



SAFETY DATA SHEET

DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC

Product name: MOLYKOTE® G-N-Plus Paste

Issue Date: 10/16/2018

Print Date: 03/24/2022

DDP SPECIALTY ELECTRONIC MATERIALS US 9, LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: MOLYKOTE® G-N-Plus Paste

Recommended use of the chemical and restrictions on use

Identified uses: Lubricants and lubricant additives

COMPANY IDENTIFICATION

DDP SPECIALTY ELECTRONIC MATERIALS
US 9, LLC
974 Centre Road
Wilmington DE 19805
UNITED STATES

Customer Information Number:

833-338-7668

SDSQuestion-NA@dupont.com

EMERGENCY TELEPHONE NUMBER

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

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Serious eye damage - Category 1

Label elements

Hazard pictograms



Signal word: DANGER!

Hazards

Causes serious eye damage.

Precautionary statements**Prevention**

Wear eye protection/ face protection.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, in mineral oil
This product is a mixture.

| Component | CASRN | Concentration |
|-------------------------------|-----------|---------------------|
| White mineral oil (petroleum) | 8042-47-5 | >= 33.0 - <= 49.0 % |
| Graphite | 7782-42-5 | >= 8.0 - <= 12.0 % |
| Molybdenum disulfide | 1317-33-5 | >= 6.0 - < 10.0 % |
| Paraffin/Hydrocarbon waxes | 8002-74-2 | >= 2.6 - <= 3.5 % |
| ALUMINUM PHOSPHATE SOLUTION | 7784-30-7 | >= 1.7 - <= 2.3 % |

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 effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

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: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed:

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

Indication of any immediate medical attention and special treatment needed

Notes to physician: 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.

5. FIREFIGHTING MEASURES

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

Unsuitable extinguishing media: None known.

Special hazards arising from the substance or mixture

Hazardous combustion products: Silicon oxides Formaldehyde Carbon oxides Metal oxides Oxides of phosphorus Sulphur oxides

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health.

Advice for firefighters

Fire Fighting Procedures: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Wipe up or scrape up and contain for salvage or disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine

which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not swallow. Do not get in eyes. Avoid prolonged or repeated contact with skin. Keep container tightly closed. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Keep tightly closed. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

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

| Component | Regulation | Type of listing | Value/Notation |
|-------------------------------|------------|------------------------------|-------------------------------------|
| White mineral oil (petroleum) | OSHA P0 | TWA | 5 mg/m3 |
| | OSHA Z-1 | TWA Mist | 5 mg/m3 |
| | ACGIH | TWA Inhalable fraction | 5 mg/m3 |
| Graphite | OSHA Z-3 | TWA Dust | 15 Million particles per cubic foot |
| | OSHA Z-1 | TWA total dust | 15 mg/m3 |
| | OSHA Z-1 | TWA respirable fraction | 5 mg/m3 |
| | ACGIH | TWA Respirable fraction | 2 mg/m3 |
| | OSHA Z-1 | TWA total dust | 15 mg/m3 , Molybdenum |
| Molybdenum disulfide | ACGIH | TWA Inhalable fraction | 10 mg/m3 , Molybdenum |
| | ACGIH | TWA Respirable fraction | 3 mg/m3 , Molybdenum |
| | CAL PEL | PEL Total dust | 10 mg/m3 , Molybdenum |
| | CAL PEL | PEL respirable dust fraction | 3 mg/m3 , Molybdenum |
| | ACGIH | TWA | 2 mg/m3 |
| Paraffin/Hydrocarbon waxes | OSHA P0 | TWA | 2 mg/m3 |
| | ACGIH | TWA Fumes | 2 mg/m3 |

ALUMINUM PHOSPHATE
SOLUTION

ACGIH

TWA Respirable
fraction

1 mg/m3 , Aluminium

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

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 when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, 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 | paste |
| Color | grey |
| Odor | none |
| Odor Threshold | No data available |
| pH | Not applicable |
| Melting point/range | No data available |
| Freezing point | No data available |
| Boiling point (760 mmHg) | Not applicable |
| Flash point | closed cup > 200 °C (> 392 °F) |

| | |
|--|--|
| Evaporation Rate (Butyl Acetate = 1) | Not applicable |
| Flammability (solid, gas) | Not classified as a flammability hazard |
| Lower explosion limit | No data available |
| Upper explosion limit | No data available |
| Vapor Pressure | Not applicable |
| Relative Vapor Density (air = 1) | No data available |
| Relative Density (water = 1) | 1.35 |
| Water solubility | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| Dynamic Viscosity | Not applicable |
| Kinematic Viscosity | Not applicable |
| Explosive properties | Not explosive |
| Oxidizing properties | The substance or mixture is not classified as oxidizing. |
| Molecular weight | No data available |
| Particle size | 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: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours. Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde.

Conditions to avoid: None known.

Incompatible materials: Oxidizing agents

Hazardous decomposition products: Formaldehyde.

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

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.

As product: The dermal LD50 has not been determined.

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects.

As product: The LC50 has not been determined.

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

For skin sensitization:

Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

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

Carcinogenicity

Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity

Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Reproductive toxicity

Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity

Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.

