



1-800-375-0605
Option 8 for 24/7 Service



6550 Oley Speaks Way
Canal Winchester, OH 43110



www.RudolphBros.Com
RBCsupport@RudBro.Com



SAFETY DATA SHEET

DDP SPECIALTY ELECTRONIC MATERIALS US,
INC.

Product name: BETASEAL™ 43520A Glass Primer

Issue Date: 10/01/2019

Print Date: 06/09/2020

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

1. IDENTIFICATION

Product name: BETASEAL™ 43520A Glass Primer

Recommended use of the chemical and restrictions on use

Identified uses: A primer - For use in automotive applications.

COMPANY IDENTIFICATION

DDP SPECIALTY ELECTRONIC MATERIALS US,
INC.

400 ARCOLA ROAD
COLLEGEVILLE PA 19426-2914
UNITED STATES

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

Flammable liquids - Category 2

Skin irritation - Category 2

Eye irritation - Category 2A

Respiratory sensitisation - Category 1

Skin sensitisation - Category 1

Reproductive toxicity - Category 1B

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

Aspiration hazard - Category 1

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause drowsiness or dizziness.
May damage fertility or the unborn child.
May cause damage to organs (Nervous system) through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
In case of inadequate ventilation wear respiratory protection.

Response

IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal

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

Other hazards

Static-accumulating flammable liquid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Methyl ethyl ketone	78-93-3	> 40.0 - < 50.0 %
Carbon black	1333-86-4	> 5.0 - < 15.0 %
Toluene	108-88-3	> 5.0 - < 15.0 %
Benzene, 2,4-diisocyanato-1-methyl-, polymer with 1,6-diisocyanatohexane	26426-91-5	> 5.0 - < 15.0 %
Hexane, 1,6-diisocyanato-, homopolymer, 3-(trimethoxysilyl) -1-propanethiol-blocked	252047-49-7	> 5.0 - < 15.0 %
Polyester	35176-78-4	< 10.0 %
n-Butyl Acetate	123-86-4	< 10.0 %
Butanedioic acid, Pentanedioic acid, Hexanedioic acid methyl ester reaction product with 3-Oxazolidineethanol, 2-(1-methylethyl)-	Not available	< 10.0 %
Xylene	1330-20-7	< 1.0 %
Hexamethylene diisocyanate	822-06-0	< 1.0 %
2,4-Toluene diisocyanate	584-84-9	< 1.0 %
Dipotassium monoxide	12136-45-7	< 0.5 %

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 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: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility 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: Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Alcohol consumed before or after exposure may increase adverse effects. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. FIREFIGHTING MEASURES

Extinguishing media

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

Unsuitable extinguishing media: Do not use direct water stream.. Straight or direct water streams may not be effective to extinguish fire..

Special hazards arising from the substance or mixture

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

Unusual Fire and Explosion Hazards: Product reacts with water. Reaction may produce heat and/or gases.. Container may rupture from gas generation in a fire situation.. Electrically ground and bond all equipment.. Flammable mixtures of this product are readily ignited even by static discharge.. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.. Flammable mixtures may exist within the vapor space of containers at room temperature.. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.. Dense smoke is produced when product burns..

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.. Water may not be effective in extinguishing fire.. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Do not use direct water stream. May spread fire.. Eliminate ignition sources.. Move container from fire area if this is possible without hazard.. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source.. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS..

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate

all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. See Section 10 for more specific information. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Cat litter. Sand. Sawdust. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Do not swallow. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Ignition sources can include and are not limited to pilot lights, flames, smoking, sparks, heaters, electrical equipment, and static discharges. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Never use air pressure for transferring product unless a risk assessment has been conducted that includes consideration of the flammability of the product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed. Flammable mixtures may exist within the vapor space of containers at room temperature. Store in a dry place. Avoid moisture.

