



**SAFETY DATA SHEET**  
DDP SPECIALTY ELECTRONIC MATERIALS  
US 9, LLC

**Product name: MOLYKOTE® D-321 R Anti-Friction Coating  
Spray**

**Issue Date: 02/02/2021**

**Print Date: 06/23/2023**

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

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## 1. IDENTIFICATION

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**Product name: MOLYKOTE® D-321 R Anti-Friction Coating Spray**

**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

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## 2. HAZARDS IDENTIFICATION

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### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Flammable aerosols - Category 1

Gases under pressure - Dissolved gas

Specific target organ toxicity - repeated exposure - Category 1

### Label elements

**Hazard pictograms**



Signal word: **DANGER!**

#### Hazards

Extremely flammable aerosol.

Contains gas under pressure; may explode if heated.

Causes damage to organs (Central nervous system) through prolonged or repeated exposure.

#### Precautionary statements

##### Prevention

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

Do not spray on an open flame or other ignition source.

Pressurized container: Do not pierce or burn, even after use.

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

Do not breathe 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.

##### Response

Get medical advice/ attention if you feel unwell.

##### Storage

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

##### 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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**Chemical nature:** Molybdenum disulfide, aerosol

This product is a mixture.

Component	CASRN	Concentration
Butane (containing < 0.1% butadiene ))	106-97-8	>= 50.0 - < 60.0 %
n-Butyl Acetate	123-86-4	>= 10.0 - < 20.0 %
Propane	74-98-6	>= 10.0 - < 20.0 %

Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	>= 5.0 - < 10.0 %
Molybdenum disulfide	1317-33-5	>= 5.0 - < 10.0 %
Polybutyl titanate	9022-96-2	>= 1.0 - < 5.0 %
Graphite	7782-42-5	>= 1.0 - < 5.0 %
Ethylbenzene	100-41-4	>= 0.1 - < 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 not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**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:** Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Repeated excessive exposure may aggravate preexisting lung disease.

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## 5. FIREFIGHTING MEASURES

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

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

**Special hazards arising from the substance or mixture****Hazardous combustion products:** Carbon oxides Sulphur oxides

**Unusual Fire and Explosion Hazards:** Flash back possible over considerable distance. May form explosive mixtures in air. Exposure to combustion products may be a hazard to health. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure. Vapours may form explosive mixtures with air.

**Advice for firefighters**

**Fire Fighting Procedures:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. EXPLOSION HAZARD. Fight advanced fires from a protected location. Do not use a solid water stream as it may scatter and spread fire.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Fight fire remotely due to the risk of explosion. 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.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

**Environmental precautions:** Do not release the product to the aquatic environment above defined regulatory levels. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

**Methods and materials for containment and cleaning up:** Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

See sections: 7, 8, 11, 12 and 13.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Avoid inhalation of vapour or mist. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Close valve after each use and when empty. Do NOT

change or force fit connections. Open the valves slowly to prevent pressure surges. Handle in accordance with good industrial hygiene and safety practice. Do not spray on an open flame or other ignition source.

Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

**Conditions for safe storage:** Keep in a cool, well-ventilated place. Keep away from direct sunlight. Store in accordance with the particular national regulations. Do not pierce or burn, even after use. Keep cool. Protect from sunlight.

Do not store with the following product types: Oxidizing agents. Self-reactive substances and mixtures. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives.

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
Butane (containing < 0.1% butadiene ))	ACGIH	STEL	1,000 ppm
	Further information: EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; CNS impair: Central Nervous System impairment		
	NIOSH REL	TWA	1,900 mg/m3 800 ppm
	Further information: Also see specific listing for Isobutane.		
n-Butyl Acetate	Dow IHG	TWA	75 ppm
	Dow IHG	STEL	150 ppm
	OSHA Z-1	TWA	710 mg/m3 150 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	CAL PEL	PEL	710 mg/m3 150 ppm
	CAL PEL	STEL	950 mg/m3 200 ppm
	ACGIH	TWA	50 ppm
	Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation		
	ACGIH	STEL	150 ppm
	Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation		
Propane	ACGIH		See Further information
	Further information: See Appendix F: Minimal Oxygen Content; EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; asphyxia: Asphyxia; D: Simple asphyxiant; see discussion covering Minimal Oxygen Content found in the 'Definitions and Notations' section following the NIC tables		
	OSHA Z-1	TWA	1,800 mg/m3 1,000 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	CAL PEL	PEL	1,800 mg/m3 1,000 ppm
	Further information: (h): A number of gases and vapors, when present in high concentrations, act primarily as asphyxiants without other adverse effects. A concentration limit is not included for each material because the limiting factor is the		

