



# SAFETY DATA SHEET

## DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC

**Product name:** MOLYKOTE® D-6927 Anti-Friction Coating

**Issue Date:** 05/02/2022

**Print Date:** 06/22/2023

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® D-6927 Anti-Friction Coating  
**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 4  
Serious eye damage - Category 1  
Reproductive toxicity - Category 1B  
Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

#### Label elements

#### Hazard pictograms



Signal word: **DANGER!**

**Hazards**

Combustible liquid.

Causes serious eye damage.

May damage fertility or the unborn child.

May cause damage to organs (Auditory system) through prolonged or repeated exposure if inhaled.

**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.

Do not breathe mist or vapours.

Wear protective gloves/ protective clothing/ 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.

IF exposed or concerned: Get medical advice/ attention.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**

Store in a well-ventilated place. Keep cool.

Store locked up.

**Disposal**

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

**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, Mixture

This product is a mixture.

Component	CASRN	Concentration
N-Ethyl-2-pyrrolidone	2687-91-4	>= 57.0 - <= 61.0 %
Diacetone Alcohol	123-42-2	>= 11.0 - <= 13.0 %
Xylene	1330-20-7	>= 3.9 - <= 4.2 %
Ethylbenzene	100-41-4	>= 3.9 - <= 4.2 %

Carbon black

1333-86-4

&gt;= 0.76 - &lt;= 0.82 %

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

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

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

**Eye contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available. Get medical attention immediately.

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

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

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

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

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

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## 5. FIREFIGHTING MEASURES

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

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

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

**Hazardous combustion products:** Carbon oxides Nitrogen oxides (NO<sub>x</sub>) Isocyanates Fluorine compounds

**Unusual Fire and Explosion Hazards:** Flash back possible over considerable distance. Exposure to combustion products may be a hazard to health. Toxic vapours are evolved. 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. Wear neoprene gloves to prevent contact with hydrofluoric acid.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Remove all sources of ignition. 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.

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## 7. HANDLING AND STORAGE

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**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. Handle in accordance with good industrial hygiene and safety practice.

Use with local exhaust ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

**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. 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	
Diacetone Alcohol	Dow IHG	TWA	25 ppm	
	ACGIH	TWA	50 ppm	
	Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation			
	OSHA Z-1	TWA	240 mg/m3 50 ppm	
Further information: (b): The value in mg/m3 is approximate.				
Xylene	CAL PEL	PEL	240 mg/m3 50 ppm	
	OSHA Z-1	TWA	435 mg/m3 100 ppm	
	Further information: (b): The value in mg/m3 is approximate.			
	ACGIH	TWA	100 ppm	
	Further information: A4: Not classifiable as a human carcinogen			
	ACGIH	STEL	150 ppm	
	Further information: A4: Not classifiable as a human carcinogen			
	CAL PEL	STEL	655 mg/m3 150 ppm	
	CAL PEL	C	300 ppm	
	CAL PEL	PEL	435 mg/m3 100 ppm	
Ethylbenzene	ACGIH	TWA	20 ppm	
	Further information: A3: Confirmed animal carcinogen with unknown relevance to humans			
	OSHA Z-1	TWA	435 mg/m3 100 ppm	
	Further information: (b): The value in mg/m3 is approximate.			
	CAL PEL	PEL	22 mg/m3 5 ppm	
	CAL PEL	STEL	130 mg/m3 30 ppm	
	NIOSH REL	TWA	435 mg/m3 100 ppm	
	NIOSH REL	ST	545 mg/m3 125 ppm	
	Carbon black	ACGIH	TWA Inhalable particulate matter	3 mg/m3
		Further information: A3: Confirmed animal carcinogen with unknown relevance to humans		
OSHA Z-1		TWA	3.5 mg/m3	
NIOSH REL		TWA	3.5 mg/m3	
NIOSH REL		TWA	0.1 mg/m3 , PAHs	
Further information: Ca: Potential Occupational Carcinogen; Carbon black in presence of polycyclic aromatic hydrocarbons (PAHs); See Appendix C; See Appendix A				
CAL PEL		PEL	3.5 mg/m3	
OSHA P0	TWA	3.5 mg/m3		