Storage stability

Storage temperature:

> 10 - < 35 °C (> 50 - <
95 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

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

Component	Regulation	Type of listing	Value
Methyl ethyl ketone	Dow IHG	TWA	50 ppm
	Dow IHG	STEL	100 ppm
	ACGIH	TWA	200 ppm
Further information: CNS impair: Central Nervous System impairment; URT irr: Upper			

	Respiratory Tract irritation; PNS impair: Peripheral Nervous System impairment; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		
	ACGIH	STEL	300 ppm
	Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; PNS impair: Peripheral Nervous System impairment; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		
	OSHA Z-1	TWA	590 mg/m3 200 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	CAL PEL	PEL	590 mg/m3 200 ppm
	CAL PEL	STEL	885 mg/m3 300 ppm
Toluene	ACGIH	TWA	20 ppm
	Further information: visual impair: Visual impairment; female repro: Female reproductive; pregnancy loss: Pregnancy loss; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A4: Not classifiable as a human carcinogen		
	OSHA Z-1		See Further information
	Further information: (2): See Table Z-2		
	OSHA Z-2	TWA	200 ppm
	Further information: Z37.12-1967		
	OSHA Z-2	CEIL	300 ppm
	Further information: Z37.12-1967		
	OSHA Z-2	Peak	500 ppm
	Further information: Z37.12-1967		
	CAL PEL	PEL	37 mg/m3 10 ppm
	Further information: S: Skin		
	CAL PEL	C	500 ppm
	Further information: S: Skin		
	CAL PEL	STEL	560 mg/m3 150 ppm
	Further information: S: Skin		
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		
Xylene	OSHA Z-1	TWA	435 mg/m3 100 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	ACGIH	TWA	100 ppm
	Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	150 ppm
	Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A4: Not classifiable as a human carcinogen		
Hexamethylene diisocyanate	Dow IHG	TWA	0.005 ppm
	Further information: DSEN, RSEN: Skin and respiratory sensitizer		
	Dow IHG	TLV-C	0.02 ppm
	Further information: DSEN, RSEN: Skin and respiratory sensitizer		

	ACGIH	TWA	0.005 ppm
	Further information: URT irr: Upper Respiratory Tract irritation; resp sens: Respiratory sensitization; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		
	CAL PEL	PEL	0.034 mg/m3 0.005 ppm
2,4-Toluene diisocyanate	Dow IHG	TWA Inhalable fraction and vapor	0.005 ppm
	Further information: SKIN, DSEN, RSEN: Absorbed via Skin, Skin Sensitizer, Respiratory sensitizer		
	Dow IHG	C Inhalable fraction and vapor	0.02 ppm
	Further information: SKIN, DSEN, RSEN: Absorbed via Skin, Skin Sensitizer, Respiratory sensitizer		
	CAL PEL	PEL	0.04 mg/m3 0.005 ppm
	CAL PEL	C	0.02 ppm
	CAL PEL	STEL	0.15 mg/m3 0.02 ppm
	OSHA Z-1	C	0.14 mg/m3 0.02 ppm
	Further information: (b): The value in mg/m3 is approximate.; ™: Ceiling limit is to be determined from breathing-zone air samples.		
	ACGIH	TWA Inhalable fraction and vapor	0.001 ppm
	Further information: DSEN: Dermal Sensitization; RSEN: Respiratory sensitization; pulm func: Pulmonary function; eye irr: Eye irritation; asthma: Asthma; A3: Confirmed animal carcinogen with unknown relevance to humans; Skin: Danger of cutaneous absorption		
	ACGIH	STEL Inhalable fraction and vapor	0.005 ppm
	Further information: DSEN: Dermal Sensitization; RSEN: Respiratory sensitization; pulm func: Pulmonary function; eye irr: Eye irritation; asthma: Asthma; A3: Confirmed animal carcinogen with unknown relevance to humans; Skin: Danger of cutaneous absorption		

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.

