

COPPER SUPREME SPECIAL BLEND®

Version Revision Date: SDS Number: Date of last issue: 09/17/2015
3.4 09/24/2015 115189-00007 Date of first issue: 05/12/2015

SECTION 1. IDENTIFICATION

Product name : COPPER SUPREME SPECIAL BLEND®

SDS-Identcode : 343G

Manufacturer or supplier's details

Company name of supplier : Bestolife Corporation

Address : 2777 N. Stemmons Frwy Ste 1800
Dallas TX 75207,

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
atmospheres.

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Eye irritation : Category 2A

GHS Label element

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H319 Causes serious eye irritation.

Precautionary Statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P280 Wear eye protection/ face protection.

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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.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

| Chemical name | CAS-No. | Concentration (% w/w) |
|--|------------|-----------------------|
| Distillates (petroleum), hydrotreated heavy naphthenic | 64742-52-5 | >= 30 - < 50 |
| Distillates (petroleum), hydrotreated heavy paraffinic | 64742-54-7 | >= 20 - < 30 |
| Graphite | 7782-42-5 | >= 10 - < 20 |
| Copper metal powder | 7440-50-8 | >= 10 - < 20 |
| Talc | 14807-96-6 | >= 5 - < 10 |
| Tris[bis(2-ethylhexyl)dithiocarbamate-S,S'] antimony | 15991-76-1 | >= 1 - < 5 |
| Calcium oxide | 1305-78-8 | >= 1 - < 5 |
| Antimony, dialkyl dithiocarbamate | 15890-25-2 | >= 1 - < 5 |
| Quartz | 14808-60-7 | >= 0.1 - < 1 |
| Hydrogen sulfide | 7783-06-4 | >= 0.1 - < 1 |

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
 Get medical attention if symptoms occur.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.
 Remove contaminated clothing and shoes.
 Get medical attention.
 Wash clothing before reuse.
 Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
 If easy to do, remove contact lens, if worn.
 Get medical attention.

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- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : 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.
- Notes to physician : Treat symptomatically and supportively.
-

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Metal oxides
Nitrogen oxides (NO_x)
Sulfur oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.
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.

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

SECTION 7. HANDLING AND STORAGE

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

Advice on safe handling : Do not get on skin or clothing.
 Do not swallow.
 Do not get in eyes.
 Handle in accordance with good industrial hygiene and safety practice.
 Keep away from water.
 Protect from moisture.
 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**

| Ingredients | 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 ³ | OSHA Z-1 |
| | | TWA (Inhalable fraction) | 5 mg/m ³ | ACGIH |
| | | TWA (Mist) | 5 mg/m ³ | NIOSH REL |
| | | ST (Mist) | 10 mg/m ³ | NIOSH REL |
| Distillates (petroleum), hydrotreated heavy paraffinic | 64742-54-7 | TWA (Mist) | 5 mg/m ³ | OSHA Z-1 |
| | | TWA (Mist) | 5 mg/m ³ | NIOSH REL |
| | | ST (Mist) | 10 mg/m ³ | NIOSH REL |
| Graphite | 7782-42-5 | TWA (Respirable) | 2.5 mg/m ³ | NIOSH REL |
| | | TWA (Respirable frac- | 2 mg/m ³ | ACGIH |

