



# SAFETY DATA SHEET

DDP SPECIALTY ELECTRONIC MATERIALS US,  
INC.

**Product name:** BIOBAN™ IPBC 40 Antimicrobial

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

**Print Date:** 04/24/2020

DDP SPECIALTY ELECTRONIC MATERIALS US, INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## 1. IDENTIFICATION

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**Product name:** BIOBAN™ IPBC 40 Antimicrobial

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

**Identified uses:**

**COMPANY IDENTIFICATION**

DDP SPECIALTY ELECTRONIC MATERIALS US,  
INC.

400 ARCOLA ROAD  
COLLEGEVILLE PA 19426-2914  
UNITED STATES

**Customer Information Number:**

833-338-7668

SDSQuestion-NA@dupont.com

**EMERGENCY TELEPHONE NUMBER**

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

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

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids - Category 3

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Serious eye damage - Category 1

Skin sensitisation - Category 1

Specific target organ toxicity - single exposure - Category 3

Aspiration hazard - Category 1

**Label elements**

**Hazard pictograms**



Signal word: **DANGER!**

### Hazards

Flammable liquid and vapour.

Harmful if swallowed.

May be fatal if swallowed and enters airways.

May cause an allergic skin reaction.

Causes serious eye damage.

Fatal if inhaled.

May cause respiratory irritation.

### Precautionary statements

#### Prevention

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.

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves/ eye protection/ face protection.

Wear respiratory protection.

#### Response

IF SWALLOWED: Immediately call a POISON CENTER/doctor.

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

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.

Do NOT induce vomiting.

If skin irritation or rash occurs: Get medical advice/ attention.

Wash contaminated clothing before reuse.

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

#### 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**

No data available

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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This product is a mixture.

Component	CASRN	Concentration
Iodo-2-propynyl butyl carbamate	55406-53-6	40.0%
Dimethyl sulfoxide	67-68-5	17.5%
Dipropylene glycol	25265-71-8	17.5%
Solvent naphtha (petroleum), light aromatic	64742-95-6	15.6%
1,2,4-Trimethylbenzene	95-63-6	7.2%
Xylene	1330-20-7	1.2%
Cumene	98-82-8	1.0%

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**4. FIRST AID MEASURES**

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**Description of first aid measures****General advice:**

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

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

**Skin contact:** Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be immediately available.

**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.

**Ingestion:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**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:** Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function. Water fog, applied gently may be used as a blanket for fire extinguishment.

**Unsuitable extinguishing media:** No data available

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

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Iodine. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Collect in suitable and properly labeled containers. Pump with explosion-proof equipment. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Keep out of reach of children. Keep away from heat, sparks and flame. Do not get in eyes. Avoid breathing vapor. Avoid prolonged or repeated contact with skin. Avoid prolonged contact with eyes, skin and clothing. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Electrically ground and bond all equipment. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

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

Component	Regulation	Type of listing	Value/Notation
Dimethyl sulfoxide	Dow IHG	TWA	30 ppm
	Dow IHG	TWA	SKIN

Solvent naphtha (petroleum), light aromatic	US WEEL	TWA	250 ppm
	Dow IHG	TWA	100 mg/m3
	Dow IHG	STEL	300 mg/m3
	OSHA Z-1	TWA	2,000 mg/m3 500 ppm
1,2,4-Trimethylbenzene	ACGIH	TWA	200 mg/m3 , total hydrocarbon vapor
	ACGIH	TWA	25 ppm
	CAL PEL	PEL	125 mg/m3 25 ppm
	OSHA Z-1	TWA	435 mg/m3 100 ppm
Xylene	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
	ACGIH	TWA	50 ppm
	OSHA Z-1	TWA	245 mg/m3 50 ppm
Cumene	OSHA Z-1	TWA	SKIN
	OSHA P0	TWA	245 mg/m3 50 ppm

**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

**Exposure controls**

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

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

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). Viton. 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, use an approved respirator. Selection of air-purifying or positive-

pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Liquid.
Color	Yellow
Odor	Characteristic
Odor Threshold	No test data available
pH	5.2 <i>Calculated.</i>
Melting point/range	Not applicable to liquids
Freezing point	No test data available
Boiling point (760 mmHg)	160 °C ( 320 °F) <i>Measured</i>
Flash point	<b>closed cup</b> 52 °C ( 126 °F) <i>Unspecified</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	< 3 mmHg at 20 °C (68 °F) <i>Calculated.</i>
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.153 <i>Calculated.</i>
Water solubility	Slightly soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	9.5 cP at 20 °C (68 °F) <i>Literature</i>
Kinematic Viscosity	No test data available
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No test data available
Percent volatility	1 % <i>Calculated.</i>

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:** No data available

**Chemical stability:** Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Polymerization will not occur.

**Conditions to avoid:** Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

**Incompatible materials:** Avoid contact with: Strong acids. Strong bases.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Iodine.

