# SAFETY DATA SHEET

**DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC**

**Product name: MOLYKOTE® 3400A Anti-Friction Coating LF** **Issue Date:** 08/14/2023
**Print Date:** 11/30/2023

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.

## 1. IDENTIFICATION

**Product name:** MOLYKOTE® 3400A Anti-Friction Coating LF

**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

## 2. HAZARDS IDENTIFICATION

**Hazard classification**
GHS classification in accordance with 29 CFR 1910.1200
Flammable liquids - Category 2
Skin irritation - Category 2
Eye irritation - Category 2A
Skin sensitisation - Category 1
Carcinogenicity - Category 1B - Inhalation
Reproductive toxicity - Category 2
Specific target organ toxicity - single exposure - Category 3

**Label elements**
**Hazard pictograms**

Signal word: **DANGER!**

**Hazards**
Highly flammable liquid and vapour.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause cancer by inhalation.
Suspected of damaging fertility or the unborn child.

**Precautionary statements**

**Prevention**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing spray.
Avoid breathing mist or vapours.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response**
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

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

**Other hazards**
Static-accumulating flammable liquid.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical nature:** Inorganic and organic compounds, dispersion
This product is a mixture.

| Component | CASRN | Concentration |
|---|---|---|
| n-Butyl Acetate | 123-86-4 | >= 20.0 - < 30.0 % |
| Methyl ethyl ketone | 78-93-3 | >= 10.0 - < 20.0 % |
| Ethanol | 64-17-5 | >= 10.0 - < 20.0 % |
| Molybdenum disulfide | 1317-33-5 | >= 10.0 - < 20.0 % |
| Reaction product: Bisphenol A-(epichlorohydrin); epoxy resin (number average molecular weight 700-1100) | 25068-38-6 | >= 5.0 - < 10.0 % |
| Methanol | 67-56-1 | >= 0.1 - < 1.0 % |
| Naphtha (petroleum), hydrotreated heavy | 64742-48-9 | >= 0.1 - < 1.0 % |
| Cobalt bis(ethylhexanoate) | 136-52-7 | >= 0.1 - < 1.0 % |

## 4. FIRST AID MEASURES

**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 not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

**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.

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

## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media:** Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical

**Unsuitable extinguishing media:** High volume water jet Do not use direct water stream.

**Special hazards arising from the substance or mixture**
**Hazardous combustion products:** Carbon oxides Sulphur oxides Chlorine compounds

**Unusual Fire and Explosion Hazards:** Flash back possible over considerable distance. Exposure to combustion products may be a hazard to health. Vapours may form explosive mixtures with air.

**Advice for firefighters**
**Fire Fighting Procedures:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use a solid water stream as it may scatter and spread fire.
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.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Remove all sources of ignition. Ventilate the area. Use personal protective equipment. 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. Prevent spreading over a wide area (e.g. by containment or oil barriers). 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:** Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. 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 get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice.
Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.

**Advice on general occupational hygiene**
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. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives. Gases.
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 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| n-Butyl Acetate | Dow IHG | TWA | 75 ppm |
| | Dow IHG | STEL | 150 ppm |
| | OSHA Z-1 | TWA | 710 mg/m3 150 ppm |
| | Further information: (b): The value in mg/m3 is approximate. | | |
| | CAL PEL | PEL | 710 mg/m3 150 ppm |
| | CAL PEL | STEL | 950 mg/m3 200 ppm |
| | ACGIH | TWA | 50 ppm |
| | Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation | | |
| | ACGIH | STEL | 150 ppm |
| | Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation | | |
| Methyl ethyl ketone | Dow IHG | TWA | 50 ppm |
| | Dow IHG | STEL | 100 ppm |
| | ACGIH | TWA | 200 ppm |
| | Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; PNS impair: Peripheral Nervous System impairment; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) | | |
| | ACGIH | STEL | 300 ppm |
| | Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; PNS impair: Peripheral Nervous System impairment; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) | | |
| | OSHA Z-1 | TWA | 590 mg/m3 200 ppm |
| | CAL PEL | PEL | 590 mg/m3 200 ppm |
| | CAL PEL | STEL | 885 mg/m3 300 ppm |
| Ethanol | DUPONT AEL | AEL * | 1,000 ppm |
| | ACGIH | TWA | 1,000 ppm |
| | Further information: URT irr: Upper Respiratory Tract irritation | | |
| | ACGIH | STEL | 1,000 ppm |
| | Further information: URT irr: Upper Respiratory Tract irritation | | |
| | OSHA Z-1 | TWA | 1,900 mg/m3 1,000 ppm |
| | Further information: (b): The value in mg/m3 is approximate. | | |
| | CAL PEL | PEL | 1,900 mg/m3 1,000 ppm |
| 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)..... 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 | | |
| Methanol | DUPONT AEL | AEL * | 200 ppm |