SAFETY DATA SHEET



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| | | tion) | | |
| | | TWA (Dust) | 15 Million particles per cubic foot | OSHA Z-3 |
| Copper metal powder | 7440-50-8 | TWA (Dust and mist) | 1 mg/m ³ (Copper) | ACGIH |
| | | TWA (Fumes) | 0.2 mg/m ³ (Copper) | ACGIH |
| | | TWA (Dust) | 1 mg/m ³ (Copper) | NIOSH REL |
| | | TWA (Mist) | 1 mg/m ³ (Copper) | NIOSH REL |
| | | TWA (dusts and mists) | 1 mg/m ³ (Copper) | OSHA Z-1 |
| | | TWA (Fumes) | 0.1 mg/m ³ (Copper) | OSHA Z-1 |
| Talc | 14807-96-6 | TWA (Dust) | 20 Million particles per cubic foot | OSHA Z-3 |
| | | TWA (Respirable) | 2 mg/m ³ | NIOSH REL |
| | | TWA (Respirable fraction) | 2 mg/m ³ | ACGIH |
| Tris[bis(2-ethylhexyl)dithiocarbamate-S,S'] antimony | 15991-76-1 | TWA | 0.5 mg/m ³ (antimony) | OSHA Z-1 |
| | | TWA | 0.5 mg/m ³ (antimony) | ACGIH |
| | | TWA | 0.5 mg/m ³ (antimony) | NIOSH REL |
| Calcium oxide | 1305-78-8 | TWA | 2 mg/m ³ | ACGIH |
| | | TWA | 2 mg/m ³ | NIOSH REL |
| | | TWA | 5 mg/m ³ | OSHA Z-1 |
| Antimony, dialkyl dithiocarbamate | 15890-25-2 | TWA | 0.5 mg/m ³ (antimony) | OSHA Z-1 |
| | | TWA | 0.5 mg/m ³ (antimony) | ACGIH |
| | | TWA | 0.5 mg/m ³ (antimony) | NIOSH REL |
| Quartz | 14808-60-7 | TWA (total dust) | 30 mg/m ³ / %SiO ₂ +2 | OSHA Z-3 |
| | | TWA (respirable) | 10 mg/m ³ / %SiO ₂ +2 | OSHA Z-3 |
| | | TWA (respirable) | 250 mppcf / %SiO ₂ +5 | OSHA Z-3 |
| | | TWA (Respirable fraction) | 0.025 mg/m ³ (Silica) | ACGIH |
| | | TWA (Respirable dust) | 0.05 mg/m ³ (Silica) | NIOSH REL |
| Hydrogen sulfide | 7783-06-4 | TWA | 1 ppm | ACGIH |
| | | STEL | 5 ppm | ACGIH |

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| | | C | 10 ppm 15 mg/m ³ | NIOSH REL |
| | | CEIL | 20 ppm | OSHA Z-2 |
| | | Peak | 50 ppm (minutes once only if no other measured expo- sure occurs) | OSHA Z-2 |

Occupational exposure limits of decomposition products

| Ingredients | CAS-No. | Value type (Form of exposure) | Control param- eters / Permissible concentration | Basis |
|-------------------|-----------|-------------------------------------|--|-----------|
| Calcium hydroxide | 1305-62-0 | TWA | 5 mg/m ³ | ACGIH |
| | | TWA (total dust) | 15 mg/m ³ | OSHA Z-1 |
| | | TWA (respir- able fraction) | 5 mg/m ³ | OSHA Z-1 |
| | | TWA | 5 mg/m ³ | NIOSH REL |

Engineering measures : Processing may form hazardous compounds (see section 10).
 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 : Impervious 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

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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 : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
-

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Viscous semi-solid
- Color : dark, copper
- 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 : No data available
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Upper explosion limit : No data available
- Lower explosion limit : No data available
- Vapor pressure : No data available
- Relative vapor density : No data available
- Relative density : 1.2
- Solubility(ies)
Water solubility : negligible

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| | | |
|--|---|--|
| Partition coefficient: n-octanol/water | : | No data available |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Flow time | : | No data available |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight | : | 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. Hazardous decomposition products will be formed upon contact with water or humid air. |
| Conditions to avoid | : | Exposure to moisture. |
| Incompatible materials | : | Oxidizing agents Water |
| Hazardous decomposition products | | |
| Contact with water or humid air | : | Calcium hydroxide |

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

| | | |
|---------------------------|---|---|
| Acute oral toxicity | : | Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method Remarks: Based on data from similar materials |
| Acute inhalation toxicity | : | Acute toxicity estimate: > 30000 ppm Exposure time: 4 h Test atmosphere: gas Method: Calculation method |

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Ingredients:**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

Distillates (petroleum), hydrotreated heavy paraffinic:

- 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

Graphite:

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

Copper metal powder:

- Acute oral toxicity : LD50 (Rat): > 2,500 mg/kg
 Method: OECD Test Guideline 423
 Assessment: The substance or mixture has no acute oral toxicity

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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

Tris[bis(2-ethylhexyl)dithiocarbamate-S,S'] antimony:

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

Acute dermal toxicity : LD50 (Rabbit): > 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
Assessment: The substance or mixture has no acute oral toxicity

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

Antimony, dialkyl dithiocarbamate:

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

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

Quartz:

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

Hydrogen sulfide:

Acute inhalation toxicity : LC50 (Rat): 444 ppm
Exposure time: 4 h
Test atmosphere: gas

Skin corrosion/irritation

Not classified based on available information.

