



# SAFETY DATA SHEET

## DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC

**Product name:** MOLYKOTE® G-N-Plus Paste

**Issue Date:** 10/16/2024

**Print Date:** 10/30/2024

DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC 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. IDENTIFICATION

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**Product name:** MOLYKOTE® G-N-Plus Paste

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

**Identified uses:** Lubricants and lubricant additives

### COMPANY IDENTIFICATION

DDP SPECIALTY ELECTRONIC MATERIALS  
US 9, LLC  
974 Centre Road  
Wilmington DE 19805  
UNITED STATES

**Customer Information Number:**

833-338-7668

SDSQuestion-NA@dupont.com

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 1-800-424-9300

**Local Emergency Contact:** 800-424-9300

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## 2. HAZARDS IDENTIFICATION

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### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Serious eye damage - Category 1

### Label elements

**Hazard pictograms**



Signal word: **DANGER!**

**Hazards**

Causes serious eye damage.

**Precautionary statements****Prevention**

Wear eye protection/ face protection.

**Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

**Other hazards**

No data available

**Further information**

The values listed below represent the percentages of ingredients of unknown toxicity.

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 13 %

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Chemical nature:** Inorganic and organic compounds, in mineral oil

This product is a mixture.

| Component                     | CASRN     | Concentration      |
|-------------------------------|-----------|--------------------|
| White mineral oil (petroleum) | 8042-47-5 | >= 40.0 - < 50.0 % |
| Graphite                      | 7782-42-5 | >= 10.0 - < 20.0 % |
| Molybdenum disulfide          | 1317-33-5 | >= 5.0 - < 10.0 %  |
| Paraffin/Hydrocarbon waxes    | 8002-74-2 | >= 1.0 - < 5.0 %   |
| ALUMINUM PHOSPHATE SOLUTION   | 7784-30-7 | >= 1.0 - < 5.0 %   |

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**4. FIRST AID MEASURES**

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**Description of first aid measures**

**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:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be available in work area. Get medical attention if irritation develops and persists.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**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:** Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. 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:** Silicon oxides Formaldehyde Carbon oxides Metal oxides Oxides of phosphorus Sulphur oxides

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

**Advice for firefighters**

**Fire Fighting Procedures:** Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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:** In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

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## 6. ACCIDENTAL RELEASE MEASURES

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**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.

**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.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Do not swallow. Do not get in eyes. Avoid prolonged or repeated contact with skin. Keep container tightly closed. 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.

### Advice on general occupational hygiene

Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating. Ensure that eye flushing systems and safety showers are located close to the working place.

**Conditions for safe storage:** Keep in properly labelled containers. Keep tightly closed. 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 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                               |
|-------------------------------|---|-----------------------------------|-------------------------------------|
| White mineral oil (petroleum) | OSHA P0   | TWA                               | 5 mg/m3                             |
|                               | ACGIH   | TWA Inhalable particulate matter  | 5 mg/m3                             |
|                               | Further information: A4: Not classifiable as a human carcinogen   |                                   |                                     |
|                               | CAL PEL   | PEL particulate                   | 5 mg/m3                             |
|                               | Further information: (I): As sampled by method that does not collect vapor.   |                                   |                                     |
|                               | NIOSH REL   | TWA Mist                          | 5 mg/m3                             |
|                               | NIOSH REL   | ST Mist                           | 10 mg/m3                            |
| Graphite                      | OSHA Z-3  | TWA Dust                          | 15 Million particles per cubic foot |
|                               | OSHA Z-1  | TWA total dust                    | 15 mg/m3                            |
|                               | OSHA Z-1  | TWA respirable fraction           | 5 mg/m3                             |
|                               | ACGIH   | TWA Respirable particulate matter | 2 mg/m3                             |
|                               | CAL PEL   | PEL Total dust                    | 10 mg/m3                            |
|                               | CAL PEL   | PEL respirable dust fraction      | 5 mg/m3                             |
|                               | Further information: (n): The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: Aerodynamic Diameter in Micrometers (unit density sphere)..... |                                   |                                     |