| | | | |
|---|---|---|---|
| | ACGIH | TWA | 200 ppm |
| | Further information: Skin: Danger of cutaneous absorption | | |
| | ACGIH | STEL | 250 ppm |
| | Further information: Skin: Danger of cutaneous absorption | | |
| | OSHA Z-1 | TWA | 260 mg/m3 200 ppm |
| | CAL PEL | C | 1,000 ppm |
| | Further information: S: Skin | | |
| | CAL PEL | PEL | 260 mg/m3 200 ppm |
| | Further information: S: Skin | | |
| | CAL PEL | STEL | 325 mg/m3 250 ppm |
| | Further information: S: Skin | | |
| | OSHA P0 | TWA | 260 mg/m3 200 ppm |
| | Further information: X: Skin notation | | |
| | OSHA P0 | STEL | 325 mg/m3 250 ppm |
| | Further information: X: Skin notation | | |
| Naphtha (petroleum), hydrotreated heavy | OSHA Z-1 | TWA | 2,000 mg/m3 500 ppm |
| | Further information: (b): The value in mg/m3 is approximate. | | |

**Biological occupational exposure limits**

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time | Permissible concentration | Basis |
|---|---|---|---|---|---|---|
| Methyl ethyl ketone | 78-93-3 | methyl ethyl ketone | Urine | End of shift (As soon as possible after exposure ceases) | 2 mg/l | ACGIH BEI |
| Methanol | 67-56-1 | Methanol | Urine | End of shift (As soon as possible after exposure ceases) | 15 mg/l | ACGIH BEI |

**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:** 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. If exposure causes eye discomfort, use a full-face respirator.

**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:** Wear clean, body-covering clothing.
**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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance** | |
| **Physical state** | liquid |
| **Color** | Charcoal |
| **Odor** | solvent-like |
| **Odor Threshold** | No data available |
| **pH** | No data available |
| **Melting point/range** | No data available |
| **Freezing point** | No data available |
| **Boiling point (760 mmHg)** | > 35 °C ( > 95 °F) |
| **Flash point** | **closed cup** 10 °C ( 50 °F) |
| **Evaporation Rate (Butyl Acetate = 1)** | No data available |
| **Flammability (solid, gas)** | Not applicable |
| **Lower explosion limit** | No data available |
| **Upper explosion limit** | No data available |
| **Vapor Pressure** | No data available |
| **Relative Vapor Density (air = 1)** | No data available |
| **Relative Density (water = 1)** | 1.2 |
| **Water solubility** | No data available |
| **Partition coefficient: n-octanol/water** | No data available |
| **Auto-ignition temperature** | No data available |
| **Decomposition temperature** | No data available |
| **Kinematic Viscosity** | < 20.5 mm2/s at 25 °C (77 °F) |
| **Explosive properties** | Not explosive |
| **Oxidizing properties** | The substance or mixture is not classified as oxidizing. |
| **Liquid Density** | 1.2 g/cm3 |
| **Molecular weight** | No data available |
| **Particle size** | Not applicable |

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

## 10. STABILITY AND REACTIVITY

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

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

**Possibility of hazardous reactions:** Can react with strong oxidizing agents. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

**Conditions to avoid:** Heat, flames and sparks.

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:** Bisphenol A. Phenol. Formaldehyde.

## 11. TOXICOLOGICAL INFORMATION

*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:**

**n-Butyl Acetate**

**Acute oral toxicity**
LD50, Rat, male, 12,789 mg/kg

LD50 Oral, Rat, female, 10,760 mg/kg

**Acute dermal toxicity**
LD50, Rabbit, male and female, > 14,112 mg/kg

**Acute inhalation toxicity**
The LC50 has not been determined.

**Skin corrosion/irritation**
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause severe skin irritation with local redness and discomfort.
May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**
May cause moderate eye irritation.
Corneal injury is unlikely.
Vapor may cause eye irritation experienced as mild discomfort and redness.