Ingredients:

Distillates (petroleum), hydrotreated heavy naphthenic:

Species: Rabbit

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

Distillates (petroleum), hydrotreated heavy paraffinic:

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

Talc:

Species: Rabbit
Result: No skin irritation

Calcium oxide:

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

Serious eye damage/eye irritation

Causes serious eye irritation.

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

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

Distillates (petroleum), hydrotreated heavy paraffinic:

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

Copper metal powder:

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

Talc:

Species: Rabbit
Result: No eye irritation

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Calcium oxide:

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

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.
Respiratory sensitization: Not classified based on available information.

Ingredients:**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

Distillates (petroleum), hydrotreated heavy paraffinic:

Test Type: Buehler 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
Result: negative

Germ cell mutagenicity

Not classified based on available information.

Ingredients:**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)

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cytogenetic assay)
 Species: Mouse
 Application Route: Intraperitoneal injection
 Method: OECD Test Guideline 474
 Result: negative
 Remarks: Based on data from similar materials

Distillates (petroleum), hydrotreated heavy paraffinic:

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

Graphite:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
 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
 Method: Directive 67/548/EEC, Annex V, B.12.
 Result: negative
 Remarks: Based on data from similar materials

Talc:

Genotoxicity in vitro : Test Type: DNA damage and repair, unscheduled DNA syn-
 thesis 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

Antimony, dialkyl dithiocarbamate:

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

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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: Equivocal

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

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Rat
Application Route: inhalation (gas)
Result: negative

Carcinogenicity

Not classified based on available information.

Product:

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

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

Species: Mouse
Application Route: Skin contact
Exposure time: 78 weeks
Method: OECD Test Guideline 451
Result: negative

Distillates (petroleum), hydrotreated heavy paraffinic:

Species: Mouse
Application Route: Skin contact
Exposure time: 78 weeks
Method: OECD Test Guideline 451
Result: negative
Remarks: Based on data from similar materials

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

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Remarks: Based on data from similar materials

Quartz:

Species: Humans

Application Route: inhalation (dust/mist/fume)

Result: positive

Remarks: IARC (International Agency for Research on Cancer)

The substance is inextricably bound in the product and therefore does not contribute to a dust inhalation hazard.

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

IARC

Group 1: Carcinogenic to humans

Quartz

14808-60-7

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

Known to be human carcinogen

Quartz

14808-60-7

Reproductive toxicity

Not classified based on available information.

Ingredients:**Distillates (petroleum), hydrotreated heavy paraffinic:**

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
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: Skin contact
Method: OECD Test Guideline 414
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

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Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

Copper metal powder:

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

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

Antimony, dialkyl dithiocarbamate:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
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
Result: negative

Hydrogen sulfide:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: inhalation (gas)
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (gas)
Result: negative

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STOT-single exposure

Not classified based on available information.

Ingredients:**Calcium oxide:**

Assessment: May cause respiratory irritation.

Hydrogen sulfide:

Assessment: May cause respiratory irritation.

STOT-repeated exposure

Not classified based on available information.

Ingredients:**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.

Repeated dose toxicity**Ingredients:****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

Distillates (petroleum), hydrotreated heavy paraffinic:

Species: Rabbit

NOAEL: 1,000 mg/kg

Application Route: Skin contact

Exposure time: 4 Weeks

Method: OECD Test Guideline 410

Remarks: Based on data from similar materials

Species: Rat

NOAEL: > 980 mg/m³

Application Route: inhalation (dust/mist/fume)

Exposure time: 4 Weeks

Graphite:

Species: Rat

NOAEL: 12 mg/m³

Application Route: inhalation (dust/mist/fume)

Exposure time: 28 Days

Method: OECD Test Guideline 412

Copper metal powder:

Species: Rat

NOAEL: >= 2 mg/m³

Application Route: inhalation (dust/mist/fume)

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Exposure time: 28 Days

Antimony, dialkyl dithiocarbamate:

Species: Rat
 NOAEL: >= 1,000 mg/kg
 Application Route: Ingestion
 Exposure time: 54 Days

Quartz:

Species: Humans
 LOAEL: 0.053 mg/m³
 Application Route: inhalation (dust/mist/fume)
 Remarks: The substance is inextricably bound in the product and therefore does not contribute to a dust inhalation hazard.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 10,250 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)): 15,470 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 202
 Remarks: Based on data from similar materials

EC50 (Daphnia magna (Water flea)): 30,940 mg/l
 Exposure time: 48 h
 Method: OECD Test Guideline 202
 Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 70,100 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 201
 Remarks: Based on data from similar materials

NOEC (Selenastrum capricornutum (green algae)): 60,000 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 201
 Remarks: Based on data from similar materials

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

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l

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

Distillates (petroleum), hydrotreated heavy paraffinic:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
 Exposure time: 48 h
 Method: OECD Test Guideline 202
 Remarks: Based on data from similar materials

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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10 mg/l
 Exposure time: 21 d
 Method: OECD Test Guideline 211
 Remarks: Based on data from similar materials

Toxicity to bacteria : NOEC: > 1.93 mg/l
 Exposure time: 10 min
 Method: DIN 38 412 Part 8
 Remarks: Based on data from similar materials

Graphite:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 100 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 100 mg/l

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- aquatic invertebrates Exposure time: 48 h
 Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
 Exposure time: 72 h
 Method: OECD Test Guideline 201
- Toxicity to bacteria : EC50: > 1,012.5 mg/l
 Exposure time: 3 h
 Method: OECD Test Guideline 209
- Copper metal powder:**
- Toxicity to fish : LC50: 10 - < 100 mg/l
 Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Ceriodaphnia dubia (water flea)): 66 mg/l
 Exposure time: 48 h
 Remarks: Based on data from similar materials
- Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): 30 - 824 µg/l
 Exposure time: 72 h
 Remarks: Based on data from similar materials
- M-Factor (Acute aquatic toxicity) : 10
- Toxicity to fish (Chronic toxicity) : NOEC: > 1 - 10 µg/l
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 21.5 - 181 µg/l
 Exposure time: 21 d
 Remarks: Based on data from similar materials
- M-Factor (Chronic aquatic toxicity) : 10
- Talc:**
- Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100,000 mg/l
 Exposure time: 24 h
- Tris[bis(2-ethylhexyl)dithiocarbamate-S,S'] antimony:**
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.02 mg/l
 Exposure time: 21 d
 Method: OECD Test Guideline 211
 Remarks: Based on data from similar materials
- M-Factor (Chronic aquatic toxicity) : 1
- Ecotoxicology Assessment
 Chronic aquatic toxicity : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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Calcium oxide:

- Toxicity to fish : LC50 (Gasterosteus aculeatus (threespine stickleback)): 457 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : LC50: 158 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 184.57 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials
- NOEC (Pseudokirchneriella subcapitata (green algae)): 48 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: 32 mg/l
Exposure time: 12 d
Remarks: Based on data from similar materials
- Toxicity to bacteria : EC50: 300.4 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Antimony, dialkyl dithiocarbamate:

- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.02 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
- M-Factor (Chronic aquatic toxicity) : 1
- Ecotoxicology Assessment
Chronic aquatic toxicity : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Quartz:

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

Hydrogen sulfide:

- Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.0144 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp.): 0.12 mg/l
Exposure time: 48 h

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Method: OECD Test Guideline 202

Toxicity to algae : ErC50 (Scenedesmus subspicatus): 1.87 mg/l
Exposure time: 24 h

M-Factor (Acute aquatic toxicity) : 10

Toxicity to bacteria : EC50: 29 mg/l
Method: ISO 8192

Persistence and degradability**Product:**

Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

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

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 2 - 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Distillates (petroleum), hydrotreated heavy paraffinic:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 31 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Tris[bis(2-ethylhexyl)dithiocarbamate-S,S'] antimony:

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

Antimony, dialkyl dithiocarbamate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 20 %
Exposure time: 28 d

Hydrogen sulfide:

Biodegradability : Result: rapidly degradable

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

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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.
If not otherwise specified: Dispose of as unused product.