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methyl ethyl ketone	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI
Toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible)	0.03 mg/l	ACGIH BEI

		o-Cresol	Urine	after exposure ceases) End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Hexamethylene diisocyanate	822-06-0	1,6-Hexamethylene diamine	Urine	End of shift	15 µg/g creatinine	ACGIH BEI
2,4-Toluene diisocyanate	584-84-9	toluene diamine	Urine	End of shift	5 µg/g creatinine	ACGIH BEI

Exposure controls

Engineering controls: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Viton. Avoid gloves made of: 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: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Color	Black
Odor	Solvent
Odor Threshold	No test data available
pH	No test data available
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup -7 °C (19 °F) <i>Setaflash Closed Cup ASTM D3828</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Flammable liquid
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	0.99 <i>ASTM D1475</i>
Water solubility	Not applicable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	No test data available
Explosive properties	No test data available
Oxidizing properties	No test data available
Molecular weight	No data available
Volatile Organic Compounds	4.82 lb/gln <i>EPA Method No. 24</i> (typical value)

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

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

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

Possibility of hazardous reactions: Will not occur by itself.

Conditions to avoid: Some components of this product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid static discharge. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.

Incompatible materials: Avoid contact with: Acids. Alcohols. Amines. Water. Ammonia. Bases. Strong oxidizers. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact. Contact is increased by stirring or if the other material mixes with the diisocyanate. Diisocyanates are not soluble in water and sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.. Gases are released during decomposition..

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. May cause central nervous system effects.
Single dose oral LD50 has not been determined.

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

Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. May cause nausea and vomiting. Alcohol consumed before or after exposure may increase adverse effects. This material contains mineral and/or inorganic fillers. There is essentially no potential for inhalation exposure to these fillers incidental to industrial handling due to the physical state.
The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.
Prolonged contact may cause moderate skin irritation with local redness.
May cause drying and flaking of the skin.
May stain skin.

Serious eye damage/eye irritation

May cause pain disproportionate to the level of irritation to eye tissues.
May cause moderate eye irritation which may be slow to heal.
May cause moderate corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Vapor may cause lacrimation (tears).

Sensitization

For skin sensitization:

A component in this mixture has been shown to be a skin sensitizer.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

For respiratory sensitization:

A component in this mixture may cause an allergic respiratory response.

Reexposure to extremely low isocyanate concentrations may cause allergic respiratory reactions in individuals already sensitized.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Contains component(s) which have been reported to cause effects on the following organs in animals: Central nervous system.

Liver.

Nasal tissue.

Methyl ethyl ketone has caused liver effects in laboratory animals exposed by inhalation to high concentrations.

Methyl ethyl ketone is probably not neurotoxic in itself but it potentiates the neurotoxicity of methyl-n-butyl ketone and n-hexane.

Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.

Intentional misuse by deliberately inhaling toluene may cause nervous system damage, hearing loss, liver and kidney effects and death.

Carcinogenicity

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

Teratogenicity

Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother. In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it has caused birth defects in mice when administered orally, but not by inhalation.

Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects.

Reproductive toxicity

In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals. Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity

For the component(s) tested: In vitro genetic toxicity studies were predominantly negative. The majority of the many genetic toxicity studies done on toluene and methyl ethyl ketone, both in vitro and in animals, have been negative.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

COMPONENTS INFLUENCING TOXICOLOGY:

Methyl ethyl ketone

Acute oral toxicity

LD50, Rat, 2,657 - 5,554 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 34.5 mg/l

Carbon black

Acute oral toxicity

LD50, Rat, > 8,000 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 3,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

LC50, Rat, 1 Hour, dust/mist, 27 mg/l No deaths occurred at this concentration.

Toluene

Acute oral toxicity

LD50, Rat, 5,580 mg/kg

Acute dermal toxicity

LD50, Rabbit, 12,267 mg/kg

Acute inhalation toxicity

Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene. LC50, Rat, male, 4 Hour, vapour, 25.7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Benzene, 2,4-diisocyanato-1-methyl-, polymer with 1,6-diisocyanatohexane

Acute oral toxicity

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

For similar material(s): LD50, Rat, > 5,000 mg/kg

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

Dust may cause irritation to upper respiratory tract (nose and throat).

