



# SAFETY DATA SHEET

DSP SINGAPORE HOLDINGS PTE. LTD.

**Product name:** MOLYKOTE<sup>®</sup> P-1600 Paste

**Issue Date:** 10/16/2018

**Print Date:** 04/30/2020

DSP SINGAPORE HOLDINGS PTE. LTD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

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**Product name:** MOLYKOTE<sup>®</sup> P-1600 Paste

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Lubricants and lubricant additives

### COMPANY IDENTIFICATION

DSP SINGAPORE HOLDINGS PTE. LTD.  
260 ORCHARD ROAD  
#18-01 THE HEEREN  
SINGAPORE 238855  
SINGAPORE

**Customer Information Number:**

+65-6586-3688

SDSQuestion-AP@dupont.com

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 811-101-2201

**Local Emergency Contact:** 800 101 2201 / (65) 3158 1349

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## 2. HAZARDS IDENTIFICATION

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### GHS Classification

Acute aquatic toxicity - Category 1

Chronic aquatic toxicity - Category 1

### GHS label elements

**Hazard pictograms**



Signal word: **WARNING!**

**Hazard statements**

Very toxic to aquatic life with long lasting effects.

**Precautionary statements****Prevention**

Avoid release to the environment.

**Response**

Collect spillage.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

No data available

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

| Component  | CASRN      | Concentration |
|--|------------|---------------|
| Solvent dewaxed heavy paraffinic distillates             | 64742-65-0 | <= 26.0 %     |
| Distillates, petroleum, solvent-dewaxed light paraffinic | 64742-56-9 | <= 22.0 %     |
| Distillates (petroleum), hydrotreated heavy naphthenic   | 64742-52-5 | 18.0%         |
| Solvent dewaxed residual oil (petroleum)                 | 64742-62-7 | 10.0%         |
| Lithium 12-hydroxyoctadecanoate                          | 7620-77-1  | 2.2%          |
| Petroleum Distillates, Hydrotreated, Heavy Paraffinic    | 64742-54-7 | 1.6%          |
| Copper metal powder                                      | 7440-50-8  | 0.5%          |

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air; if effects occur, consult a physician.

**Skin contact:** Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** No emergency medical treatment necessary.

#### Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water spray Alcohol-resistant foam Carbon dioxide (CO<sub>2</sub>) Dry chemical

**Unsuitable extinguishing media:** None known.

#### Special hazards arising from the substance or mixture

**Hazardous combustion products:** Metal oxides Carbon oxides Oxides of phosphorus

**Unusual Fire and Explosion Hazards:** Exposure to combustion products may be a hazard to health.

#### Advice for firefighters

**Fire Fighting Procedures:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Follow safe handling advice and personal protective equipment recommendations.

**Environmental precautions:** Do not release the product to the aquatic environment above defined regulatory levels. 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:** Wipe up or scrape up and contain for salvage or 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. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. See sections: 7, 8, 11, 12 and 13.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

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

Do not store with the following product types: Strong oxidizing agents.  
Unsuitable materials for containers: None known.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

| Component  | Regulation | Type of listing        | Value/Notation       |
|--|------------|------------------------|----------------------|
| Solvent dewaxed heavy paraffinic distillates             | ACGIH      | TWA Inhalable fraction | 5 mg/m <sup>3</sup>  |
|  | SG OEL     | PEL (long term) Mist   | 5 mg/m <sup>3</sup>  |
|  | SG OEL     | PEL (short term) Mist  | 10 mg/m <sup>3</sup> |
| Distillates, petroleum, solvent-dewaxed light paraffinic | ACGIH      | TWA Inhalable fraction | 5 mg/m <sup>3</sup>  |
|  | SG OEL     | PEL (long term) Mist   | 5 mg/m <sup>3</sup>  |
|  | SG OEL     | PEL (short term) Mist  | 10 mg/m <sup>3</sup> |