	available oxygen. (Several of these materials present fire or explosion hazards.)		
	NIOSH REL	TWA	1,800 mg/m3 1,000 ppm
Naphtha (petroleum), hydrodesulfurized heavy	OSHA Z-1	TWA	2,000 mg/m3 500 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	OSHA P0	TWA	1,600 mg/m3 400 ppm
Molybdenum disulfide	OSHA Z-1	TWA total dust	15 mg/m3 , Molybdenum
	ACGIH	TWA Inhalable particulate matter	10 mg/m3 , Molybdenum
	ACGIH	TWA Respirable particulate matter	3 mg/m3 , Molybdenum
	CAL PEL	PEL Total dust	10 mg/m3 , Molybdenum
	CAL PEL	PEL respirable dust fraction	3 mg/m3 , Molybdenum
	Further information: (n): The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: Aerodynamic Diameter in Micrometers (unit density sphere)..... Percent Passing Selector 0 ..... 100 1 ..... 97 2 ..... 91 3 ..... 74 4 ..... 50 5 ..... 30 6 ..... 17 7 ..... 9 8 ..... 5 10 ..... 1		
Graphite	OSHA Z-1		See Further information
	Further information: (3): See table Z-3		
	OSHA Z-3	TWA Dust	15 Million particles per cubic foot
	Further information: a: Based on impinger samples counted by light-field techniques.; mppcf X 35.3 = million particles per cubic meter = particles per c.c		
	OSHA Z-1	TWA total dust	15 mg/m3
	OSHA Z-1	TWA respirable fraction	5 mg/m3
	ACGIH	TWA Respirable particulate matter	2 mg/m3
	Further information: pneumoconiosis: Pneumoconiosis		
	CAL PEL	PEL Total dust	10 mg/m3
	CAL PEL	PEL respirable dust fraction	5 mg/m3
	Further information: (n): The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: Aerodynamic Diameter in Micrometers (unit density sphere)..... Percent Passing Selector 0 ..... 100 1 ..... 97 2 ..... 91 3 ..... 74 4 ..... 50 5 ..... 30 6 ..... 17 7 ..... 9 8 ..... 5 10 ..... 1		
	CAL PEL	PEL Respirable dust	2.5 mg/m3
	NIOSH REL	TWA Respirable	2.5 mg/m3
	Further information: Also see specific listing for Graphite (synthetic).		
Ethylbenzene	ACGIH	TWA	20 ppm
	Further information: cochlear imp: Cochlear impair; kidney dam (nephropathy): Kidney damage (nephropathy); URT irr: Upper Respiratory Tract irritation; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A3:		

	Confirmed animal carcinogen with unknown relevance to humans		
	OSHA Z-1	TWA	435 mg/m3 100 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	CAL PEL	PEL	22 mg/m3 5 ppm
	CAL PEL	STEL	130 mg/m3 30 ppm
	NIOSH REL	TWA	435 mg/m3 100 ppm
	NIOSH REL	ST	545 mg/m3 125 ppm

This material contains a simple asphyxiant which may displace oxygen. Insure adequate ventilation to prevent an oxygen deficient atmosphere.

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing:

butanol

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	0.15 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 in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields). If exposure causes eye discomfort, use a full-face respirator.

**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. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Aerosol containing a dissolved gas
Color	black
Odor	solvent-like
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	Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Extremely flammable aerosol.
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)	1.05
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	Not applicable

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

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** Not classified as a reactivity hazard.



**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** Can react with strong oxidizing agents. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure. Vapours may form explosive mixture with air. Extremely flammable aerosol.

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

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:** Butanol.