|                             |   |                                   |                       |
|-----------------------------|---|-----------------------------------|-----------------------|
|                             | Percent Passing Selector 0 ..... 100<br>1 ..... 97 2 ..... 91<br>3 ..... 74 4 ..... 50<br>5 ..... 30 6 ..... 17<br>7 ..... 9 8 ..... 5<br>10 ..... 1  |                                   |                       |
|                             | CAL PEL   | PEL Respirable dust               | 2.5 mg/m3             |
|                             | NIOSH REL   | TWA Respirable                    | 2.5 mg/m3             |
|                             | OSHA P0   | TWA Total dust                    | 10 mg/m3              |
|                             | OSHA P0   | TWA respirable dust fraction      | 5 mg/m3               |
|                             | OSHA P0   | TWA respirable dust fraction      | 2.5 mg/m3             |
| Molybdenum disulfide        | OSHA Z-1  | TWA total dust                    | 15 mg/m3 , Molybdenum |
|                             | ACGIH   | TWA Inhalable particulate matter  | 10 mg/m3 , Molybdenum |
|                             | ACGIH   | TWA Respirable particulate matter | 3 mg/m3 , Molybdenum  |
|                             | CAL PEL   | PEL Total dust                    | 10 mg/m3 , Molybdenum |
|                             | CAL PEL   | PEL respirable dust fraction      | 3 mg/m3 , Molybdenum  |
|                             | Further information: (n): The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: Aerodynamic Diameter in Micrometers (unit density sphere).....<br>Percent Passing Selector 0 ..... 100<br>1 ..... 97 2 ..... 91<br>3 ..... 74 4 ..... 50<br>5 ..... 30 6 ..... 17<br>7 ..... 9 8 ..... 5<br>10 ..... 1 |                                   |                       |
| Paraffin/Hydrocarbon waxes  | ACGIH   | TWA                               | 2 mg/m3               |
|                             | Further information: URT irr: Upper Respiratory Tract irritation; nausea: Nausea  |                                   |                       |
|                             | OSHA P0   | TWA                               | 2 mg/m3               |
|                             | ACGIH   | TWA Fumes                         | 2 mg/m3               |
|                             | CAL PEL   | PEL Fumes                         | 2 mg/m3               |
|                             | OSHA P0   | TWA Fumes                         | 2 mg/m3               |
|                             | NIOSH REL   | TWA Fumes                         | 2 mg/m3               |
| ALUMINUM PHOSPHATE SOLUTION | ACGIH   | TWA Respirable particulate matter | 1 mg/m3 , Aluminium   |
|                             | Further information: A4: Not classifiable as a human carcinogen   |                                   |                       |

**Exposure controls**

**Engineering measures:** 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.

**Hygiene measures:** Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating. Ensure that eye flushing systems and safety showers are located close to the working place.

**Individual protection measures**

**Eye/face protection:** Use chemical goggles. Wear a face-shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of splashes.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

|  |   |
|--|---|
| Physical state                         | paste                                   |
| Color                                  | grey                                    |
| Odor                                   | none                                    |
| 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                            | <b>closed cup</b> >200 °C ( 392 °F)     |
| 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)           | 1.35                                    |
| 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:** Formaldehyde.

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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

Product test data not available. Refer to component data.

#### Acute dermal toxicity

Product test data not available. Refer to component data.

#### Acute inhalation toxicity

Product test data not available. Refer to component data.

### Skin corrosion/irritation

Product test data not available. Refer to component data.

### Serious eye damage/eye irritation

Product test data not available. Refer to component data.

### Sensitization

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

**Carcinogenicity**

Product test data not available. Refer to component data.

**Teratogenicity**

Product test data not available. Refer to component data.

**Reproductive toxicity**

Product test data not available. Refer to component data.

**Mutagenicity**

Product test data not available. Refer to component data.

**Aspiration Hazard**

Product test data not available. Refer to component data.

**COMPONENTS INFLUENCING TOXICOLOGY:****White mineral oil (petroleum)****Acute oral toxicity**

LD50, Rat, > 5,000 mg/kg OECD Test Guideline 401

**Acute dermal toxicity**

LD50, Rabbit, > 2,000 mg/kg OECD Test Guideline 402

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 5 mg/l OECD Test Guideline 403

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

**Sensitization**

Did not cause allergic skin reactions when tested in guinea pigs.

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**

Animal testing did not show any carcinogenic effects.