|  |        |                            |                    |
|--|--------|----------------------------|--------------------|
| Distillates (petroleum),<br>hydrotreated heavy<br>naphthenic | ACGIH  | TWA Inhalable<br>fraction  | 5 mg/m3            |
|  | SG OEL | PEL (long term) Mist       | 5 mg/m3            |
|  | SG OEL | PEL (short term)<br>Mist   | 10 mg/m3           |
| Solvent dewaxed residual oil<br>(petroleum)                  | ACGIH  | TWA Inhalable<br>fraction  | 5 mg/m3            |
|  | SG OEL | PEL (long term) Mist       | 5 mg/m3            |
|  | SG OEL | PEL (short term)<br>Mist   | 10 mg/m3           |
| Lithium 12-<br>hydroxyoctadecanoate                          | ACGIH  | TWA Inhalable<br>fraction  | 10 mg/m3           |
|  | ACGIH  | TWA Respirable<br>fraction | 3 mg/m3            |
|  | SG OEL | PEL (long term)            | 10 mg/m3           |
| Petroleum Distillates,<br>Hydrotreated, Heavy<br>Paraffinic  | ACGIH  | TWA Inhalable<br>fraction  | 5 mg/m3            |
|  | SG OEL | PEL (long term) Mist       | 5 mg/m3            |
|  | SG OEL | PEL (short term)<br>Mist   | 10 mg/m3           |
|  | ACGIH  | TWA                        | 1 mg/m3 , Copper   |
| Copper metal powder  | ACGIH  | TWA                        | 0.2 mg/m3 , Copper |
|  | SG OEL | PEL (long term)            | 1 mg/m3 , Copper   |
|  | SG OEL | PEL (long term)            | 0.2 mg/m3          |

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

**Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields).

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

|  |  |
|--|--|
| Physical state                         | paste  |
| Color                                  | bronze   |
| Odor                                   | slight   |
| Odor Threshold                         | No data available  |
| pH                                     | Not applicable   |
| Melting point/range                    | No data available  |
| Freezing point                         | No data available  |
| Boiling point (760 mmHg)               | Not applicable   |
| Flash point                            | Not applicable   |
| Evaporation Rate (Butyl Acetate = 1)   | Not applicable   |
| Flammability (solid, gas)              | Not classified as a flammability hazard                  |
| Lower explosion limit                  | No data available  |
| Upper explosion limit                  | No data available  |
| Vapor Pressure                         | Not applicable   |
| Relative Vapor Density (air = 1)       | No data available  |
| Relative Density (water = 1)           | 1.12   |
| Water solubility                       | No data available  |
| Partition coefficient: n-octanol/water | No data available  |
| Auto-ignition temperature              | No data available  |
| Decomposition temperature              | No data available  |
| Dynamic Viscosity                      | Not applicable   |
| Kinematic Viscosity                    | Not applicable   |
| Explosive properties                   | Not explosive  |
| Oxidizing properties                   | The substance or mixture is not classified as oxidizing. |
| Molecular weight                       | No data available  |
| Particle size                          | No data available  |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Not classified as a reactivity hazard.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours. Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde.

**Conditions to avoid:** None known.

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:** 1-Butene.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### Acute toxicity

#### Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):  
LD50, Rat, > 5,000 mg/kg Estimated.

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):  
LD50, Rabbit, > 2,000 mg/kg Estimated.

#### Acute inhalation toxicity

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

### Skin corrosion/irritation

Brief contact may cause skin irritation with local redness.

### Serious eye damage/eye irritation

May cause eye irritation.

**Sensitization**

For skin sensitization:

Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

Contains component(s) which have not demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Contains component(s) which have been reported to cause effects on the following organs in animals:

Liver.

Lung.

**Carcinogenicity**

Contains component(s) which did not cause cancer in laboratory animals.

**Teratogenicity**

Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother.

**Reproductive toxicity**

Contains component(s) which did not interfere with reproduction in animal studies.

**Mutagenicity**

Contains component(s) which were negative in some animal genetic toxicity studies and positive in others. Contains component(s) which were negative in animal genetic toxicity studies.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

**COMPONENTS INFLUENCING TOXICOLOGY:**

**Solvent dewaxed heavy paraffinic distillates**

**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, dust/mist, > 5 mg/l No deaths occurred at this concentration.

**Distillates, petroleum, solvent-dewaxed light paraffinic**

**Acute inhalation toxicity**

Based on data from similar materials LC50, Rat, 4 Hour, dust/mist, > 5.53 mg/l OECD Test Guideline 403

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

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 5.53 mg/l OECD Test Guideline 403

**Solvent dewaxed residual oil (petroleum)**

**Acute inhalation toxicity**



LC50, Rat, male and female, 4 Hour, dust/mist, > 5.53 mg/l No deaths occurred at this concentration.

#### **Lithium 12-hydroxyoctadecanoate**

##### **Acute inhalation toxicity**

The LC50 has not been determined.

