



SAFETY DATA SHEET

DDP SPECIALTY ELECTRONIC MATERIALS US,
INC.

Product name: AMICAL™ WP Antimicrobial Agent

Issue Date: 10/16/2018

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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.

1. IDENTIFICATION

Product name: AMICAL™ WP Antimicrobial Agent

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

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Combustible dust

Acute toxicity - Category 4 - Inhalation

Serious eye damage - Category 1

Skin sensitisation - Category 1

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

May form combustible dust concentrations in air.

May cause an allergic skin reaction.

Causes serious eye damage.

Harmful if inhaled.

Precautionary statements**Prevention**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ ventilating/ lighting equipment.

Take precautionary measures against static discharge.

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

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.

Response

IF ON SKIN: Wash with plenty of soap and water.

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. Immediately call a POISON CENTER/doctor.

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

Wash contaminated clothing before reuse.

Disposal

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

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Diodomethyl-p-tolylsulfone	20018-09-1	47.0 - 49.9 %
Lactose	63-42-3	39.5 - 41.9 %
Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde	105859-97-0	4.0 - 4.4 %
Amorphous precipitated silica	112926-00-8	1.9 - 2.1 %
Sodium lauryl sulfate	151-21-3	1.7 - 1.9 %

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 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.

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 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.

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: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. 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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

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: Sulfur oxides. Iodine. Hydrogen iodide. 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. Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, electrically bond and ground equipment and do not permit dust to accumulate. Dust can be ignited by static discharge.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. 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. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Dust explosion hazard may result from forceful application of fire extinguishing agents. 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. 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). For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate 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. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. 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. Absorb with approx. 21.3 g NaHSO₃ (or 19.5 g Na₂S₂O₅) for 100 g biocidal product. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Keep away from heat, sparks and flame. Do not get in eyes. Avoid prolonged or repeated contact with skin. Avoid breathing dust.

Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Electrically ground and bond all equipment. Electrically bond and ground all containers, personnel and equipment before transfer or use of material.

Conditions for safe storage: Store away from incompatible materials. See STABILITY AND REACTIVITY section. Avoid direct sunlight or ultraviolet sources. Avoid moisture. Store in a dry place. Store away from oxidizing materials.

Storage stability

Shelf life: Use within 48 Month

Storage temperature: > 0 - 35 °C (> 32 - 95 °F)

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/Notation
Diiodomethyl-p-tolylsulfone	Dow IHG	TWA Inhalable fraction	0.1 mg/m3
	Dow IHG	TWA Inhalable fraction	Skin Sensitizer
	Dow IHG	STEL Inhalable fraction	1 mg/m3
	Dow IHG	STEL Inhalable fraction	Skin Sensitizer
Amorphous precipitated silica	OSHA Z-3	TWA Dust	20 Million particles per cubic foot, Silica
	OSHA Z-3	TWA Dust	80 mg/m3 / %SiO ₂ , Silica
	OSHA P0	TWA	6 mg/m3

Exposure controls

Engineering controls: Avoid inhalation of product spray through the use of engineering controls. General (mechanical) room ventilation is expected to be satisfactory. Use local exhaust if needed to control mist or vapor.

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: Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Neoprene. 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.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Powder
Color	Tan
Odor	Characteristic
Odor Threshold	No test data available
pH	No test data available
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup No test data available
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	May form combustible dust concentrations in air.
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No test data available
Water solubility	No test data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	No data available
Oxidizing properties	No data available
Bulk density	48 - 52 lb/ft ³ <i>Calculated.</i>
Molecular weight	No data available

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

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid moisture. Avoid direct sunlight or ultraviolet sources.

Incompatible materials: Avoid contact with: Ketones. Oxidizers. 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. Organic iodides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. As product: Single dose oral LD50 has not been determined.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure may cause adverse effects.

LC50, Rat, males, 4 Hour, dust/mist, 1.49 mg/l OECD Test Guideline 403

LC50, Rat, female, 4 Hour, dust/mist, 1.57 mg/l OECD Test Guideline 403

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

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 demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

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

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar material(s):

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

Gastrointestinal tract.

Salivary glands.

Thyroid.

Liver.

For the minor component(s):

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

Kidney.

Liver.

Carcinogenicity

No relevant data found.

Teratogenicity

For similar material(s): Did not cause birth defects in laboratory animals. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. These effects have been shown to be associated with iodine toxicity; similar effects are unlikely in humans. Iodine levels due to use of this product are expected to be much lower than the maximum tolerable upper intake limits in humans for iodine as recommended by the World Health Organization.

Reproductive toxicity

For the active ingredient(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. These effects have been shown to be associated with iodine toxicity; similar effects are unlikely in humans. Iodine levels due to use of this product are expected to be much lower than the maximum tolerable upper intake limits in humans for iodine as recommended by the World Health Organization.