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

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Nervous system

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive toxicity**
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, did not interfere with fertility. No toxicity to reproduction

**Mutagenicity**
In vitro genetic toxicity studies were negative.

**Aspiration Hazard**
Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**Methyl ethyl ketone**

**Acute oral toxicity**
LD50, Rat, 2,193 mg/kg

**Acute dermal toxicity**
LD50, Rabbit, > 8,049 mg/kg

**Acute inhalation toxicity**
LC50, Mouse, 4 Hour, vapour, 32 mg/l

**Skin corrosion/irritation**
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause moderate skin irritation with local redness.
Repeated contact may cause moderate skin irritation with local redness.
May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**
May cause pain disproportionate to the level of irritation to eye tissues.
May cause moderate eye irritation which may be slow to heal.
May cause moderate corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.

**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)**
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Nervous system

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Methyl ethyl ketone has caused liver effects in laboratory animals exposed by inhalation to high concentrations.

Methyl ethyl ketone is probably not neurotoxic in itself but it potentiates the neurotoxicity of methyl-n-butyl ketone and n-hexane.

**Carcinogenicity**
Available data are inadequate to evaluate carcinogenicity.

**Teratogenicity**
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive toxicity**
For similar material(s): In animal studies, did not interfere with reproduction.

**Mutagenicity**
In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**
May be harmful if swallowed and enters airways.

**Ethanol**

**Acute oral toxicity**
LD50, Rat, > 7,000 mg/kg

LDLo, human, 1,400 mg/kg

**Acute dermal toxicity**
LD50, Rabbit, > 15,800 mg/kg

**Acute inhalation toxicity**
LC50, Rat, 4 Hour, vapour, 124.7 mg/l

**Skin corrosion/irritation**
Essentially nonirritating to skin.
May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**
May cause moderate eye irritation.
May cause moderate corneal injury.

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

For respiratory sensitization:
No data available.

**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 specific, relevant data available for assessment.

**Carcinogenicity**

Ethanol when not consumed in an alcoholic beverage is not classifiable as a human carcinogen. Epidemiology studies provide evidence that drinking of alcoholic beverages (containing ethanol) is associated with cancer, and IARC has classified alcoholic beverages as carcinogenic to humans.

**Teratogenicity**
Has caused birth defects in lab animals at high doses.

**Reproductive toxicity**
No specific, relevant data available for assessment.

**Mutagenicity**
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative in some cases and positive in other cases.

**Aspiration Hazard**
May be harmful if swallowed and enters airways.

**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.

**Reaction product: Bisphenol A-(epichlorohydrin); epoxy resin (number average molecular weight 700-1100)**

**Acute oral toxicity**
Single dose oral LD50 has not been determined. Typical for this family of materials. LD50, Rat, > 2,000 mg/kg Estimated.

**Acute dermal toxicity**
The dermal LD50 has not been determined.

Typical for this family of materials. LD50, Rabbit, > 2,000 mg/kg

**Acute inhalation toxicity**
The LC50 has not been determined.

**Skin corrosion/irritation**
Brief contact may cause slight skin irritation with local redness.
Prolonged contact may cause skin irritation with local redness.
Repeated contact may cause skin irritation with local redness.

**Serious eye damage/eye irritation**
May cause slight eye irritation.
Corneal injury is unlikely.
Solid or dust may cause irritation or corneal injury due to mechanical action.

**Sensitization**
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**
Similar epoxy resin did not cause cancer in long-term animal studies.

**Teratogenicity**
No relevant data found.

**Reproductive toxicity**
No relevant data found.

**Mutagenicity**
Some similar resins have shown genetic toxicity in in vitro tests, while others have not.

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

**Methanol**

**Acute oral toxicity**
Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart. Effects may be delayed. LD50, Rat, > 5,000 mg/kg

Lethal Dose, Humans, 340 mg/kg Estimated.

Lethal Dose, Humans, 29 - 237 ml Estimated.

**Acute dermal toxicity**
Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death. Acute toxicity estimate, 300 mg/kg

**Acute inhalation toxicity**
Easily attainable vapor concentrations may cause serious adverse effects, even death. At lower concentrations: May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death. Effects may be delayed.

Acute toxicity estimate, Not tested on animals, 4 Hour, vapour, 3 mg/l

**Skin corrosion/irritation**
Brief contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**
May cause eye irritation.

