearate	7620-77-1	TWA (Inhalable particulate matter)	10 mg/m <sup>3</sup>	ACGIH
		TWA (Respirable particulate matter)	3 mg/m <sup>3</sup>	ACGIH
Calcium oxide	1305-78-8	TWA	2 mg/m <sup>3</sup>	ACGIH
		TWA	2 mg/m <sup>3</sup>	NIOSH REL
		TWA	5 mg/m <sup>3</sup>	OSHA Z-1
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m <sup>3</sup>	OSHA Z-1
		TWA (respirable)	10 mg/m <sup>3</sup> / %SiO <sub>2</sub> +2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO <sub>2</sub> +5	OSHA Z-3
		TWA (Respirable particulate matter)	0.025 mg/m <sup>3</sup> (Silica)	ACGIH
		TWA (Respirable dust)	0.05 mg/m <sup>3</sup> (Silica)	NIOSH REL
		PEL (respirable)	0.05 mg/m <sup>3</sup>	OSHA CARC
Zinc oxide	1314-13-2	TWA (Respirable particulate matter)	2 mg/m <sup>3</sup>	ACGIH
		STEL (Respirable particulate matter)	10 mg/m <sup>3</sup>	ACGIH
		TWA (Dust)	5 mg/m <sup>3</sup>	NIOSH REL
		TWA (Fumes)	5 mg/m <sup>3</sup>	NIOSH REL
		ST (Fumes)	10 mg/m <sup>3</sup>	NIOSH REL
		C (Dust)	15 mg/m <sup>3</sup>	NIOSH REL
		TWA (total dust)	15 mg/m <sup>3</sup>	OSHA Z-1
		TWA (respirable fraction)	5 mg/m <sup>3</sup>	OSHA Z-1
		TWA (Fumes)	5 mg/m <sup>3</sup>	OSHA Z-1

**These substance(s) are inextricably bound in the product and therefore do not contribute to a dust inhalation hazard.**

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Quartz

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**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/m<sup>3</sup> - total dust, 5 mg/m<sup>3</sup> - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m<sup>3</sup> - respirable particles, 10 mg/m<sup>3</sup> - 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. 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

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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 :  $\geq 392$  °F /  $\geq 200$  °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

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  
Viscosity, kinematic : Not applicable

Flow time : No data available

Explosive properties : Not explosive

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Oxidizing properties : The substance or mixture is not classified as oxidizing.  
Molecular weight : No data available  
Particle size : 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

##### || **Dolomite:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 420



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Assessment: The substance or mixture has no acute oral toxicity  
 Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 3 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Assessment: The substance or mixture has no acute inhalation toxicity  
 Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
 Method: OECD Test Guideline 402  
 Assessment: The substance or mixture has no acute dermal toxicity  
 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 : (Rat): > 5 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Method: OECD Test Guideline 436  
 Remarks: Based on data from similar materials

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

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

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

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Acute dermal toxicity : LD50 (Rabbit): > 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  
 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

**Dolomite:**

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

**12-Hydroxy lithium stearate:**

Species : Rabbit  
 Result : No skin irritation  
 Remarks : Based on data from similar materials

**Calcium oxide:**

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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

**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

**Dolomite:**

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

**Graphite:**

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

**12-Hydroxy lithium stearate:**

Species : Rabbit  
Result : No eye irritation  
Remarks : Based on data from similar materials

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**Calcium oxide:**

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

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

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

**Dolomite:**

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

**Graphite:**

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

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**12-Hydroxy lithium stearate:**

Test Type : Local lymph node assay (LLNA)  
 Routes of exposure : Skin contact  
 Species : Mouse  
 Method : OECD Test Guideline 429  
 Result : negative

**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

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

Test Type : Buehler Test  
 Routes of exposure : Skin contact  
 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  
 Routes of exposure : Skin contact  
 Species : Guinea pig  
 Method : OECD Test Guideline 406  
 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:**

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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

**Dolomite:**

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

**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, alkyl)naphthalenesulphonate):**

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

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		<p>Remarks: Based on data from similar materials</p> <p>Test Type: Chromosome aberration test in vitro          Method: OECD Test Guideline 473          Result: negative          Remarks: Based on data from similar materials</p>
<b>Zinc oxide:</b>		
Genotoxicity in vitro	:	<p>Test Type: Bacterial reverse mutation assay (AMES)          Result: negative</p> <p>Test Type: In vitro mammalian cell gene mutation test          Method: OECD Test Guideline 476          Result: equivocal</p> <p>Test Type: Chromosome aberration test in vitro          Result: equivocal</p>
Genotoxicity in vivo	:	<p>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</p> <p>Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)          Species: Rat          Application Route: inhalation (dust/mist/fume)          Result: positive</p> <p>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)          Species: Mouse          Application Route: Intraperitoneal injection          Method: OECD Test Guideline 474          Result: negative</p>
Germ cell mutagenicity - Assessment	:	Weight of evidence does not support classification as a germ 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

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**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 Years  
 Result : negative  
 Remarks : Based on data from similar materials

**IARC**      Group 1: Carcinogenic to humans  
 Quartz      14808-60-7  
 (Silica dust, crystalline)

**OSHA**      OSHA specifically regulated carcinogen  
 Quartz      14808-60-7  
 (crystalline silica)

**NTP**      Known to be human carcinogen  
 Quartz      14808-60-7  
 (Silica, Crystalline (Respirable Size))



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**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

**Dolomite:**

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

**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

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

**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

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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.