For similar material(s): LC50, Rat, 4 Hour, dust/mist, > 3.003 mg/l

Hexane, 1,6-diisocyanato-, homopolymer, 3- (trimethoxysilyl) -1-propanethiol-blocked**Acute oral toxicity**

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

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

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

The LC50 has not been determined.

Polyester**Acute oral toxicity**

Single dose oral LD50 has not been determined. Excessive exposure may cause: Gastrointestinal irritation. Nausea and/or vomiting. Diarrhea.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause respiratory irritation.

The LC50 has not been determined.

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.

Butanedioic acid, Pentanedioic acid, Hexanedioic acid methyl ester reaction product with 3-Oxazolidineethanol, 2-(1-methylethyl)-**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.

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

Acute dermal toxicity

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

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

Acute inhalation toxicity

Mist may cause irritation of upper respiratory tract (nose and throat).

The LC50 has not been determined.

Xylene

Acute oral toxicity

LD50, Rat, 4,300 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

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

Hexamethylene diisocyanate

Acute oral toxicity

LD50, Rat, 710 mg/kg

Acute dermal toxicity

LD50, Rat, > 7,000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 0.124 mg/l

2,4-Toluene diisocyanate

Acute oral toxicity

LD50, Rat, female, 4,130 mg/kg

Acute dermal toxicity

LD50, Rabbit, male and female, > 9,400 mg/kg

Acute inhalation toxicity

Easily attainable vapor concentrations may cause serious adverse effects, even death. Excessive exposure to TDI may cause severe irritation of the upper respiratory tract and lungs, fluid in the lungs, permanent decrease of lung function, neurologic disorders, cholinesterase depression and gastrointestinal distress.

LC50, Rat, 1 Hour, vapour, 0.48 mg/l

LC50, Mouse, 6 Hour, dust/mist, 0.1 mg/l

Dipotassium monoxide

Acute oral toxicity

For similar material(s): LD50, Rat, male and female, > 2,000 mg/kg OECD Test Guideline 425 No deaths occurred at this concentration.

Acute dermal toxicity

For similar material(s): LD50, Rat, male and female, > 5,000 mg/kg OECD Test Guideline 402

Acute inhalation toxicity

The LC50 has not been determined.

Carcinogenicity

Component	List	Classification
2,4-Toluene diisocyanate	IARC	Group 2B: Possibly carcinogenic to humans
	US NTP	Reasonably anticipated to be a human carcinogen
	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

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

Toxicity

Methyl ethyl ketone

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), static test, 96 Hour, 2,993 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 308 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (microalgae), static test, 96 Hour, Growth rate inhibition, 2,029 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC50, Bacteria, 96 Hour, > 1,000 mg/l, hUCC

Carbon black

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, Leuciscus idus (Golden orfe), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 24 Hour, > 5,600 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

NOEC, Desmodesmus subspicatus (green algae), 72 Hour, 10,000 mg/l, OECD Test Guideline 201

Toluene

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, 5.8 mg/l

Acute toxicity to aquatic invertebrates

LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3.78 mg/l

Acute toxicity to algae/aquatic plants

EbC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 12.5 mg/l, OECD Test Guideline 201

Toxicity to bacteria

IC50, Bacteria, 16 Hour, 29 mg/l

Chronic toxicity to fish

NOEC, Fish, flow-through test, 40 d, growth, 1.4 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0.74 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 150 - 280 mg/kg

Benzene, 2,4-diisocyanato-1-methyl-, polymer with 1,6-diisocyanatohexane

Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.
No toxicity at the limit of solubility

Hexane, 1,6-diisocyanato-, homopolymer, 3-(trimethoxysilyl) -1-propanethiol-blocked

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 1.55 mg/l

Polyester

Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

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

Butanedioic acid, Pentanedioic acid, Hexanedioic acid methyl ester reaction product with 3-Oxazolidineethanol, 2-(1-methylethyl)-

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Danio rerio (zebra fish), static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

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

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, activated sludge, 3 Hour, Respiration rates., > 1,000 mg/l

Xylene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 2.6 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