**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)**
Causes damage to organs.
Route of Exposure: Oral
Target Organs: Eyes, Central nervous system

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

**Carcinogenicity**
Did not cause cancer in laboratory animals.

**Teratogenicity**
Has caused birth defects in lab animals at high doses. There is no evidence that these findings are relevant to humans.

**Reproductive toxicity**
In animal studies, did not interfere with reproduction.

**Mutagenicity**
In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**
May be harmful if swallowed and enters airways.

**Naphtha (petroleum), hydrotreated heavy**

**Acute oral toxicity**
Based on data from similar materials LD50, Rat, > 5,000 mg/kg

**Acute dermal toxicity**
Based on data from similar materials LD50, Rabbit, >= 3,160 mg/kg

**Acute inhalation toxicity**
Based on data from similar materials LC50, Rat, 4 Hour, vapour, > 4,951 mg/m3

**Skin corrosion/irritation**
Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**
Based on data from similar materials
May cause slight temporary eye irritation.
Corneal injury is unlikely.

**Sensitization**
For skin sensitization:
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**
For similar material(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**
No relevant data found.

**Teratogenicity**

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

**Reproductive toxicity**
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

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

**Cobalt bis(ethylhexanoate)**

**Acute oral toxicity**
LD50, Rat, 3,129 mg/kg OECD Test Guideline 425

**Acute dermal toxicity**
Information given is based on data obtained from similar substances. LD50, Guinea pig, 5,690 mg/kg OECD Test Guideline 402

**Acute inhalation toxicity**
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 moderate eye irritation.

**Sensitization**
Has demonstrated the potential for contact allergy in mice.

Does not cause respiratory sensitisation.

**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**
Available data are inadequate to evaluate carcinogenicity.

**Teratogenicity**
Has been toxic to the fetus in laboratory animal tests. Information given is based on data obtained from similar substances.

**Reproductive toxicity**
In animal studies, has been shown to interfere with fertility. Information given is based on data obtained from similar substances.

**Mutagenicity**
Animal genetic toxicity studies were negative. In vitro genetic toxicity studies were negative in some cases and positive in other cases. Information given is based on data obtained from similar substances.

**Aspiration Hazard**
No aspiration toxicity classification

**Carcinogenicity**

| Component | List | Classification |
|---|---|---|
| **Naphtha (petroleum), hydrotreated heavy** | IARC | Group 2B: Possibly carcinogenic to humans |

## 12. ECOLOGICAL INFORMATION

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

**Toxicity**

**n-Butyl Acetate**

**Acute toxicity to fish**
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 18 mg/l

**Acute toxicity to aquatic invertebrates**
LC50, Daphnia magna (Water flea), 48 Hour, 44 mg/l

**Acute toxicity to algae/aquatic plants**
ErC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 648 mg/l

**Toxicity to bacteria**
EC50, Bacteria, 16 Hour, > 1,000 mg/l

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna (Water flea), 21 d, 23 mg/l

**Methyl ethyl ketone**

**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, Pimephales promelas (fathead minnow), static test, 96 Hour, 2,993 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 308 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**
ErC50, Pseudokirchneriella subcapitata (microalgae), static test, 96 Hour, Growth rate inhibition, 2,029 mg/l, OECD Test Guideline 201

NOEC, Pseudokirchneriella subcapitata (green algae), 96 Hour, 1,240 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**
EC50, Bacteria, 96 Hour, > 1,000 mg/l, hUCC

**Ethanol**

**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), flow-through test, 96 Hour, 11,200 - 13,000 mg/l

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), 48 Hour, 5,414 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
EbC50, Skeletonema costatum (marine diatom), 5 d, Biomass, 10,943 - 11,619 mg/l, OECD Test Guideline 201 or Equivalent

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna (Water flea), 9 d, 9.6 mg/l

**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

**Reaction product: Bisphenol A-(epichlorohydrin); epoxy resin (number average molecular weight 700-1100)**

**Acute toxicity to fish**
Based on information for a similar material:

Not expected to be acutely toxic, but may cause adverse effects by physical/mechanical means.