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Ethylbenzene	100-41-4	Sum of	Urine	End of	0.15 g/g	ACGIH

mandelic acid and phenyl glyoxylic acid	shift (As soon as possible after exposure ceases)	creatinine	BEI
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**Exposure controls**

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

**Individual protection measures**

**Eye/face protection:** Use chemical goggles.

**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. If there are no applicable exposure limit requirements or guidelines, use an approved respirator.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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**Appearance**

<b>Physical state</b>	liquid
<b>Color</b>	black
<b>Odor</b>	solvent-like
<b>Odor Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting point/range</b>	No data available
<b>Freezing point</b>	No data available
<b>Boiling point (760 mmHg)</b>	> 35 °C (> 95 °F)
<b>Flash point</b>	<b>closed cup</b> 61 °C (142 °F)
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No data available
<b>Flammability (solid, gas)</b>	Not applicable
<b>Lower explosion limit</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Vapor Pressure</b>	No data available

<b>Relative Vapor Density (air = 1)</b>	No data available
<b>Relative Density (water = 1)</b>	1.1
<b>Water solubility</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Dynamic Viscosity</b>	250 mPa.s
<b>Kinematic Viscosity</b>	No data available
<b>Explosive properties</b>	Not explosive

<b>Oxidizing properties</b>	The substance or mixture is not classified as oxidizing.
<b>Molecular weight</b>	No data available
<b>Particle size</b>	Not applicable

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. Vapours may form explosive mixture with air. Combustible liquid.

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

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:** Hexafluoroethane. Hydrogen Fluoride. 1,1,1,3,3,3-Hexafluoro-2-propanone. Carbonic difluoride. Carbon monoxide. Fluorinated hydrocarbons.

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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:**

**N-Ethyl-2-pyrrolidone**

**Acute oral toxicity**

LD50, Rat, male and female, 3,200 mg/kg

**Acute dermal toxicity**

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

**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.1 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**



May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

**Sensitization**

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:  
No relevant data found.

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

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

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

In animals, effects have been reported on the following organs:  
Liver.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

Has caused birth defects in laboratory animals. Has been toxic to the fetus in laboratory animal tests.

**Reproductive toxicity**

In animal studies, it has been shown to cause effects on sperm which may interfere with fertility in males.

**Mutagenicity**

In vitro genetic toxicity studies were negative. Animal 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.

**Diacetone Alcohol**

**Acute oral toxicity**

May cause central nervous system effects. Narcotic effects. LD50, Rat, 3,002 mg/kg OECD Test Guideline 401

**Acute dermal toxicity**

LD50, Rabbit, 13,750 mg/kg

**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 moderate eye irritation.

**Sensitization**

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

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

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory system

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

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

**Teratogenicity**

Has caused birth defects in laboratory animals.

**Reproductive toxicity**

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Xylene**

**Acute oral toxicity**

LD50, Rat, 3,523 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, > 4,200 mg/kg

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, 27.5 mg/l

**Skin corrosion/irritation**

Prolonged contact may cause skin irritation with local redness.

Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Vapor may cause skin irritation.

May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

May cause slight temporary corneal injury.

Vapor may cause eye irritation experienced as mild discomfort and redness.

**Sensitization**

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

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

May cause respiratory irritation.

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Respiratory system, Central nervous system

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

Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.

**Carcinogenicity**

Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

**Teratogenicity**

Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. Available data are inadequate for evaluation of maternal toxicity.

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

**Mutagenicity**

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

**Aspiration Hazard**

May be fatal if swallowed and enters airways.