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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

Low toxicity if swallowed. May cause nausea and vomiting. Swallowing may result in gastrointestinal irritation.

LD50, Rat, 1,540 mg/kg

#### Acute dermal toxicity

Prolonged or widespread skin contact may result in absorption of potentially harmful amounts. Dimethyl sulfoxide is readily absorbed through skin and may take dissolved materials of higher toxicity through the skin.

LD50, Rat, 4,210 mg/kg

#### Acute inhalation toxicity

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. As product: The LC50 has not been determined.

### Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Repeated contact may cause severe skin irritation with local redness and discomfort.

### 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

Contains component(s) which have caused allergic skin sensitization in guinea pigs.



Skin contact may cause an allergic skin reaction in a small proportion of individuals.

For respiratory sensitization:  
No relevant data found.

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

May cause respiratory irritation.  
Route of Exposure: Inhalation  
Target Organs: Respiratory Tract

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

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

**Carcinogenicity**

Contains component(s) which have caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

**Teratogenicity**

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

**COMPONENTS INFLUENCING TOXICOLOGY:**

Iodo-2-propynyl butyl carbamate

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, Nonrespirable dust., > 6.89 mg/l

**Dimethyl sulfoxide****Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.33 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

**Dipropylene glycol****Acute inhalation toxicity**

Vapors are unlikely due to physical properties. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

Maximum attainable concentration. LC50, Rat, 4 Hour, vapour, > 2.34 mg/l No deaths occurred at this concentration.

**Solvent naphtha (petroleum), light aromatic****Acute inhalation toxicity**

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

LC50, Rat, 4 Hour, vapour, > 10.2 mg/l

### **1,2,4-Trimethylbenzene**

#### **Acute inhalation toxicity**

Prolonged excessive exposure may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 18 mg/l

### **Xylene**

#### **Acute inhalation toxicity**

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

### **Cumene**

#### **Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, > 17.6 mg/l No deaths occurred at this concentration.

### **Carcinogenicity**

#### **Component**

**Solvent naphtha (petroleum),  
light aromatic**

#### **Cumene**

#### **List**

ACGIH

IARC

US NTP

#### **Classification**

A3: Confirmed animal carcinogen with  
unknown relevance to humans.

Group 2B: Possibly carcinogenic to  
humans

Reasonably anticipated to be a human  
carcinogen

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## **12. ECOLOGICAL INFORMATION**

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

### **Toxicity**

Iodo-2-propynyl butyl carbamate

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

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

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 0.067 mg/l, OECD Test Guideline 203 or Equivalent

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

EC50, Daphnia magna (Water flea), 48 Hour, 0.16 mg/l

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

EbC50, alga Scenedesmus sp., 72 Hour, Biomass, 0.022 mg/l

ErC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 0.053 mg/l

NOEC, alga *Scenedesmus* sp., 72 Hour, Growth rate inhibition, 0.0046 mg/l

**Toxicity to bacteria**

EC50, Bacteria (active sludge), 3 Hour, 44 mg/l

**Chronic toxicity to fish**

NOEC, *Pimephales promelas* (fathead minnow), flow-through test, 35 d, 0.0084 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, *Daphnia magna* (Water flea), 21 d, 0.05 mg/l

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, *Colinus virginianus* (Bobwhite quail), 749 - 970 mg/kg

dietary LC50, *Colinus virginianus* (Bobwhite quail), > 3,881 mg/kg

dietary LC50, *Anas platyrhynchos* (Mallard duck), > 5,620 mg/kg

**Dimethyl sulfoxide****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, *Danio rerio* (zebra fish), Static, 96 Hour, > 25,000 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), Static, 48 Hour, 24,600 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

EC50, *Pseudokirchneriella subcapitata* (green algae), Static, 72 Hour, Growth rate, 17,000 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

EC50, Bacteria, 16 Hour, 16,000 mg/l, Method Not Specified.