Aspiration Hazard

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

COMPONENTS INFLUENCING TOXICOLOGY:**White mineral oil (petroleum)****Acute oral toxicity**

LD50, Rat, > 5,000 mg/kg OECD Test Guideline 401

Acute dermal toxicity

LD50, Rabbit, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, dust/mist, > 5 mg/l OECD Test Guideline 403

Graphite

Acute oral toxicity

LD50, Rat, > 2,000 mg/kg OECD Test Guideline 401 No deaths occurred at this concentration.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, > 2 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Molybdenum disulfide

Acute oral toxicity

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

Acute dermal toxicity

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

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, > 2.82 mg/l No deaths occurred at this concentration.

Paraffin/Hydrocarbon waxes

Acute oral toxicity

LD50, Rat, male and female, > 5,000 mg/kg OECD Test Guideline 401 No deaths occurred at this concentration.

Acute dermal toxicity

LD50, Rat, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

Acute inhalation toxicity

The LC50 has not been determined.

ALUMINUM PHOSPHATE SOLUTION

Acute oral toxicity

LD50, Rat, female, > 2,000 mg/kg OECD Test Guideline 420 No deaths occurred at this concentration.

Acute dermal toxicity

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

The dermal LD50 has not been determined.

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.1 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

12. ECOLOGICAL INFORMATION

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

Toxicity

White mineral oil (petroleum)

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).
LL50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

LL50, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 100 mg/l, OECD Test Guideline 201

Chronic toxicity to fish

NOEC, Oncorhynchus mykiss (rainbow trout), 28 d, 1,000 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, 1,000 mg/l

Graphite

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), 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

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

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC50, 3 Hour, > 1,012.5 mg/l, OECD Test Guideline 209

Molybdenum disulfide

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
For similar material(s):
LC50, Fish, 96 Hour, > 100 mg/l

Acute toxicity to aquatic invertebrates

Based on data from similar materials

EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants

Based on data from similar materials

ErC50, algae, 72 Hour, Growth rate, > 100 mg/l

Toxicity to bacteria

EC50, 30 Hour, Respiration rates., > 100 mg/l

Chronic toxicity to fish

Based on data from similar materials

NOEC, Fish, 34 d, > 10 mg/l

Chronic toxicity to aquatic invertebrates

Based on data from similar materials

NOEC, Daphnia magna, 21 d, > 10 mg/l

Paraffin/Hydrocarbon waxes

Acute toxicity to fish

Based on information for component(s):

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).

ALUMINUM PHOSPHATE SOLUTION

Acute toxicity to fish

For similar material(s):

Material is practically non-toxic to aquatic organisms on an acute basis
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna, Static, 48 Hour, > 100 mg/l, OECD Test Guideline 202

Toxicity to bacteria

EC50, 3 Hour, > 1,000 mg/l, OECD Test Guideline 209

Persistence and degradability

White mineral oil (petroleum)

Biodegradability: 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. Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

10-day Window: Fail

Biodegradation: 0 - 24 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 3.50 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 1.291 d
Method: Estimated.

Graphite

Biodegradability: Biodegradation is not applicable.

Molybdenum disulfide

Biodegradability: Biodegradability is not applicable to inorganic substances.

Paraffin/Hydrocarbon waxes

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

ALUMINUM PHOSPHATE SOLUTION

Biodegradability: No relevant data found.

Bioaccumulative potential

White mineral oil (petroleum)

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient: n-octanol/water(log Pow): 5.18 Measured
Bioconcentration factor (BCF): 1,900 Fish

Graphite

Bioaccumulation: No relevant data found.

Molybdenum disulfide

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

Paraffin/Hydrocarbon waxes

Bioaccumulation: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).
Partition coefficient: n-octanol/water(log Pow): > 6 Calculated.

ALUMINUM PHOSPHATE SOLUTION

Bioaccumulation: No relevant data found.

Mobility in soil

White mineral oil (petroleum)

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient (Koc): 510 Estimated.

Graphite

No relevant data found.

Molybdenum disulfide

No relevant data found.

Paraffin/Hydrocarbon waxes

No relevant data found.

ALUMINUM PHOSPHATE SOLUTION

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Not regulated for transport
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

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

Serious eye damage or eye irritation

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

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

Pennsylvania Right To Know

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

Components

CASRN

White mineral oil (petroleum)

8042-47-5

Calcium hydroxide

1305-62-0

Graphite

7782-42-5

Hydroxylapatite

1306-06-5

Molybdenum disulfide

1317-33-5

Paraffin/Hydrocarbon waxes

8002-74-2

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)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

NFPA

| Health | Flammability | Instability |
|--------|--------------|-------------|
| 3 | 1 | 0 |

HMIS

| Health | Flammability | Physical Hazard |
|--------|--------------|-----------------|
| 0/ | 1 | 0 |

Revision

Identification Number: 1676393 / A776 / Issue Date: 10/16/2018 / Version: 1.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

| | |
|----------|---|
| ACGIH | USA. ACGIH Threshold Limit Values (TLV) |
| CAL PEL | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
| 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 |
| OSHA Z-3 | USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts |
| PEL | Permissible exposure limit |
| TWA | 8-hour, 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 9, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US