**Teratogenicity**

Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

**Mutagenicity**

Animal genetic toxicity studies were negative. In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Graphite****Acute oral toxicity**

LD50, Rat, > 2,000 mg/kg OECD Test Guideline 423

**Acute dermal toxicity**

The dermal LD50 has not been determined.

**Acute inhalation toxicity**

An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration. LC50, Rat, 4 Hour, dust/mist, > 2 mg/l OECD Test Guideline 403

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

**Sensitization**

Did not demonstrate the potential for contact allergy in mice.

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Teratogenicity**

Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

No aspiration toxicity classification

**Molybdenum disulfide**

**Acute oral toxicity**

LD50, Rat, > 2,000 mg/kg No deaths occurred at this concentration.

**Acute dermal toxicity**

LD50, Rat, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 2.82 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

Prolonged contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

Corneal injury is unlikely.

**Sensitization**

For skin sensitization:

Did not cause allergic skin reactions when tested in guinea pigs.

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)**

No relevant data found.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

No relevant data found.

**Reproductive toxicity**

No relevant data found.

**Mutagenicity**

For similar material(s): In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

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

**Paraffin/Hydrocarbon waxes****Acute oral toxicity**

LD50, Rat, > 5,000 mg/kg OECD Test Guideline 401

**Acute dermal toxicity**

LD50, Rat, > 2,000 mg/kg OECD Test Guideline 402

**Acute inhalation toxicity**

The LC50 has not been determined.

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

**Sensitization**

Did not cause allergic skin reactions when tested in guinea pigs.

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Information given is based on data obtained from similar substances.

**Carcinogenicity**

Animal testing did not show any carcinogenic effects.

**Teratogenicity**

Did not cause birth defects or any other fetal effects in laboratory animals. Information given is based on data obtained from similar substances.

**Reproductive toxicity**

In animal studies, did not interfere with reproduction. Information given is based on data obtained from similar substances.

**Mutagenicity**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative. Information given is based on data obtained from similar substances.

**Aspiration Hazard**

No aspiration toxicity classification

**ALUMINUM PHOSPHATE SOLUTION****Acute oral toxicity**

LD50, Rat, > 2,000 mg/kg Fixed Dose Method

**Acute dermal toxicity**

The dermal LD50 has not been determined.

No adverse effects anticipated by skin absorption.

**Acute inhalation toxicity**

An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration. Information given is based on data obtained from similar substances. LC50, Rat, 4 Hour, dust/mist, > 5.1 mg/l OECD Test Guideline 403

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

**Sensitization**

Did not demonstrate the potential for contact allergy in mice.

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Information given is based on data obtained from similar substances.

**Teratogenicity**

Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Information given is based on data obtained from similar substances.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

No aspiration toxicity classification

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## 12. ECOLOGICAL INFORMATION

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

**Toxicity****White mineral oil (petroleum)****Acute toxicity to fish**

Information given is based on data obtained from similar substances.

LC50, *Leuciscus idus* (Golden orfe), 96 Hour, > 10,000 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

Information given is based on data obtained from similar substances.

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

**Acute toxicity to algae/aquatic plants**

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

**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**

No toxicity at the limit of solubility

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

**Acute toxicity to aquatic invertebrates**

No toxicity at the limit of solubility

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

**Acute toxicity to algae/aquatic plants**

EC50, Raphidocelis subcapitata (freshwater green alga), 72 Hour, > 100 mg/l, OECD Test Guideline 201

NOEC, Raphidocelis subcapitata (freshwater green alga), 72 Hour, >= 100 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

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

**Molybdenum disulfide****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).

For similar material(s):

LC50, Fish, 96 Hour, > 100 mg/l

**Acute toxicity to aquatic invertebrates**

Based on data from similar materials

EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

**Acute toxicity to algae/aquatic plants**

Based on data from similar materials

ErC50, algae, 72 Hour, Growth rate, > 100 mg/l

**Toxicity to bacteria**

EC50, 30 Hour, Respiration rates., > 100 mg/l

**Chronic toxicity to fish**

Based on data from similar materials

NOEC, Fish, 34 d, > 10 mg/l

**Chronic toxicity to aquatic invertebrates**

Based on data from similar materials

NOEC, Daphnia magna, 21 d, > 10 mg/l

**Paraffin/Hydrocarbon waxes****Acute toxicity to fish**

Information given is based on data obtained from similar substances.