#### **Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

##### **Acute inhalation toxicity**

For this family of materials: LC50, Rat, 4 Hour, vapour, 2.18 mg/l

#### **Copper metal powder**

##### **Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 5.11 mg/l OECD Test Guideline 436 No deaths occurred at this concentration.

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## **12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

### **Ecotoxicity**

#### **Solvent dewaxed heavy paraffinic distillates**

##### **Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LL50, Pimephales promelas (fathead minnow), static test, 96 Hour, > 100 mg/l

##### **Acute toxicity to aquatic invertebrates**

EL50, Daphnia magna (Water flea), static test, 48 Hour, > 10,000 mg/l

##### **Acute toxicity to algae/aquatic plants**

NOEC, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate, > 100 mg/l

##### **Toxicity to bacteria**

Based on data from similar materials  
NOEC, 10 min, > 1.93 mg/l, DIN 38 412 Part 8

##### **Chronic toxicity to aquatic invertebrates**

Based on data from similar materials  
NOEC, Daphnia magna (Water flea), 21 d, 10 mg/l

#### **Distillates, petroleum, solvent-dewaxed light paraffinic**

##### **Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
Based on data from similar materials  
LC50, Pimephales promelas (fathead minnow), 96 Hour, > 100 mg/l, OECD Test Guideline 203

##### **Acute toxicity to aquatic invertebrates**

Based on data from similar materials  
EC50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

Based on data from similar materials  
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

Based on data from similar materials  
NOEC, 10 min, > 1.93 mg/l, DIN 38 412 Part 8

**Chronic toxicity to aquatic invertebrates**

Based on data from similar materials  
NOEC, Daphnia magna (Water flea), 21 d, 10 mg/l

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

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LL50, Pimephales promelas (fathead minnow), 96 Hour, > 100 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

EL50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l

**Acute toxicity to algae/aquatic plants**

EL50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201  
NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 100 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

NOEC, 10 min, >= 1.93 mg/l

**Chronic toxicity to aquatic invertebrates**

NOELR, Daphnia magna (Water flea), 21 d, 10 mg/l

**Solvent dewaxed residual oil (petroleum)**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LL50, Pimephales promelas (fathead minnow), Static, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

LL50, scud Gammarus sp., semi-static test, 48 Hour, > 10,000 mg/l, OECD Test Guideline 202 or Equivalent  
EL50, water flea Daphnia magna, Static, 48 Hour, > 10,000 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

NOEC, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), Static, 72 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

Based on data from similar materials  
NOEC, 10 min, > 1.93 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, *Daphnia magna*, semi-static test, 21 d, number of offspring, 10 mg/l

**Lithium 12-hydroxyoctadecanoate**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

EC50, *Pseudokirchneriella subcapitata* (green algae), static test, 72 Hour, Growth rate, > 160 mg/l, OECD Test Guideline 201

**Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

**Acute toxicity to fish**

Typical for this family of materials.  
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
For this family of materials:  
LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, > 100 mg/l

**Acute toxicity to aquatic invertebrates**

For this family of materials:  
EC50, *Daphnia magna* (Water flea), semi-static test, 48 Hour, > 100 mg/l

**Acute toxicity to algae/aquatic plants**

NOELR, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, >100, OECD Test Guideline 201  
ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, >100, OECD Test Guideline 201

**Toxicity to bacteria**

Based on data from similar materials  
NOEC, 10 min, > 1.93 mg/l, DIN 38 412 Part 8

**Chronic toxicity to aquatic invertebrates**

NOEC, *Daphnia magna* (Water flea), semi-static test, 21 d, number of offspring, 10 mg/l

**Copper metal powder**

**Acute toxicity to fish**

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, 96 Hour, 8.1 µg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 0.792 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Chlorella vulgaris (Fresh water algae), 72 Hour, 0.333 mg/l, OECD Test Guideline 201

**Chronic toxicity to fish**

NOEC, Oncorhynchus mykiss (rainbow trout), 1 µg/l

**Persistence and degradability****Solvent dewaxed heavy paraffinic distillates**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 2 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B

**Distillates, petroleum, solvent-dewaxed light paraffinic**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

**Biodegradation:** 2 - 4 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B

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

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 31 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F

**Solvent dewaxed residual oil (petroleum)**

**Biodegradability:** Based on information for a similar material: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

**Lithium 12-hydroxyoctadecanoate**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 78 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301C

**Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

**Biodegradability:** For this family of materials: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

**Biodegradation:** 1.5 - 29 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B or Equivalent

**Copper metal powder**

**Biodegradability:** Biodegradation is not applicable.

**Bioaccumulative potential**

**Solvent dewaxed heavy paraffinic distillates**

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**Partition coefficient: n-octanol/water(log Pow):** 3.9 - 6 Estimated.