**Methanol**

**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, Bluegill sunfish (Lepomis macrochirus), flow-through test, 96 Hour, 15,400 mg/l

**Acute toxicity to aquatic invertebrates**
LC50, Daphnia magna (Water flea), 48 Hour, 18,260 mg/l

**Acute toxicity to algae/aquatic plants**
ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, 22,000 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**
IC50, activated sludge, 3 Hour, Respiration rates., > 1,000 mg/l, OECD Test Guideline 209

**Chronic toxicity to fish**
NOEC, Pimephales promelas (fathead minnow), 28 d, 446 mg/l

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna (Water flea), 21 d, 208 mg/l

**Naphtha (petroleum), hydrotreated heavy**

**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
LL50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 1,000 mg/l, Test substance: Water Accommodated Fraction

**Acute toxicity to aquatic invertebrates**
EL50, Daphnia magna (Water flea), 48 Hour, > 1,000 mg/l, OECD Test Guideline 202, Test substance: Water Accommodated Fraction

**Acute toxicity to algae/aquatic plants**
Based on data from similar materials
EL50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 1,000 mg/l, OECD Test Guideline 201, Test substance: Water Accommodated Fraction
Based on data from similar materials
NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1,000 mg/l, OECD Test Guideline 201, Test substance: Water Accommodated Fraction

**Chronic toxicity to aquatic invertebrates**
Based on data from similar materials
NOELR, Daphnia magna (Water flea), 21 d, > 1 mg/l

**Cobalt bis(ethylhexanoate)**

**Acute toxicity to fish**
Information given is based on data obtained from similar substances.
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.8 mg/l

**Acute toxicity to aquatic invertebrates**
Information given is based on data obtained from similar substances.
LC50, Ceriodaphnia dubia (water flea), 48 Hour, 0.605 mg/l

**Acute toxicity to algae/aquatic plants**
Information given is based on data obtained from similar substances.
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.0952 mg/l, OECD Test Guideline 201
Information given is based on data obtained from similar substances.
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.0345 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**
Based on data from similar materials
EC50, 30 min, 120 mg/l, OECD Test Guideline 209

**Chronic toxicity to fish**
Based on data from similar materials
NOEC, Pimephales promelas (fathead minnow), 34 d, 0.21 mg/l

**Chronic toxicity to aquatic invertebrates**
Based on data from similar materials
NOEC, Daphnia magna (Water flea), 21 d, 0.0608 mg/l

**Persistence and degradability**

**n-Butyl Acetate**
**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
**Biodegradation:** 83 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.20 mg/mg Estimated.

**Photodegradation**
**Sensitization:** OH radicals
**Atmospheric half-life:** 2.32 d
**Method:** Estimated.

**Methyl ethyl ketone**
**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
**Biodegradation:** 98 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.44 mg/mg

**Biological oxygen demand (BOD)**

| Incubation Time | BOD |
|---|---|
| 5 d | 71 - 76 % |
| 10 d | 71 - 82 % |
| 20 d | 71 - 89 % |

**Photodegradation**
**Test Type:** Half-life (indirect photolysis)
**Sensitization:** OH radicals
**Atmospheric half-life:** 8 d
**Method:** Estimated.

**Ethanol**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
**Biodegradation:** > 70 %
**Exposure time:** 5 d
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.08 mg/mg

**Photodegradation**
**Test Type:** Half-life (indirect photolysis)
**Sensitization:** OH radicals
**Atmospheric half-life:** 2.99 d
**Method:** Estimated.

**Molybdenum disulfide**

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

**Reaction product: Bisphenol A-(epichlorohydrin); epoxy resin (number average molecular weight 700-1100)**

**Biodegradability:** This water-insoluble polymeric solid is expected to be inert in the environment. Surface photodegradation is expected with exposure to sunlight. No appreciable biodegradation is expected.

**Methanol**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
**Biodegradation:** 82.7 %
**Exposure time:** 5 d
**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 1.50 mg/mg

**Chemical Oxygen Demand:** 1.49 mg/mg Dichromate

**Biological oxygen demand (BOD)**

| Incubation Time | BOD |
|---|---|
| 5 d | 72 % |
| 20 d | 79 % |

**Photodegradation**
**Test Type:** Half-life (indirect photolysis)
**Sensitization:** OH radicals
**Atmospheric half-life:** 8 - 18 d
**Method:** Estimated.

**Naphtha (petroleum), hydrotreated heavy**

**Biodegradability:** Based on data from similar materials Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

**Biodegradation:** 80 %
**Exposure time:** 28 d
**Method:** OECD Test Guideline 301F

**Cobalt bis(ethylhexanoate)**

**Biodegradability:** Not applicable

**Bioaccumulative potential**

**n-Butyl Acetate**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** Pow: 3.2 at 25 °C Measured
**Bioconcentration factor (BCF):** 15 Fish Estimated.