**Ethylbenzene**

**Acute oral toxicity**

LD50, Rat, 3,500 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, 15,500 mg/kg

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, 17.2 mg/l

**Skin corrosion/irritation**

Brief contact may cause moderate skin irritation with local redness. Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation. Vapor may cause lacrimation (tears).

**Sensitization**

For skin sensitization:  
Did not cause allergic skin reactions when tested in humans.

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)**

In animals, effects have been reported on the following organs:

May cause hearing loss based on animal data.

Kidney.

Liver.

Lung.

Although one early inhalation study on ethylbenzene reported an adverse effect on the testes, recent, more comprehensive studies have not shown this effect.

**Carcinogenicity**

Ethylbenzene has been shown to cause cancer in laboratory animals. There is no evidence that these findings are relevant to humans.

**Teratogenicity**

Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in lab animals at doses nontoxic to the mother.

**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**

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. May be fatal if swallowed and enters airways.

**Carbon black**

**Acute oral toxicity**

LD50, Rat, > 8,000 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, > 3,000 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

LC50, Rat, 1 Hour, dust/mist, 27 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Prolonged exposure not likely to cause significant skin irritation.

**Serious eye damage/eye irritation**

Solid or dust may cause irritation or corneal injury due to mechanical action.

**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)**

Dust may cause irritation of the upper respiratory tract (nose and throat) and lungs. Repeated exposures to very fine dusts may cause lung injury.

**Carcinogenicity**

Lung fibrosis and tumors have been observed in rats exposed to high concentrations of very fine carbon black particles for their lifetime. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Rats may be particularly susceptible to particle clearance overload, resulting in lung injury and tumors. No increases in tumors were observed in male or female mice exposed under the same conditions.

**Teratogenicity**

No relevant data found.

**Reproductive toxicity**

No relevant data found.

**Mutagenicity**

Animal genetic toxicity studies were negative in some cases and positive in other cases. Positive findings were observed only at doses which produced significant inflammation.

**Aspiration Hazard**

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

**Carcinogenicity****Component****Ethylbenzene****List**

IARC

ACGIH

**Classification**

Group 2B: Possibly carcinogenic to humans

A3: Confirmed animal carcinogen with unknown relevance to humans.

**Carbon black**

IARC

ACGIH

Group 2B: Possibly carcinogenic to humans

A3: Confirmed animal carcinogen with unknown relevance to humans.

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**12. ECOLOGICAL INFORMATION**

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

**Toxicity****N-Ethyl-2-pyrrolidone****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, Zebra fish (Danio/Brachydanio rerio), static test, 96 Hour, 464 - 999 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

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

**Acute toxicity to algae/aquatic plants**

EC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate, > 100 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

EC50, Bacteria, 16 Hour, >1,000 mg/l

**Chronic toxicity to aquatic invertebrates**

Based on data from similar materials

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, 12.5 mg/l

**Diacetone Alcohol**

**Acute toxicity to fish**

LC50, Oryzias latipes (Orange-red killifish), 96 Hour, > 100 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, > 1,000 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 1,000 mg/l, OECD Test Guideline 201

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1,000 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

EC50, Bacteria, 16 Hour, > 5,000 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), 21 d, 100 mg/l

**Xylene**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 2.6 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 3.82 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Selenastrum capricornutum (fresh water algae), 72 Hour, Growth rate, 4.9 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 0.44 mg/l, OECD Test Guideline 201 or Equivalent

**Chronic toxicity to fish**

NOEC, Oncorhynchus mykiss (rainbow trout), flow-through, 56 d, mortality, > 1.3 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), 21 d, 1.57 mg/l

**Ethylbenzene**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 4.2 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), Static, 48 Hour, 1.8 - 2.4 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth inhibition (cell density reduction), 3.6 - 4.6 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

EC50, Bacteria, 16 Hour, > 12 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, 0.96 mg/l

**Toxicity to soil-dwelling organisms**

LC50, Eisenia fetida (earthworms), 2 d, survival, 0.047 mg/cm<sup>2</sup>

**Carbon black**

**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, Leuciscus idus (Golden orfe), static test, 96 Hour, > 1,000 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 24 Hour, > 5,600 mg/l