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

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(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.
(Copper metal powder)

Class : 9

Packing group : III

Labels : Miscellaneous

Packing instruction (cargo aircraft) : 956

Packing instruction (passenger aircraft) : 956

IMDG-Code

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Copper metal powder)

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**

Not regulated as a dangerous good

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SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

| Ingredients | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|---------------------|-----------|--------------------|-----------------------------|
| Hydrogen sulfide | 7783-06-4 | 100 | 26062 |
| Copper metal powder | 7440-50-8 | 5000 | 43365 |
| Ammonia | 7664-41-7 | 100 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

| Ingredients | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|------------------|-----------|--------------------|-----------------------------|
| Hydrogen sulfide | 7783-06-4 | 100 | 26062 |
| Ammonia | 7664-41-7 | 100 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Acute Health Hazard

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:

Hydrogen sulfide 7783-06-4 0.3837 %

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

Copper metal powder 7440-50-8 11.53 %

Tris[bis(2-ethylhex-yl)dithiocarbamate-S,S'] antimony 15991-76-1 2.0283 %

Antimony, dialkyl dithiocarbamate 15890-25-2 1.0985 %

US State Regulations**Pennsylvania Right To Know**

| | | |
|--|------------|-----------|
| Distillates (petroleum), hydrotreated heavy naphthenic | 64742-52-5 | 30 - 50 % |
| Distillates (petroleum), hydrotreated heavy paraffinic | 64742-54-7 | 20 - 30 % |
| Graphite | 7782-42-5 | 10 - 20 % |
| Copper metal powder | 7440-50-8 | 10 - 20 % |
| Talc | 14807-96-6 | 5 - 10 % |

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| | | |
|---|------------|-----------|
| Hydroxystearate sebacate lithium complexes | 68815-49-6 | 5 - 10 % |
| Calcium oxide | 1305-78-8 | 1 - 5 % |
| Hydrogen sulfide | 7783-06-4 | 0.1 - 1 % |
| Distillates (petroleum), solvent-dewaxed heavy paraffinic | 64742-65-0 | 0 - 0.1 % |
| Distillates (petroleum), solvent-refined light paraffinic | 64741-89-5 | 0 - 0.1 % |
| Ammonia | 7664-41-7 | 0 - 0.1 % |

New Jersey Right To Know

| | | |
|--|------------|-----------|
| Distillates (petroleum), hydrotreated heavy naphthenic | 64742-52-5 | 30 - 50 % |
| Distillates (petroleum), hydrotreated heavy paraffinic | 64742-54-7 | 20 - 30 % |
| Graphite | 7782-42-5 | 10 - 20 % |
| Copper metal powder | 7440-50-8 | 10 - 20 % |
| Talc | 14807-96-6 | 5 - 10 % |
| Tris[bis(2-ethylhexyl)dithiocarbamate-S,S'] antimony | 15991-76-1 | 1 - 5 % |
| Calcium oxide | 1305-78-8 | 1 - 5 % |
| Antimony, dialkyl dithiocarbamate | 15890-25-2 | 1 - 5 % |
| Quartz | 14808-60-7 | 0.1 - 1 % |

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

Quartz 14808-60-7

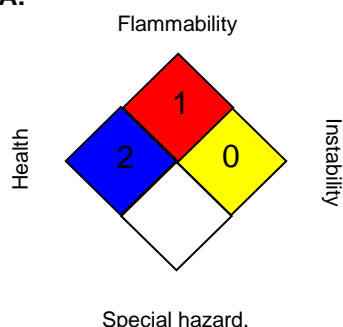
The ingredients of this product are reported in the following inventories:

DSL : All components of this product are on the Canadian DSL

TSCA : All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

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SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

| | |
|------------------------|----------|
| HEALTH | 2 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | 0 |

0 = not significant, 1 = Slight,
 2 = Moderate, 3 = High
 4 = Extreme, * = Chronic

Full text of other abbreviations

| | |
|-----------------|---|
| ACGIH | : USA. ACGIH Threshold Limit Values (TLV) |
| NIOSH REL | : USA. NIOSH Recommended Exposure Limits |
| OSHA Z-1 | : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| OSHA Z-2 | : USA. Occupational Exposure Limits (OSHA) - Table Z-2 |
| 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. |
| OSHA Z-1 / TWA | : 8-hour time weighted average |
| OSHA Z-2 / CEIL | : Acceptable ceiling concentration |
| OSHA Z-2 / Peak | : Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift |
| OSHA Z-3 / TWA | : 8-hour time weighted average |

AICS - Australian Inventory of Chemical Substances; 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); EC_x - Concentration associated with x% response; EHS - Extremely Hazardous Substance; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC_x - 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 Avia-

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tion 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 : 09/24/2015

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.

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