**Dipropylene glycol****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 information for a similar material:

LC50, *Pimephales promelas* (fathead minnow), static test, 96 Hour, 46,500 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

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

**Acute toxicity to algae/aquatic plants**

EC50, *Desmodesmus subspicatus* (green algae), static test, 72 Hour, Biomass, > 100 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

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

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).  
LD50, Colinus virginianus (Bobwhite quail), 14 d, mortality, > 2,000 mg/kg

#### **Solvent naphtha (petroleum), light aromatic**

##### **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), static test, 96 Hour, 9.22 mg/l, OECD Test Guideline 203 or Equivalent

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

For similar material(s):

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 2.9 mg/l

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

EC50, 10 min, > 99 mg/l

##### **Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, > 6500mg/kg diet.

oral LD50, Colinus virginianus (Bobwhite quail), 21 d, > 2150mg/kg bodyweight.

#### **1,2,4-Trimethylbenzene**

##### **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, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 7.7 mg/l

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

EC50, Daphnia magna (Water flea), 48 Hour, 3.6 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**

IC50, Daphnia magna (Water flea), 24 Hour, 1 - 4.7 mg/l, OECD Test Guideline 202 or Equivalent

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

ErC50, Pseudokirchneriella subcapitata (algae), Static, 73 Hour, Growth rate, 4.36 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, Pseudokirchneriella subcapitata (green algae), 73 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

#### **Cumene**

##### **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, 2.7 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 4.0 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

EbC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Biomass, 2.6 mg/l, OECD Test Guideline 201 or Equivalent

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.35 mg/l

**Toxicity to Above Ground Organisms**

oral LD50, redwing blackbird (Agelaius phoeniceus), > 98 mg/kg

**Persistence and degradability**

Iodo-2-propynyl butyl carbamate

**Biodegradability:** Considered to be rapidly degradable. Biodegradation may occur under both aerobic and anaerobic conditions (in the presence or absence of oxygen). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

**Biodegradation:** 21 - 25 %

**Exposure time:** 28 d

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

**Theoretical Oxygen Demand:** 2.45 mg/mg

**Dimethyl sulfoxide**

**Biodegradability:** Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Biodegradation rate may increase in soil and/or water with acclimation. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

**Biodegradation:** 3 %

**Exposure time:** 14 d

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

10-day Window: Fail

**Biodegradation:** 31 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D

**Theoretical Oxygen Demand:** 1.85 mg/mg

**Biological oxygen demand (BOD)**

Incubation Time	BOD
20 d	1.50 %

**Dipropylene glycol**

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

10-day Window: Not applicable

**Biodegradation:** 84.4 %

**Exposure time:** 28 d

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

10-day Window: Not applicable

**Biodegradation:** 23.6 %

**Exposure time:** 64 d

**Method:** OECD Test Guideline 306 or Equivalent

**Theoretical Oxygen Demand:** 1.91 mg/mg Estimated.

**Solvent naphtha (petroleum), light aromatic**

**Biodegradability:** For the major component(s): Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For some component(s): Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

**1,2,4-Trimethylbenzene**

**Biodegradability:** Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

**Biodegradation:** 100 %

**Exposure time:** 1 d

**Theoretical Oxygen Demand:** 3.19 mg/mg

**Photodegradation**

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

**Sensitization:** OH radicals

**Atmospheric half-life:** 0.641 d

**Method:** Estimated.

**Xylene**

**Biodegradability:** Material is expected to be readily biodegradable.

10-day Window: Pass

**Biodegradation:** > 60 %

**Exposure time:** 10 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.**Cumene****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 70 %**Exposure time:** 20 d**Method:** OECD Test Guideline 301D or Equivalent**Theoretical Oxygen Demand:** 3.20 mg/mg Estimated.**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	40%
10 d	62%
20 d	70%

**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 1.55 d**Method:** Estimated.**Bioaccumulative potential**

Iodo-2-propynyl butyl carbamate

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 2.81 OECD Test Guideline 107 or Equivalent**Bioconcentration factor (BCF):** 16 - 36 Calculated.**Dimethyl sulfoxide****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** -1.35 Measured**Bioconcentration factor (BCF):** < 0.4 Cyprinus carpio (Carp) 42 d Measured**Dipropylene glycol**

**Bioaccumulation:** Bioconcentration potential is low ( $BCF < 100$  or  $\text{Log Pow} < 3$ ).

**Partition coefficient: n-octanol/water(log Pow):** -0.46 OECD Test Guideline 107 or Equivalent

**Bioconcentration factor (BCF):** 0.3 - 4.6 Cyprinus carpio (Carp) 42 d Measured

#### **Solvent naphtha (petroleum), light aromatic**

**Bioaccumulation:** For the major component(s): Bioconcentration potential is moderate ( $BCF$  between 100 and 3000 or  $\text{Log Pow}$  between 3 and 5). For the minor component(s): Bioconcentration potential is low ( $BCF < 100$  or  $\text{Log Pow} < 3$ ).

