SAFETY DATA SHEET

DDP SPECIALTY ELECTRONIC MATERIALS US, INC.

Product name: NEOLONE™ MXP Preservative

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: NEOLONE™ MXP Preservative

Recommended use of the chemical and restrictions on use
Identified uses: Preservative

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
This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.
Eye irritation - Category 2A
Skin sensitisation - Category 1

Label elements
Hazard pictograms

Signal word: **WARNING!**

Hazards
May cause an allergic skin reaction.
Causes serious eye irritation.

Precautionary statements

Prevention
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
Wear eye protection/ face protection.
Wear protective gloves.

Response
IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: 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

Chemical nature: Organic Mixture Aqueous
This product is a mixture.

Component	CASRN	Concentration
2-Methyl-4-isothiazolin-3-one	2682-20-4	>= 1.4 - 1.6 %
Water	7732-18-5	>= 1.0 - 1.5 %
Phenoxyethanol	122-99-6	>= 72.0 - 77.0 %
Benzoic acid, 4-hydroxy-, methyl ester	99-76-3	>= 14.0 - 16.0 %
Hydroxy-benzoic acid, propyl ester	94-13-3	>= 7.0 - 8.0 %

4. FIRST AID MEASURES

Description of first aid measures
Inhalation: Move to fresh air. Oxygen or artificial respiration if needed. Consult a physician.

Skin contact: Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. Wash contaminated clothing before re-use. Immediate medical attention is required.

Eye contact: Rinse immediately with plenty of water and seek medical advice.

Ingestion: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.

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: MATERIAL IS SEVERELY IRRITATING. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water spray Foam Dry powder Carbon dioxide (CO2)

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture
Hazardous combustion products: During a fire, irritating and highly toxic gases and/or fumes may be generated during combustion or decomposition.

Unusual Fire and Explosion Hazards: Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

Advice for firefighters
Fire Fighting Procedures: Contain run-off. Remain upwind. Avoid breathing noxious fumes from fire-exposed material.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Ventilate the area. Refer to protective measures listed in sections 7 and 8. MATERIAL IS A POTENTIAL SENSITIZER.

Environmental precautions: Try to prevent the material from entering drains or water courses. Do not contaminate surface water.

Methods and materials for containment and cleaning up: Ensure adequate ventilation. Soak up with inert absorbent material. Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with skin and eyes. For personal protection see section 8. May cause sensitisation of susceptible persons by skin contact. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied.

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Keep from freezing - product stability may be affected.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
2-Methyl-4-isothiazolin-3-one	Dow IHG	TWA	1.5 mg/m3
	Dow IHG	STEL	4.5 mg/m3
Phenoxyethanol	Dow IHG	TWA	5 ppm
	Dow IHG	TWA	SKIN

Exposure controls

Engineering controls: Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Hygiene measures: Shower or bathe at the end of working.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Tightly fitting safety goggles

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. Wear suitable gloves. Rubber gloves Nitrile rubber Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Rinse and remove gloves immediately after use. Wash hands with soap and water.

Other protection: Chemical resistant apron Impervious clothing

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid clear
Color	colorless to pale yellow

Odor	No data available
Odor Threshold	No data available
pH	3 - 5
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	121 °C (250 °F) CC (Solvent)
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Moderately soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
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: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use. Product will not undergo polymerization.

Conditions to avoid: None known.

Incompatible materials: None known.

Hazardous decomposition products: No data available

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Acute oral toxicity
Product test data not available. Refer to component data.

Acute dermal toxicity
Product test data not available. Refer to component data.

Acute inhalation toxicity
Product test data not available. Refer to component data.

Skin corrosion/irritation
Product test data not available. Refer to component data.

Serious eye damage/eye irritation
Product test data not available. Refer to component data.

Sensitization
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Product test data not available. Refer to component data.

Carcinogenicity
Product test data not available. Refer to component data.

Teratogenicity
Product test data not available. Refer to component data.

Reproductive toxicity
Product test data not available. Refer to component data.

Mutagenicity
Product test data not available. Refer to component data.

Aspiration Hazard
Product test data not available. Refer to component data.

Additional information
No toxicity data are available for this material.

COMPONENTS INFLUENCING TOXICOLOGY:

2-Methyl-4-isothiazolin-3-one

Acute oral toxicity
LD50, Rat, female, 183 mg/kg

LD50, Rat, male, 235 mg/kg

Acute dermal toxicity
LD50, Rat, 242 mg/kg

Acute inhalation toxicity
The LC50 has not been determined.,

Skin corrosion/irritation
Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

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
Has caused allergic skin reactions when tested in guinea pigs.

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

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity
Did not cause birth defects in laboratory animals.

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

Mutagenicity
Negative in genetic toxicity tests.

Aspiration Hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Phenoxyethanol

Acute oral toxicity
LD50, Rat, 1,840 mg/kg

Acute dermal toxicity
Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. LD50, Rabbit, > 2,214 mg/kg

Acute inhalation toxicity
At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material may cause respiratory irritation and other effects.

LC50, Rat, 6 Hour, Aerosol, 1 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation
Prolonged exposure not likely to cause significant skin irritation.
May cause more severe response on covered skin (under clothing, gloves).