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## **11. TOXICOLOGICAL INFORMATION**

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

### **Acute toxicity**

#### **Acute oral toxicity**

Product test data not available. Refer to component data.

#### **Acute dermal toxicity**

Product test data not available. Refer to component data.

#### **Acute inhalation toxicity**

Product test data not available. Refer to component data.

### **Skin corrosion/irritation**

Product test data not available. Refer to component data.

### **Serious eye damage/eye irritation**

Product test data not available. Refer to component data.

### **Sensitization**

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

### **Carcinogenicity**

Product test data not available. Refer to component data.

### **Teratogenicity**

Product test data not available. Refer to component data.

### **Reproductive toxicity**

Product test data not available. Refer to component data.

**Mutagenicity**

Product test data not available. Refer to component data.

**Aspiration Hazard**

Product test data not available. Refer to component data.

**COMPONENTS INFLUENCING TOXICOLOGY:**

**Butane (containing < 0.1% butadiene )**

**Acute oral toxicity**

Single dose oral LD50 has not been determined.

**Acute dermal toxicity**

The dermal LD50 has not been determined.

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, 658 mg/l

**Skin corrosion/irritation**

No hazard from gas.

**Serious eye damage/eye irritation**

No hazard from gas.

**Sensitization**

For skin sensitization:

No relevant data found.

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)**

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

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

No relevant data found.

**Reproductive toxicity**

No relevant data found.

**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.

**n-Butyl Acetate**

**Acute oral toxicity**

LD50, Rat, male, 12,789 mg/kg

LD50 Oral, Rat, female, 10,760 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, male and female, > 14,112 mg/kg

**Acute inhalation toxicity**

The LC50 has not been determined.

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

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

May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

Corneal injury is unlikely.

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

**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)**

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Nervous system

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

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

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive toxicity**

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, did not interfere with fertility. No toxicity to reproduction

**Mutagenicity**

In vitro 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.

**Propane**

**Acute oral toxicity**

Single dose oral LD50 has not been determined.

**Acute dermal toxicity**

The dermal LD50 has not been determined.

**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, vapour, > 425000 ppm

**Skin corrosion/irritation**

No hazard from gas.

Liquid may cause frostbite upon skin contact.

Effects may be delayed.

**Serious eye damage/eye irritation**

Essentially nonirritating to eyes.

Liquid may cause frostbite.

**Sensitization**

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

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

Available data are inadequate to determine single exposure specific target organ toxicity.

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

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

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

Screening studies suggest that this material does not affect fetal development.

**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.

**Aspiration Hazard**

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

**Naphtha (petroleum), hydrodesulfurized heavy**

**Acute oral toxicity**

Based on data from similar materials LD50, Rat, male and female, > 5,000 mg/kg

**Acute dermal toxicity**

Based on data from similar materials LD50, Rat, male and female, > 4,000 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

Based on data from similar materials LC50, Rat, 4 Hour, vapour, > 13.1 mg/l

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.  
Prolonged or repeated skin contact can cause the following:  
May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.  
Corneal injury is unlikely.

**Sensitization**

For skin sensitization:  
For similar material(s):  
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:  
No relevant data found.

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

May cause drowsiness or dizziness.

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

For similar material(s):  
In humans, effects have been reported on the following organs:  
Central nervous system.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

For similar material(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

**Reproductive toxicity**

For similar material(s): In animal studies, did not interfere with fertility.

**Mutagenicity**

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

**Aspiration Hazard**

May be fatal if swallowed and enters airways.

**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.

**Skin corrosion/irritation**

Brief contact is essentially nonirritating to skin.

Prolonged contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

Corneal injury is unlikely.

**Sensitization**

For skin sensitization:

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

For respiratory sensitization:

No relevant data found.

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

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

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

No relevant data found.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

No relevant data found.

**Reproductive toxicity**

No relevant data found.

**Mutagenicity**

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

**Aspiration Hazard**

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

**Polybutyl titanate**

**Acute oral toxicity**

LD50, Rat, > 2,000 mg/kg

**Acute dermal toxicity**

LD50, Rat, > 5,000 mg/kg

**Acute inhalation toxicity**

The LC50 has not been determined.