#### **1,2,4-Trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate ( $BCF$  between 100 and 3000 or  $\text{Log Pow}$  between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 3.63 Measured

**Bioconcentration factor (BCF):** 33 - 275 Cyprinus carpio (Carp) 56 d Measured

#### **Xylene**

**Bioaccumulation:** Bioconcentration potential is low ( $BCF < 100$  or  $\text{Log Pow} < 3$ ).

**Partition coefficient: n-octanol/water(log Pow):** 3.12 Measured

**Bioconcentration factor (BCF):** 25.9 Rainbow trout (Salmo gairdneri) Measured

#### **Cumene**

**Bioaccumulation:** Bioconcentration potential is low ( $BCF < 100$  or  $\text{Log Pow} < 3$ ).

**Partition coefficient: n-octanol/water(log Pow):** 3.4 - 3.7 Measured

**Bioconcentration factor (BCF):** 35.5 Fish Measured

#### **Mobility in soil**

Iodo-2-propynyl butyl carbamate

Potential for mobility in soil is medium ( $K_{oc}$  between 150 and 500).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Partition coefficient (K<sub>oc</sub>):** 126 Measured

#### **Dimethyl sulfoxide**

No relevant data found.

#### **Dipropylene glycol**

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high ( $K_{oc}$  between 0 and 50).

**Partition coefficient (K<sub>oc</sub>):** 0.76 Estimated.

#### **Solvent naphtha (petroleum), light aromatic**

For the major component(s):

Potential for mobility in soil is low ( $K_{oc}$  between 500 and 2000).

#### **1,2,4-Trimethylbenzene**

Potential for mobility in soil is low ( $K_{oc}$  between 500 and 2000).

**Partition coefficient (K<sub>oc</sub>):** 720 Estimated.

#### **Xylene**

Potential for mobility in soil is medium ( $K_{oc}$  between 150 and 500).



Partition coefficient (Koc): 443 Estimated.

#### Cumene

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

Partition coefficient (Koc): 800 - 2800 Estimated.

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### 13. DISPOSAL CONSIDERATIONS

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

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### 14. TRANSPORT INFORMATION

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#### DOT

Proper shipping name	Flammable liquids, n.o.s.(Solvent naphtha (petroleum), light aromatic, 1,2,4-Trimethylbenzene)
UN number	UN 1993
Class	3
Packing group	III
Reportable Quantity	Xylene

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

Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Solvent naphtha (petroleum), light aromatic, 1,2,4-Trimethylbenzene)
UN number	UN 1993
Class	3
Packing group	III
Marine pollutant	Iodo-2-propynyl butyl carbamate
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.(Solvent naphtha (petroleum), light aromatic, 1,2,4-Trimethylbenzene)
UN number	UN 1993
Class	3
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### 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)  
Acute toxicity (any route of exposure)  
Serious eye damage or eye irritation  
Respiratory or skin sensitisation  
Specific target organ toxicity (single or repeated exposure)  
Aspiration hazard

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

Components	CASRN
Iodo-2-propynyl butyl carbamate	55406-53-6
Xylene	1330-20-7
Cumene	98-82-8
1,2,4-Trimethylbenzene	95-63-6

### Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)

### Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Dipropylene glycol	25265-71-8
1,2,4-Trimethylbenzene	95-63-6
Xylene	1330-20-7
Cumene	98-82-8
Solvent naphtha (petroleum), light aromatic	64742-95-6

### California Prop. 65

WARNING: This product can expose you to chemicals including Cumene, 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)

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

### Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number: 464-8124

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

### DANGER

Corrosive

Causes irreversible eye damage and skin burns

Harmful if swallowed, inhaled or absorbed through the skin.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

This pesticide is toxic to fish and aquatic organisms.

## 16. OTHER INFORMATION

### Revision

Identification Number: 286240 / A749 / Issue Date: 10/16/2018 / Version: 7.1

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)
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; 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; 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, INC. 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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