LC50, Pimephales promelas (fathead minnow), 96 Hour, > 100 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

Information given is based on data obtained from similar substances.

LC50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

EC50, Raphidocelis subcapitata (freshwater green alga), 72 Hour, > 1,000 mg/l

Information given is based on data obtained from similar substances.

NOEC, Raphidocelis subcapitata (freshwater green alga), 72 Hour,  $\geq 100$  mg/l, OECD Test Guideline 201

**Chronic toxicity to fish**

NOEC, Oncorhynchus mykiss (rainbow trout), 28 d,  $\geq 1,000$  mg/l

**Chronic toxicity to aquatic invertebrates**

Information given is based on data obtained from similar product.

NOEC, Daphnia magna, 21 d, 10 mg/l

**ALUMINUM PHOSPHATE SOLUTION****Acute toxicity to fish**

No toxicity at the limit of solubility

Information given is based on data obtained from similar substances.

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour,  $> 100$  mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

No toxicity at the limit of solubility

Information given is based on data obtained from similar substances.

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

**Acute toxicity to algae/aquatic plants**

No toxicity at the limit of solubility

Information given is based on data obtained from similar substances.

EC50, Desmodesmus subspicatus (green algae), 72 Hour,  $> 100$  mg/l, OECD Test Guideline 201

No toxicity at the limit of solubility

Information given is based on data obtained from similar substances.

NOEC, Desmodesmus subspicatus (green algae), 72 Hour,  $> 100$  mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

EC50, 3 Hour,  $> 1,000$  mg/l, OECD Test Guideline 209

**Persistence and degradability****White mineral oil (petroleum)**

**Biodegradability:** Not readily biodegradable. Information given is based on data obtained from similar substances.

**Biodegradation:** 31 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F

**Theoretical Oxygen Demand:** 3.50 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 1.291 d

**Method:** Estimated.

**Graphite**

**Biodegradability:** Not applicable

**Molybdenum disulfide**

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

**Paraffin/Hydrocarbon waxes**

**Biodegradability:** Readily biodegradable.

**Biodegradation:** 80 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B

**ALUMINUM PHOSPHATE SOLUTION**

**Biodegradability:** Not applicable

**Bioaccumulative potential**

**White mineral oil (petroleum)**

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

**Partition coefficient: n-octanol/water(log Pow):** 5.18 Measured

**Graphite**

**Bioaccumulation:** Not applicable Not applicable

**Molybdenum disulfide**

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

**Paraffin/Hydrocarbon waxes**

**Bioaccumulation:** Not applicable

**Partition coefficient: n-octanol/water(log Pow):** 3.17 - 18.02

**ALUMINUM PHOSPHATE SOLUTION**

**Bioaccumulation:** Not applicable Not applicable

**Mobility in soil**

**White mineral oil (petroleum)**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 510 Estimated.

**Graphite**

No relevant data found.

**Molybdenum disulfide**

No relevant data found.

**ALUMINUM PHOSPHATE SOLUTION**

No relevant data found.

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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: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

**Treatment and disposal methods of used packaging:** Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

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### 14. TRANSPORT INFORMATION

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**DOT**

Not regulated for transport

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

**Transport in bulk  
according to Annex I or II  
of MARPOL 73/78 and the  
IBC or IGC Code**

Not regulated for transport  
Consult IMO regulations before transporting ocean bulk

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

Not regulated for transport

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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### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Serious eye damage or eye irritation

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### United States TSCA Inventory (TSCA)

All components of this product are in compliance with the Active inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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## 16. OTHER INFORMATION

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### Hazard Rating System

#### NFPA

| Health | Flammability | Instability |
|--------|--------------|-------------|
| 3      | 1            | 0           |

#### HMIS

| Health | Flammability | Physical Hazard |
|--------|--------------|-----------------|
| 0/     | 1            | 0               |

### Revision

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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)   |
| CAL PEL   | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| NIOSH REL | USA. NIOSH Recommended Exposure Limits  |
| OSHA P0   | USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)                      |
| OSHA Z-1  | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
| OSHA Z-3  | USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts                      |
| PEL       | Permissible exposure limit  |
| ST        | STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday  |
| TWA       | 8-hour time weighted average  |

**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals 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

**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.

DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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