



# Material Safety Data Sheet

DDP SPECIALITY PRODUCTS INDIA  
PRIVATE LIMITED

**Product name: MOLYKOTE® 1000 Paste**

**Issue Date: 18.10.2018**

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DDP SPECIALITY PRODUCTS INDIA PRIVATE LIMITED 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® 1000 Paste**

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

**Identified uses:** Lubricants and lubricant additives

### COMPANY IDENTIFICATION

DDP SPECIALITY PRODUCTS INDIA  
PRIVATE LIMITED  
81,82,83,8TH FLR., NORTH AVE., MAKER MAXITY  
BANDRA KURLA COMPLEX, BANDRA (EAST)  
400051 MUMBAI  
INDIA

**Customer Information Number:**

(91)22-6674-1500  
SDSQuestion-AP@dupont.com

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 000-800-100-7141

**Local Emergency Contact:** 0124 4092888 / 0124 2353777

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## 2. HAZARDS IDENTIFICATION

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### GHS Classification

Short-term (acute) aquatic hazard - Category 1

Long-term (chronic) aquatic hazard - 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.

<b>Component</b>	<b>CASRN</b>	<b>Concentration</b>
Calcium difluoride	7789-75-5	>= 20.0 - < 30.0 %
Solvent dewaxed heavy paraffinic distillates	64742-65-0	>= 20.0 - < 30.0 %
Distillates, petroleum, solvent-dewaxed light paraffinic	64742-56-9	>= 20.0 - < 30.0 %
Graphite	7782-42-5	>= 10.0 - < 20.0 %
Copper metal powder	7440-50-8	>= 2.5 - < 10.0 %
Zinc	7440-66-6	>= 2.5 - < 10.0 %
N-Tallow Alkyltrimethylenediamine Oleate	61791-53-5	>= 0.25 - < 1.0 %

**Note**

Solvent dewaxed heavy paraffinic distillates:

The classification as a carcinogen need not to apply because the substance contains less than 3% DMSO extract as measured by IP 346. Note L of Annex VI to Regulation (EC) 1272/2008.

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). 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:** Fluorine compounds Carbon oxides Metal oxides Nitrogen oxides (NO<sub>x</sub>)

**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
Calcium difluoride	ACGIH	TWA	2.5 mg/m <sup>3</sup> , Fluorine
	IN OEL	TWA	2.5 mg/m <sup>3</sup> , Fluorine
Solvent dewaxed heavy paraffinic distillates	ACGIH	TWA Inhalable fraction	5 mg/m <sup>3</sup>
	IN OEL	TWA Mist	5 mg/m <sup>3</sup>
	IN OEL	STEL Mist	10 mg/m <sup>3</sup>

Distillates, petroleum, solvent-dewaxed light paraffinic	ACGIH	TWA Inhalable fraction	5 mg/m3
Graphite	IN OEL	TWA Mist	5 mg/m3
	IN OEL	STEL Mist	10 mg/m3
	ACGIH	TWA Respirable fraction	2 mg/m3
Copper metal powder	ACGIH	TWA	1 mg/m3 , Copper
	ACGIH	TWA	0.2 mg/m3 , Copper
	ACGIH	TWA Dust and mist	1 mg/m3 , Copper
	ACGIH	TWA Fumes	0.2 mg/m3 , Copper
	IN OEL	TWA Fumes	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.

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Calcium difluoride	7789-75-5	Fluoride (Fluorine)	Urine	Prior to shift (16 hours after exposure ceases)	2 mg/l	ACGIH BEI
		Fluoride (Fluorine)	Urine	End of shift (As soon as possible after exposure ceases)	3 mg/l	ACGIH BEI

**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 chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

**Skin protection**

**Hand protection:** Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. 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"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a

protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. **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 discomfort is experienced, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C, meeting standard EN 14387).

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	paste
Color	brown
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)	1.26

<b>Water solubility</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Dynamic Viscosity</b>	Not applicable
<b>Kinematic Viscosity</b>	Not applicable
<b>Explosive properties</b>	Not explosive
<b>Oxidizing properties</b>	The substance or mixture is not classified as oxidizing.
<b>Molecular weight</b>	No data available
<b>Particle size</b>	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.

**Conditions to avoid:** None known.

**Incompatible materials:** Oxidizing agents

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

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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.  
As product: The LC50 has not been determined.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

May cause slight eye irritation.  
May cause slight corneal injury.

**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**

No relevant data found.