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

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.
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:
Blood.
Kidney.
Liver.
Thyroid.
Respiratory tract.

Carcinogenicity
No relevant data found.

Teratogenicity
Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity
In animal studies, repeated exposures did not have any effects on reproductive organs.

Mutagenicity
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.

Benzoic acid, 4-hydroxy-, methyl ester

Acute oral toxicity
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

LD50, Rat, male, > 5,000 mg/kg

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity
The LC50 has not been determined.

Skin corrosion/irritation
Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.
Corneal injury is unlikely.

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

For respiratory sensitization:
No relevant data found.

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

Carcinogenicity
No relevant data found.

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

Reproductive toxicity
No relevant data found.

Mutagenicity
Animal genetic toxicity studies were negative.

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

Hydroxy-benzoic acid, propyl ester

Acute oral toxicity
Single dose oral LD50 has not been determined.

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity
The LC50 has not been determined.

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

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

May cause slight corneal injury.

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
No relevant data found.

Carcinogenicity
No relevant data found.

Teratogenicity
No relevant data found.

Reproductive toxicity
No relevant data found.

Mutagenicity
No relevant data found.

12. ECOLOGICAL INFORMATION

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

General Information
There is no data available for this product.

Toxicity

2-Methyl-4-isothiazolin-3-one

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), 96 Hour, 4.77 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), 48 Hour, 0.93 - 1.9 mg/l

Acute toxicity to algae/aquatic plants
EC50, Algae (Selenastrum capricornutum), 72 Hour, Growth rate, 0.158 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna, 21 d, 0.04 mg/l

Phenoxyethanol

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 344 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 500 mg/l

Acute toxicity to algae/aquatic plants
EbC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Biomass, > 500 mg/l

Toxicity to bacteria
EC50, Bacteria, 17 Hour, 880 mg/l

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), flow-through test, 34 d, mortality, 23 mg/l
LOEC, Pimephales promelas (fathead minnow), flow-through test, 34 d, mortality, 50 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 9.43 mg/l
LOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 22.5 mg/l

Benzoic acid, 4-hydroxy-, methyl ester

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Oryzias latipes (Orange-red killifish), 96 Hour, 59.5 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 11.2 mg/l

Hydroxy-benzoic acid, propyl ester

Acute toxicity to fish
No relevant data found.

Acute toxicity to aquatic invertebrates
No relevant information found.

Persistence and degradability

2-Methyl-4-isothiazolin-3-one

Biodegradability: Material is expected to be readily biodegradable.

Biodegradation: 98 %
Exposure time: 48 d
Method: Simulation study

Phenoxyethanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
10-day Window: Pass

Biodegradation: > 90 %
Exposure time: 15 d
Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.18 mg/mg

Chemical Oxygen Demand: 2.12 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	22 %
10 d	71 %
20 d	80 %

Stability in Water (1/2-life)
Hydrolysis, half-life, > 1 year, pH 7, Half-life Temperature 50 °C, Estimated.

Benzoic acid, 4-hydroxy-, methyl ester
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. 10-day Window: Pass

Biodegradation: 89 %
Exposure time: 28 d

Hydroxy-benzoic acid, propyl ester
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. 10-day Window: Pass
Method: OECD Test Guideline 301B or Equivalent

Biodegradation: 100 %
Exposure time: 6 d

Bioaccumulative potential

2-Methyl-4-isothiazolin-3-one
Bioaccumulation: Does not bioaccumulate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.75 Measured

Phenoxyethanol
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.2 at 23 °C Measured
Bioconcentration factor (BCF): 0.35

Benzoic acid, 4-hydroxy-, methyl ester
Partition coefficient: n-octanol/water(log Pow): 1.96 Calculated.

Hydroxy-benzoic acid, propyl ester
Partition coefficient: n-octanol/water(log Pow): 3.04 No information available.

Mobility in soil

2-Methyl-4-isothiazolin-3-one
No relevant data found.

Phenoxyethanol
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient(Koc): 40.74 Measured

Benzoic acid, 4-hydroxy-, methyl ester
Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient(Koc): 280

Hydroxy-benzoic acid, propyl ester
No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: For disposal, incinerate this material at a facility that complies with local, state, and federal regulations. (See 40 CFR 268)

14. TRANSPORT INFORMATION

DOT
Not regulated for transport

Classification for SEA transport (IMO-IMDG):
Not regulated for transport

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):
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.

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard
This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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

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

Components	CASRN
Phenoxyethanol	122-99-6

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103
Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.
This material does not contain any components with a CERCLA RQ.

Pennsylvania
Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

United States TSCA Inventory (TSCA)
The product is used in a food, drug or cosmetic application and is subject to the applicable regulation. It contains a component exempt from inventory listing requirements. Because an intentional component of the product is not on the inventory, the product may only be used in the exempt application.

16. OTHER INFORMATION

Hazard Rating System
HMIS

Health	Flammability	Physical Hazard
3*	1	0

* = Chronic Effects (See Hazards Identification)

Revision
Identification Number: 101167630 / A749 / Issue Date: 10/16/2018 / Version: 4.0
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
SKIN	Absorbed via skin
STEL	Short Term Exposure Limit (STEL):
TWA	Time Weighted Average (TWA):

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.