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

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (algae), Static, 73 Hour, Growth rate, 4.36 mg/l, OECD Test Guideline 201 or Equivalent
NOEC, Pseudokirchneriella subcapitata (green algae), 73 Hour, Growth rate, 0.44 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, Oncorhynchus mykiss (rainbow trout), flow-through, 56 d, mortality, > 1.3 mg/l

Hexamethylene diisocyanate

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.
Not expected to be acutely toxic to aquatic organisms.
LC0, Danio rerio (zebra fish), static test, 96 Hour, >= 82.8 mg/l

Acute toxicity to aquatic invertebrates

EC0, Daphnia magna (Water flea), Static, 48 Hour, >= 89.1 mg/l

Acute toxicity to algae/aquatic plants

No toxicity up to the level of maximum water solubility.

ErC50, *Desmodesmus subspicatus* (green algae), Static, 72 Hour, Growth rate inhibition, > 77.4 mg/l

Toxicity to bacteria

EC50, 3 Hour, 842 mg/l

2,4-Toluene diisocyanate**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, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, 133 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, 12.5 mg/l, OECD Test Guideline 202 or Equivalent

EC50, saltwater mysid *Mysidopsis bahia*, static test, 48 Hour, 18.3 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, *Skeletonema costatum* (marine diatom), static test, 96 Hour, 3,230 mg/l, OECD Test Guideline 201 or Equivalent

EC50, *Chlorella vulgaris* (Fresh water algae), static test, 96 Hour, 4,300 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, activated sludge, Respiration inhibition, 3 Hour, > 100 mg/l, OECD 209 Test

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), static test, 21 d, number of offspring, 1.1 mg/l

Dipotassium monoxide**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, Fish, semi-static test, 96 Hour, 917.6 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna*, Static, 48 Hour, 660 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

EC50, green algae, 96 Hour, 1,368.296 mg/l

Persistence and degradability**Methyl ethyl ketone**

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

10-day Window: Not applicable

Biodegradation: 98 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.44 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	71 - 76 %
10 d	71 - 82 %
20 d	71 - 89 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 8 d

Method: Estimated.

Carbon black

Biodegradability: Biodegradation is not applicable.

Toluene

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

10-day Window: Not applicable

Biodegradation: 100 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.13 mg/mg Calculated.

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 2 d

Method: Estimated.

Benzene, 2,4-diisocyanato-1-methyl-, polymer with 1,6-diisocyanatohexane

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.

For similar material(s):

Biodegradation: < 60 %

Exposure time: 28 d

Hexane, 1,6-diisocyanato-, homopolymer, 3- (trimethoxysilyl) -1-propanethiol-blocked

Biodegradability: No relevant data found.

Polyester

Biodegradability: No appreciable biodegradation is expected.

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.

Butanedioic acid, Pentanedioic acid, Hexanedioic acid methyl ester reaction product with 3-Oxazolidineethanol, 2-(1-methylethyl)-

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
 10-day Window: Pass
Biodegradation: 90.2 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent

Xylene

Biodegradability: Material is expected to be readily biodegradable.
 10-day Window: Pass
Biodegradation: > 60 %
Exposure time: 10 d
Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 19.7 Hour
Method: Estimated.

Hexamethylene diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable.
 10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C or Equivalent
 10-day Window: Fail
Biodegradation: 42 %
Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 2.38 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 1.345 d

Method: Estimated.

2,4-Toluene diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

Dipotassium monoxide

Biodegradability: No relevant data found.

Bioaccumulative potential

Methyl ethyl ketone

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

Partition coefficient: n-octanol/water(log Pow): 0.29 Measured

Carbon black

Bioaccumulation: No relevant data found.

Toluene

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

Partition coefficient: n-octanol/water(log Pow): 2.73 Measured

Bioconcentration factor (BCF): 13.2 - 90 Fish Measured

Benzene, 2,4-diisocyanato-1-methyl-, polymer with 1,6-diisocyanatohexane

Bioaccumulation: No relevant data found.