Mutagenicity

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

Aspiration Hazard

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

COMPONENTS INFLUENCING TOXICOLOGY:**Diiodomethyl-p-tolylsulfone****Acute oral toxicity**

LD50, Rat, > 5,000 mg/kg

Lactose**Acute oral toxicity**

LD50, Rat, > 10,000 mg/kg

Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde**Acute oral toxicity**

Single dose oral LD50 has not been determined.

Amorphous precipitated silica**Acute oral toxicity**

LD50, Rat, > 5,000 mg/kg

Sodium lauryl sulfate**Acute oral toxicity**

LD50, Rat, 1,200 mg/kg

12. ECOLOGICAL INFORMATION

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

Toxicity**Diiodomethyl-p-tolylsulfone****Acute toxicity to fish**

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

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

LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, 0.35 - 0.75 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 48 Hour, 0.071 - 8 mg/l, OECD Test Guideline 202 or Equivalent

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, 0.279 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to bacteria

IC50, activated sludge, > 9 mg/l, OECD 209 Test

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), > 5,620 ppm

dietary LC50, Anas platyrhynchos (Mallard duck), > 5,620 ppm

oral LD50, Colinus virginianus (Bobwhite quail), > 2,510 mg/kg

Lactose**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde**Acute toxicity to fish**

No relevant data found.

Amorphous precipitated silica**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, 5,000 - 10,000 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), Static, 24 Hour, > 10,000 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 440 mg/l

Sodium lauryl sulfate

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), 96 Hour, 4.6 mg/l, Method Not Specified.

LC50, Pimephales promelas (fathead minnow), 96 Hour, 29 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 6.2 - 49.4 mg/l, Method Not Specified.

LC50, saltwater mysid Mysidopsis bahia, 96 Hour, 6.1 - 18.3 mg/l

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Biomass, 117 mg/l

Toxicity to bacteria

EC50, activated sludge, 30 min, 130 - 170 mg/l, OECD 209 Test

Chronic toxicity to fish

NOEC, Pimephales promelas (fathead minnow), 42 d, > 1.357 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), 7 d, 0.88 mg/l

Persistence and degradability

Diiodomethyl-p-tolylsulfone

Biodegradability: Inherent biodegradable test(s) with radiolabeled material shows complete primary biodegradation of the parent compound. This was coupled with limited mineralization (<20%) to radiolabeled CO₂ in the 28 day test. These results indicate that the material is susceptible to complete degradation consistent with inherent, primary biodegradability.

10-day Window: Fail

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

10-day Window: Fail

Biodegradation: 10.8 - 13.8 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.76 mg/mg Calculated.

Stability in Water (1/2-life)

Hydrolysis, half-life, 2.7 d, pH 7, Half-life Temperature 25 °C

Hydrolysis, half-life, 3.4 d, pH 9, Half-life Temperature 25 °C

Lactose

Biodegradability: No relevant information found.

Theoretical Oxygen Demand: 1.12 mg/mg Calculated.

Photodegradation

Atmospheric half-life: 0.069 d

Method: Estimated.

Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde

Biodegradability: No relevant data found.

Amorphous precipitated silica

Biodegradability: Biodegradation is not applicable.

Sodium lauryl sulfate

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

10-day Window: Not applicable

Biodegradation: 85 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

10-day Window: Pass

Biodegradation: 95 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 2.00 mg/mg

Chemical Oxygen Demand: 0.68 mg/g

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	57 - 97 %

Bioaccumulative potential

Bioaccumulation: No test data available

Mobility in soil**Diiodomethyl-p-tolylsulfone**

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

Partition coefficient (Koc): 200 Estimated.

Lactose

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

Partition coefficient (Koc): 10 Estimated.

Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde

No relevant data found.

Amorphous precipitated silica

No relevant data found.

Sodium lauryl sulfate

Expected to be relatively immobile in soil (Koc > 5000).

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 (Koc): > 5000 Estimated.

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 option is to contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. The preferred option in other jurisdictions is to contact the regulatory authority for this product for guidance.

Treatment and disposal methods of used packaging: Content Disposal 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. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Diiodomethyl-p-tolylsulfone)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Diiodomethyl-p-tolylsulfone
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	Environmentally hazardous substance, solid,
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	n.o.s.(Diiodomethyl-p-tolylsulfone)
UN number	UN 3077
Class	9
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.

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

Combustible dust

Acute toxicity (any route of exposure)

Serious eye damage or eye irritation

Respiratory or skin sensitisation

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

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

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

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

This material does not contain any components with a CERCLA RQ.

Pennsylvania Worker and Community Right-To-Know Act:

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

Components	CASRN
Amorphous precipitated silica	112926-00-8

California Prop. 65

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

United States TSCA Inventory (TSCA)

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: 464-672

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

Harmful if absorbed through the skin

This pesticide is toxic to fish and aquatic invertebrates.

16. OTHER INFORMATION

Revision

Identification Number: 144561 / 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

Dow IHG	Dow Industrial Hygiene Guideline
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-3	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
STEL	Short term exposure limit
TWA	Time weighted average

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.

US