**Methyl ethyl ketone**

**Bioaccumulation:** Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** 0.3 at 40 °C Measured

**Ethanol**

**Bioaccumulation:** Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** -0.31 Measured

**Molybdenum disulfide**

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

**Reaction product: Bisphenol A-(epichlorohydrin); epoxy resin (number average molecular weight 700-1100)**

**Bioaccumulation:** No relevant data found.

**Methanol**

**Bioaccumulation:** Bioaccumulation is unlikely.
**Partition coefficient: n-octanol/water(log Pow):** -0.77 at 20 °C
**Bioconcentration factor (BCF):** < 10 Leuciscus idus (Golden orfe) Measured

**Naphtha (petroleum), hydrotreated heavy**

**Bioaccumulation:** No relevant data found.

**Cobalt bis(ethylhexanoate)**

**Bioaccumulation:** Bioaccumulation is unlikely.
**Partition coefficient: n-octanol/water(log Pow):** 2.96 at 20 °C

**Mobility in soil**

**n-Butyl Acetate**

Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient (Koc):** 19 - 70 Estimated.

**Methyl ethyl ketone**

Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient (Koc):** 3.8 Estimated.

**Ethanol**

Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient (Koc):** 1.0 Estimated.

**Molybdenum disulfide**

No relevant data found.

**Reaction product: Bisphenol A-(epichlorohydrin); epoxy resin (number average molecular weight 700-1100)**

In the terrestrial environment, material is expected to remain in the soil.
In the aquatic environment, material will sink and remain in the sediment.

**Methanol**

Potential for mobility in soil is very high (Koc between 0 and 50).
**Partition coefficient (Koc):** 0.44 Estimated.

**Naphtha (petroleum), hydrotreated heavy**

No relevant data found.

**Cobalt bis(ethylhexanoate)**

No relevant data found.

## 13. DISPOSAL CONSIDERATIONS

**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 Section10 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.

## 14. TRANSPORT INFORMATION

**DOT**

| | |
|---|---|
| **Proper shipping name** | Flammable liquids, n.o.s.(Butanone, Ethanol) |
| **UN number** | UN 1993 |
| **Class** | 3 |
| **Packing group** | II |
| **Reportable Quantity** | Antimony Trioxide, n-Butyl acetate |

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

| | |
|---|---|
| **Proper shipping name** | FLAMMABLE LIQUID, N.O.S.(Butanone, Ethanol) |
| **UN number** | UN 1993 |
| **Class** | 3 |
| **Packing group** | II |
| **Marine pollutant** | No |
| **Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code** | Consult IMO regulations before transporting ocean bulk |

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

| | |
|---|---|
| **Proper shipping name** | Flammable liquid, n.o.s.(Butanone, Ethanol) |
| **UN number** | UN 1993 |
| **Class** | 3 |
| **Packing group** | II |

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.

## 15. REGULATORY INFORMATION

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**
Flammable (gases, aerosols, liquids, or solids)
Hazard not otherwise classified (physical hazards)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**
The following components are subject to reporting levels established by SARA Title III, Section 313:

| **Components** | **CASRN** |
|---|---|
| Diantimony trioxide | 1309-64-4 |

**California Prop. 65**
WARNING: This product can expose you to chemicals including Diantimony trioxide, Formaldehyde, Lead oxide, Arsenous oxide, which is/are known to the State of California to cause cancer, and Methanol, Toluene, Arsenous oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**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.

## 16. OTHER INFORMATION

**Hazard Rating System**
**NFPA**

| Health | Flammability | Instability |
|---|---|---|
| 2 | 3 | 0 |

**HMIS**

| Health | Flammability | Physical Hazard |
|---|---|---|
| 2* | 4 | 0 |

* = Chronic Effects (See Hazards Identification)

**Revision**
Identification Number: 4036485 / A776 / Issue Date: 08/14/2023 / Version: 13.0
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) |

| | |
|---|---|
| AEL * | 8 & 12 hr. TWA |
| C | Ceiling |
| CAL PEL | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| Dow IHG | Dow Industrial Hygiene Guideline |
| DUPONT AEL | DuPont AEL (Acceptable Exposure Limit) |
| 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 |
| PEL | Permissible exposure limit |
| STEL | Short Term Exposure Limit (STEL): |
| TWA | Time Weighted Average (TWA): |

**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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