**Skin corrosion/irritation**

Essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause severe eye irritation.

**Sensitization**

For skin sensitization:

No relevant data found.

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)**

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.

**Aspiration Hazard**

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

**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.

**Skin corrosion/irritation**

Essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause slight temporary eye irritation.

May cause slight temporary corneal injury.

**Sensitization**

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:  
No relevant data found.

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

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

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

Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

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

**Reproductive toxicity**

In animal studies, did not interfere with reproduction.

**Mutagenicity**

In vitro genetic toxicity studies were negative.

**Aspiration Hazard**

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

**Ethylbenzene**

**Acute oral toxicity**

LD50, Rat, 3,500 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, 15,500 mg/kg

**Acute inhalation toxicity**

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

**Skin corrosion/irritation**

Brief contact may cause moderate skin irritation with local redness.

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

May cause drying and flaking of the skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

Vapor may cause lacrimation (tears).

**Sensitization**

For skin sensitization:

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

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



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

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

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

May cause hearing loss based on animal data.

Kidney.

Liver.

Lung.

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

**Carcinogenicity**

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

**Teratogenicity**

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

**Reproductive toxicity**

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

**Mutagenicity**

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

**Aspiration Hazard**

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

**Carcinogenicity**

**Component**

**List**

**Classification**

**Naphtha (petroleum),  
hydrodesulfurized heavy**

IARC

Group 2B: Possibly carcinogenic to humans

**Ethylbenzene**

IARC

Group 2B: Possibly carcinogenic to humans

ACGIH

A3: Confirmed animal carcinogen with unknown relevance to humans.

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**12. ECOLOGICAL INFORMATION**

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

**Toxicity**

**Butane (containing < 0.1% butadiene )**

**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).

**n-Butyl Acetate**

**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, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 18 mg/l

**Acute toxicity to aquatic invertebrates**

LC50, Daphnia magna (Water flea), 48 Hour, 44 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 648 mg/l

**Toxicity to bacteria**

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

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), 21 d, 23 mg/l

**Propane**

**Acute toxicity to fish**

No relevant data found.

**Naphtha (petroleum), hydrodesulfurized heavy**

**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).

Based on data from similar materials

LL50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 10 - 30 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

Based on data from similar materials

EL50, Daphnia magna (Water flea), 48 Hour, 10 - 22 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

Based on data from similar materials

EL50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 4.6 - 10 mg/l, OECD Test Guideline 201

Based on data from similar materials

NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.22 mg/l, OECD Test Guideline 201