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**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

**Dolomite:**

Species : Mouse  
 NOAEL : 1,300 mg/kg  
 Application Route : Ingestion  
 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 :  $\geq$  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, alkyl naphthalenesulphonate):**

Species : Rat  
 NOAEL : 100 mg/kg  
 LOAEL : 300 mg/kg  
 Application Route : Ingestion  
 Exposure time : 90 Days  
 Method : OECD Test Guideline 408

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**Quartz:**

Species : Humans  
 LOAEL : 0.053 mg/m<sup>3</sup>  
 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.

**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

**Talc:**

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

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**Dolomite:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 16.6 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203  
 Remarks: No toxicity at the limit of solubility.  
 Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 16.6 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202  
 Remarks: No toxicity at the limit of solubility.  
 Based on data from similar materials
- Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 14 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201  
 Remarks: Based on data from similar materials

**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

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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: 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

**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

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Test substance: Water Accommodated Fraction  
 Method: OECD Test Guideline 201  
 Remarks: Based on data from similar materials

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

Toxicity to 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 - 0.1 mg/l  
 Exposure time: 72 h  
 Remarks: Based on data from similar materials

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

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**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.



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**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

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****49 CFR**

UN/ID/NA number : UN 3077  
Proper shipping name : Environmentally hazardous substance, solid, n.o.s.  
(Zinc, Zinc oxide)  
Class : 9  
Packing group : III  
Labels : CLASS 9  
ERG Code : 171  
Marine pollutant : yes(Zinc, Zinc oxide)  
Remarks : Above applies only to containers over 119 gallons or 450  
liters.

**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

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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

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Zinc	7440-66-6	1000	5711

#### 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** : Respiratory or skin sensitization  
Serious eye damage or eye irritation

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Zinc	7440-66-6	>= 10 - < 20 %
Zinc oxide	1314-13-2	>= 1 - < 5 %

#### US State Regulations

##### Pennsylvania Right To Know

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Talc	14807-96-6
Zinc	7440-66-6
Dolomite	16389-88-1
Graphite	7782-42-5
Calcium oxide	1305-78-8
Quartz	14808-60-7
Zinc oxide	1314-13-2
Antimony, dialkyl dithiocarbamate	15890-25-2

##### California Prop. 65

WARNING: This product can expose you to chemicals including Quartz, which is/are known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

##### California List of Hazardous Substances

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Talc	14807-96-6
Zinc	7440-66-6
Graphite	7782-42-5
Calcium oxide	1305-78-8

##### California Permissible Exposure Limits for Chemical Contaminants

Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5
Talc	14807-96-6
Graphite	7782-42-5
Calcium oxide	1305-78-8

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|| Quartz 14808-60-7  
|| Zinc oxide 1314-13-2

### California Regulated Carcinogens

|| Quartz 14808-60-7

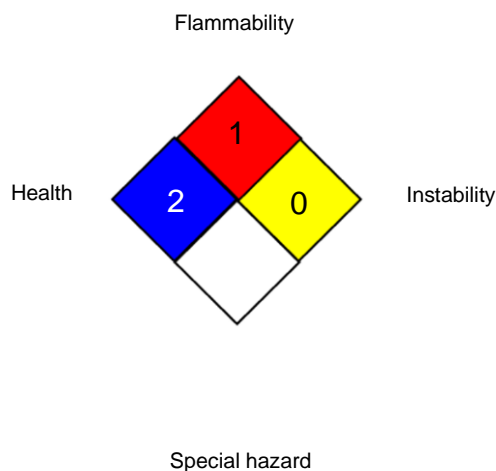
### The ingredients of this product are reported in the following inventories:

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 exemption.  
AICS : All ingredients listed or exempt.

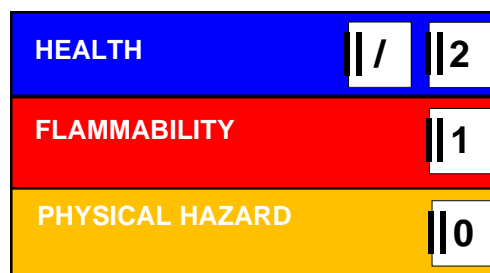
## SECTION 16. OTHER INFORMATION

### Further information

#### NFPA 704:



#### HMIS® IV:



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)  
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  
ACGIH / STEL : Short-term exposure limit  
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  
NIOSH REL / C : Ceiling value not be exceeded at any time.

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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 x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet                   : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date                   : 11/02/2020

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

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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.

US / Z8