Hexane, 1,6-diisocyanato-, homopolymer, 3- (trimethoxysilyl) -1-propanethiol-blocked

Bioaccumulation: No relevant data found.

Polyester

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

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.

Butanedioic acid, Pentanedioic acid, Hexanedioic acid methyl ester reaction product with 3-Oxazolidineethanol, 2-(1-methylethyl)-

Bioaccumulation: No data available.

Xylene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.12 Measured
Bioconcentration factor (BCF): 25.9 Rainbow trout (Salmo gairdneri) Measured

Hexamethylene diisocyanate

Bioaccumulation: Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.
Bioconcentration factor (BCF): 58 Fish Estimated.

2,4-Toluene diisocyanate

Bioaccumulation: Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Dipotassium monoxide

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -5.08
Bioconcentration factor (BCF): 3.16 Fish

Mobility in soil

Methyl ethyl ketone

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 3.8 Estimated.

Carbon black

No relevant data found.

Toluene

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 37 - 178 Estimated.

Benzene, 2,4-diisocyanato-1-methyl-, polymer with 1,6-diisocyanatohexane

No relevant data found.

Hexane, 1,6-diisocyanato-, homopolymer, 3- (trimethoxysilyl) -1-propanethiol-blocked

No relevant data found.

Polyester

No relevant data found.

n-Butyl Acetate

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 19 - 70 Estimated.

Butanedioic acid, Pentanedioic acid, Hexanedioic acid methyl ester reaction product with 3-Oxazolidineethanol, 2-(1-methylethyl)-

No relevant data found.

Xylene

Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient (Koc): 443 Estimated.

Hexamethylene diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

2,4-Toluene diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Dipotassium monoxide

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

Partition coefficient (Koc): 13.22

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.

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

Proper shipping name	Coating solution
UN number	UN 1139
Class	3
Packing group	II
Reportable Quantity	Toluene, Methyl ethyl ketone

Classification for SEA transport (IMO-IMDG):

Proper shipping name	COATING SOLUTION
UN number	UN 1139
Class	3
Packing group	II
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Coating solution
UN number	UN 1139
Class	3
Packing group	II

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

Flammable (gases, aerosols, liquids, or solids)
 Hazard not otherwise classified (physical hazards)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Respiratory or skin sensitisation
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)
 Aspiration hazard

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

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

Components	CASRN
Toluene	108-88-3

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

Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Toluene	108-88-3	1000 lbs RQ
Toluene	108-88-3	100 lbs RQ (F005)
Methyl ethyl ketone	78-93-3	5000 lbs RQ
Methyl ethyl ketone	78-93-3	5000 lbs RQ (D035)
Methyl ethyl ketone	78-93-3	100 lbs RQ (F005)
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)
Toluene	108-88-3	1000 lbs RQ
Toluene	108-88-3	100 lbs RQ (F005)

Pennsylvania Right To Know

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

Components	CASRN
Methyl ethyl ketone	78-93-3
Toluene	108-88-3
Carbon black	1333-86-4
n-Butyl Acetate	123-86-4
2,4-Toluene diisocyanate	584-84-9

California Prop. 65

WARNING: This product can expose you to chemicals including 2,4-Toluene diisocyanate, which is/are known to the State of California to cause cancer. For more information go to 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
2	3	1

Revision

Identification Number: 30888 / A749 / Issue Date: 10/01/2019 / Version: 26.0

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)
C	Ceiling limit
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
CEIL	Acceptable ceiling concentration
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-2	USA. Occupational Exposure Limits (OSHA) - Table Z-2
Peak	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
PEL	Permissible exposure limit
STEL	Short Term Exposure Limit (STEL):
TLV-C	Ceiling Limit Value
TWA	Time Weighted Average (TWA):

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic

Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DDP SPECIALTY ELECTRONIC MATERIALS US, INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US



1-800-375-0605
Option 8 for 24/7 Service



6550 Oley Speaks Way
Canal Winchester, OH 43110



www.RudolphBros.Com
RBCsupport@RudBro.Com