**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. Contains component(s) which did not interfere with fertility 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:**

**Calcium difluoride**

**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.07 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.



**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

**Graphite**

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 2 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

**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.

**Zinc**

**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.41 mg/l OECD Test Guideline 403 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**

**Calcium difluoride**

**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 105 - 698 mg/l

**Acute toxicity to aquatic invertebrates**

For similar material(s):

No toxicity at the limit of solubility

EC50, Daphnia magna (Water flea), 48 Hour, 53.4 - 98.5 mg/l

**Acute toxicity to algae/aquatic plants**

For similar material(s):

No toxicity at the limit of solubility

EC50, Scenedesmus capricornutum (fresh water algae), 96 Hour, 88.3 - 250 mg/l

For similar material(s):

No toxicity at the limit of solubility

NOEC, Scenedesmus capricornutum (fresh water algae), 96 Hour, 103 - 510 mg/l

For similar material(s):

No toxicity at the limit of solubility

EC50, Skeletonema costatum (marine diatom), 96 Hour, 166 mg/l

**Solvent dewaxed heavy paraffinic distillates**

**Acute toxicity to fish**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

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 not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

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

**Graphite**

**Acute toxicity to fish**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Danio rerio (zebra fish), 96 Hour, > 100 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

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

**Acute toxicity to algae/aquatic plants**

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

EC50, 3 Hour, > 1,012.5 mg/l, OECD Test Guideline 209

**Copper metal powder**

**Acute toxicity to fish**

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 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

**Zinc**

**Acute toxicity to fish**

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

LC50, Rainbow trout (Oncorhynchus mykiss), 96 Hour, 0.59 mg/l

LC50, Fathead minnow (Pimephales promelas), 96 Hour, 0.238 g/L

**Acute toxicity to aquatic invertebrates**

EC50, Ceriodaphnia dubia (water flea), 48 Hour, 0.413 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, 0.150 mg/l

**Toxicity to bacteria**

EC50, 3 Hour, 5.2 mg/l, OECD Test Guideline 209

**Chronic toxicity to fish**

NOEC, Oncorhynchus mykiss (rainbow trout), 30 d, 0.199 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna, 21 d, 0.1 mg/l

**N-Tallow Alkyltrimethylenediamine Oleate**

**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

**Acute toxicity to aquatic invertebrates**

Based on data from similar materials  
EC50, Daphnia magna (Water flea), 48 Hour, > 0.1 - 1 mg/l

**Acute toxicity to algae/aquatic plants**

Based on data from similar materials  
EC50, 72 Hour, > 0.01 - 0.1 mg/l, OECD Test Guideline 201  
Based on data from similar materials  
NOEC, 72 Hour, > 0.01 - 0.1 mg/l, OECD Test Guideline 201

**Chronic toxicity to aquatic invertebrates**

Based on data from similar materials  
EC10, Daphnia (water flea), > 1 mg/l

**Persistence and degradability**

**Calcium difluoride**

**Biodegradability:** Biodegradability is not applicable to inorganic substances.

**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

**Graphite**

**Biodegradability:** Biodegradation is not applicable.

**Copper metal powder**

**Biodegradability:** Biodegradability is not applicable to inorganic substances.

**Zinc**

**Biodegradability:** Biodegradation is not applicable.

**N-Tallow Alkyltrimethylenediamine Oleate**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.  
Based on data from similar materials 10-day Window: Pass  
**Biodegradation:** 65 %  
**Exposure time:** 28 d  
**Method:** OECD Test Guideline 301D

**Bioaccumulative potential**

**Calcium difluoride**

**Bioaccumulation:** Partitioning from water to n-octanol is not applicable.

**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.

**Graphite**

**Bioaccumulation:** No relevant data found.

**Copper metal powder**

**Bioaccumulation:** No relevant data found.

**Zinc**

**Bioaccumulation:** No relevant data found.

**Bioconcentration factor (BCF):** 177 Fish

**N-Tallow Alkyltrimethylenediamine Oleate**

**Bioaccumulation:** No relevant data found.

**Mobility in Soil**

**Calcium difluoride**

No relevant data found.

**Solvent dewaxed heavy paraffinic distillates**

No relevant data found.

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

No relevant data found.

**Graphite**

No relevant data found.

**Copper metal powder**

No relevant data found.

**Zinc**

No relevant data found.

**N-Tallow Alkyltrimethylenediamine Oleate**

No relevant data found.

**Results of PBT and vPvB assessment**

**Calcium difluoride**

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).

**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).

**Graphite**

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).

**Copper metal powder**

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

**Zinc**

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

**N-Tallow Alkyltrimethylenediamine Oleate**

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

**Other adverse effects****Calcium difluoride**

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

**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.

**Graphite**

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.

**Zinc**

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

**N-Tallow Alkyltrimethylenediamine Oleate**

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. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

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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, Zinc)
<b>UN number</b>	UN 3077
<b>Class</b>	9
<b>Packing group</b>	III
<b>Environmental hazards</b>	Copper metal powder, Zinc

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

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Copper metal powder, Zinc)
<b>UN number</b>	UN 3077
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Copper metal powder, Zinc
<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, Zinc)
<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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This product has been classified in accordance with the criteria of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), rev. 6.

## 16. OTHER INFORMATION

### Revision

Identification Number: 1444425 / A852 / Issue Date: 18.10.2018 / 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)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
IN OEL	India. Permissible levels of certain chemical substances in work environment.
STEL	Short-term exposure Limit STEL (15 min)
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

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