**Distillates, petroleum, solvent-dewaxed light paraffinic**

**Bioaccumulation:** No relevant data found.

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

**Bioaccumulation:** No relevant data found.

**Solvent dewaxed residual oil (petroleum)**

**Bioaccumulation:** No relevant data found.

**Lithium 12-hydroxyoctadecanoate**

**Bioaccumulation:** No relevant data found.

**Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

**Bioaccumulation:** For this family of materials: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

**Copper metal powder**

**Bioaccumulation:** No relevant data found.

**Mobility in Soil**

**Solvent dewaxed heavy paraffinic distillates**

No relevant data found.

**Distillates, petroleum, solvent-dewaxed light paraffinic**

No relevant data found.

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

No relevant data found.

**Solvent dewaxed residual oil (petroleum)**

No relevant data found.

**Lithium 12-hydroxyoctadecanoate**

No relevant data found.

**Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

No relevant data found.

**Copper metal powder**

No relevant data found.

**Results of PBT and vPvB assessment**

**Solvent dewaxed heavy paraffinic distillates**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

**Distillates, petroleum, solvent-dewaxed light paraffinic**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

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

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Solvent dewaxed residual oil (petroleum)**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

**Lithium 12-hydroxyoctadecanoate**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Copper metal powder**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**Other adverse effects**

**Solvent dewaxed heavy paraffinic distillates**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Distillates, petroleum, solvent-dewaxed light paraffinic**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Solvent dewaxed residual oil (petroleum)**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Lithium 12-hydroxyoctadecanoate**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Petroleum Distillates, Hydrotreated, Heavy Paraffinic**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Copper metal powder**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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### 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

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### 14. TRANSPORT INFORMATION

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**Classification for ROAD and Rail transport:**

|                              |   |
|------------------------------|---|
| <b>Proper shipping name</b>  | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Copper metal powder) |
| <b>UN number</b>             | UN 3077   |
| <b>Class</b>                 | 9   |
| <b>Packing group</b>         | III   |
| <b>Environmental hazards</b> | Copper metal powder   |

**Classification for SEA transport (IMO-IMDG):**

|   |   |
|---|---|
| <b>Proper shipping name</b>   | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Copper metal powder) |
| <b>UN number</b>  | UN 3077   |
| <b>Class</b>  | 9   |
| <b>Packing group</b>  | III   |
| <b>Marine pollutant</b>   | Copper metal powder   |
| <b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b> | Consult IMO regulations before transporting ocean bulk                  |

**Classification for AIR transport (IATA/ICAO):**

|                             |   |
|-----------------------------|---|
| <b>Proper shipping name</b> | Environmentally hazardous substance, solid, n.o.s.(Copper metal powder) |
| <b>UN number</b>            | UN 3077   |
| <b>Class</b>                | 9   |
| <b>Packing group</b>        | III   |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container

volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### Workplace Classification

This product is classified as hazardous according to Singapore Standards, Act and Regulations.

**The following statutes, regulations and standards have the related prescribes on chemicals in terms of safe use, storage, transportation, loading and unloading, classification and symbol etc.**

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations  
 Environmental Protection and Management Act and Environmental Protection and Management (Hazardous Substances) Regulations  
 Chemical Weapons Prohibition Act

**Fire Safety (Petroleum and Flammable Materials) Regulations** : Not applicable

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## 16. OTHER INFORMATION

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### Revision

Identification Number: 4073397 / A761 / Issue Date: 10/16/2018 / Version: 4.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

### Legend

|                  |   |
|------------------|---|
| ACGIH            | USA. ACGIH Threshold Limit Values (TLV)   |
| PEL (long term)  | Permissible Exposure Level (PEL) Long Term  |
| PEL (short term) | Permissible Exposure Level (PEL) Short Term   |
| SG OEL           | Singapore. Workplace Safety and Health Act - First Schedule Permissible Exposure Limits of Toxic Substances |
| TWA              | 8-hour, time-weighted average   |

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

#### **Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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