**Chronic toxicity to aquatic invertebrates**

Based on data from similar materials

NOELR, Daphnia magna (Water flea), 21 d, 0.097 mg/l

**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

**Polybutyl titanate**

**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

**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

**Ethylbenzene**

**Acute toxicity to fish**

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

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

**Acute toxicity to aquatic invertebrates**

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

**Acute toxicity to algae/aquatic plants**

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

**Toxicity to bacteria**

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

**Chronic toxicity to aquatic invertebrates**

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

**Toxicity to soil-dwelling organisms**

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

**Persistence and degradability**

**Butane (containing < 0.1% butadiene )**

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

**Theoretical Oxygen Demand:** 3.58 mg/mg

**Photodegradation**

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

**Sensitization:** OH radicals

**Atmospheric half-life:** 49 Hour

**Method:** Estimated.

**n-Butyl Acetate**

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

10-day Window: Pass

**Biodegradation:** 83 %

**Exposure time:** 28 d

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

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

**Photodegradation**

**Sensitization:** OH radicals

**Atmospheric half-life:** 2.32 d

**Method:** Estimated.

**Propane**

**Biodegradability:** No relevant data found.

**Theoretical Oxygen Demand:** 3.64 mg/mg

**Photodegradation**

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

**Sensitization:** OH radicals

**Atmospheric half-life:** 8.4 d

**Method:** Estimated.

**Naphtha (petroleum), hydrodesulfurized heavy**

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

Based on data from similar materials 10-day Window: Pass

**Biodegradation:** 74.7 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F

**Molybdenum disulfide**

**Biodegradability:** Biodegradability is not applicable to inorganic substances.

**Polybutyl titanate**

**Biodegradability:** Biodegradability is not applicable to inorganic substances.

**Graphite**

**Biodegradability:** Biodegradation is not applicable.

**Ethylbenzene**

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

10-day Window: Pass

**Biodegradation:** 100 %

**Exposure time:** 6 d

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

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

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

**Biological oxygen demand (BOD)**

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

**Photodegradation**

**Sensitization:** OH radicals

**Atmospheric half-life:** 55 Hour

**Method:** Estimated.

**Bioaccumulative potential**

**Butane (containing < 0.1% butadiene )**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.89 Measured

**n-Butyl Acetate**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** Pow: 3.2 at 25 °C Measured

**Bioconcentration factor (BCF):** 15 Fish Estimated.

**Propane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.36 Measured

**Naphtha (petroleum), hydrodesulfurized heavy**

**Bioaccumulation:** Based on data from similar materials

**Partition coefficient: n-octanol/water(log Pow):** > 4

**Molybdenum disulfide**

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

**Polybutyl titanate**

**Bioaccumulation:** No relevant data found.

**Graphite**

**Bioaccumulation:** No relevant data found.

**Ethylbenzene**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 3.15 Measured

**Bioconcentration factor (BCF):** 15 Fish Measured

**Mobility in soil**

**Butane (containing < 0.1% butadiene )**

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

**Partition coefficient (Koc):** 44 - 900 Estimated.

**n-Butyl Acetate**

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

**Partition coefficient (Koc):** 19 - 70 Estimated.

**Propane**

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

**Partition coefficient (Koc):** 24 - 460 Estimated.

**Naphtha (petroleum), hydrodesulfurized heavy**

No relevant data found.

**Molybdenum disulfide**

No relevant data found.

**Polybutyl titanate**

No relevant data found.

**Graphite**

No relevant data found.

**Ethylbenzene**

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

**Partition coefficient (Koc):** 518 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. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

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

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## 14. TRANSPORT INFORMATION

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### DOT

<b>Proper shipping name</b>	Aerosols
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	
<b>Reportable Quantity</b>	Xylene, n-Butyl acetate

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

<b>Proper shipping name</b>	AEROSOLS
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	
<b>Marine pollutant</b>	No
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

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

<b>Proper shipping name</b>	Aerosols, flammable
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	

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)

Gases under pressure

Specific target organ toxicity (single or repeated exposure)

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

The following components are subject to reporting levels established by SARA Title III, Section 313:

Components	CASRN
Ethylbenzene	100-41-4

### 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)
Butanol	71-36-3	5000 lbs RQ
Butanol	71-36-3	100 lbs RQ (F003)
Ethylbenzene	100-41-4	1000 lbs RQ
Ethylbenzene	100-41-4	100 lbs RQ (F003)
Benzene	71-43-2	10 lbs RQ (D018)
Benzene	71-43-2	10 lbs RQ
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)

### Pennsylvania Right To Know

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

Components	CASRN
Butane (containing < 0.1% butadiene )	106-97-8
Propane	74-98-6
n-Butyl Acetate	123-86-4
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1
Molybdenum disulfide	1317-33-5
Polybutyl titanate	9022-96-2
Graphite	7782-42-5

### California Prop. 65

WARNING: This product can expose you to chemicals including Ethylbenzene, Benzene, Quartz, which is/are known to the State of California to cause cancer, and Benzene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### United States TSCA Inventory (TSCA)

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



## 16. OTHER INFORMATION

### Hazard Rating System

#### NFPA

Health	Flammability	Instability
0	4	0

#### HMIS

Health	Flammability	Physical Hazard
3*	4	3

\* = Chronic Effects (See Hazards Identification)

### Revision

Identification Number: 4045681 / A776 / Issue Date: 02/02/2021 / Version: 9.0

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)
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
NIOSH REL	USA. NIOSH Recommended Exposure Limits
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
ST	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
STEL	Short Term Exposure Limit (STEL):
TWA	Time Weighted Average (TWA):

### Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population

(Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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.

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