**Acute toxicity to algae/aquatic plants**

NOEC, Desmodesmus subspicatus (green algae), 72 Hour, 10,000 mg/l

**Persistence and degradability**

**N-Ethyl-2-pyrrolidone**

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

10-day Window: Pass

**Biodegradation:** 90 - 100 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301A

**Diacetone Alcohol**

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

**Biodegradation:** 100 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301

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

**Chemical Oxygen Demand:** 2.11 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	18.000 %
10 d	68.000 %
20 d	81.000 %

**Photodegradation**

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

**Sensitization:** OH radicals

**Atmospheric half-life:** 2.716 d

**Method:** Estimated.

**Xylene**

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

10-day Window: Pass

**Biodegradation:** 87.8 %

**Exposure time:** 28 d

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

**Theoretical Oxygen Demand:** 3.17 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

**Photodegradation**

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

**Sensitization:** OH radicals

**Atmospheric half-life:** 19.7 Hour

**Method:** Estimated.

**Ethylbenzene**

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

10-day Window: Pass

**Biodegradation:** 100 %

**Exposure time:** 6 d

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

**Theoretical Oxygen Demand:** 3.17 mg/mg Estimated.

**Chemical Oxygen Demand:** 2.62 mg/mg Dichromate



**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	31.5 %
10 d	38.5 %
20 d	45.4 %

**Photodegradation****Sensitization:** OH radicals**Atmospheric half-life:** 55 Hour**Method:** Estimated.**Carbon black****Biodegradability:** Biodegradation is not applicable.**Bioaccumulative potential****N-Ethyl-2-pyrrolidone****Bioaccumulation:** Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** -0.2 at 20 °C Measured**Diacetone Alcohol****Bioaccumulation:** Bioaccumulation is unlikely.**Partition coefficient: n-octanol/water(log Pow):** -0.09 at 20 °C**Xylene****Bioaccumulation:** Does not bioaccumulate.**Partition coefficient: n-octanol/water(log Pow):** 3.16 at 20 °C**Bioconcentration factor (BCF):** 25.9 Rainbow trout (Salmo gairdneri) Measured**Ethylbenzene****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 3.15 Measured**Bioconcentration factor (BCF):** 15 Fish Measured**Carbon black****Bioaccumulation:** No relevant data found.**Mobility in soil****N-Ethyl-2-pyrrolidone**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 14 Estimated.**Diacetone Alcohol**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 16 Estimated.**Xylene**

Potential for mobility in soil is medium (Koc between 150 and 500).

**Partition coefficient (Koc):** 443 Estimated.

**Ethylbenzene**

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

**Partition coefficient (Koc):** 518 Estimated.

**Carbon black**

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: Recycler. Reclaimer. 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**

<b>Proper shipping name</b>	Combustible liquid, n.o.s.(Ethylbenzene, Diacetone alcohol)
<b>UN number</b>	NA 1993
<b>Class</b>	CBL
<b>Packing group</b>	III
<b>Reportable Quantity</b>	Xylene, Ethylbenzene

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

	Not regulated for transport
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

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

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

Flammable (gases, aerosols, liquids, or solids)  
 Serious eye damage or eye irritation  
 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
Xylene	1330-20-7
Ethylbenzene	100-41-4

### California Prop. 65

WARNING: This product can expose you to chemicals including Ethylbenzene, Isopropenylbenzene, Aniline, which is/are known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### United States TSCA Inventory (TSCA)

All components of this product are in compliance with the 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	2	0

#### HMIS

Health	Flammability	Physical Hazard
3*	2	0

\* = Chronic Effects (See Hazards Identification)

**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)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
C	Ceiling
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
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
PEL	Permissible exposure limit
ST	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
STEL	Short-term exposure limit
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; TECl - 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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