



MATERIAL SAFETY DATA SHEET

3735 GREEN ROAD  
BEACHWOOD, OHIO 44122-8068

TELEPHONE: (216)292-5000

EMERGENCIES: (216)765-6727 8:30-5:00 EST  
AFTER HOURS: CHEMTREC (800)424-9300

SECTION 1

Order Code: 227701 800

Product Name: VULKEM 227/245 PART B SEALANT ACCELERATOR  
Chemical Name:  
Chemical Family: Catalyst  
Product Code: 153-227 Date Prepared: 24-MAY-01  
MSDS Preparer: R. A. MIKOL Replaces Date: 04-FEB-00

Section 2 - Molecular Composition

Common Name and Chemical Name Exposure Limits	Weight %	CAS Number
POLYETHER POLYOL	75.0-85.0	25723-16-4
OSHA:TWA - STEL -		
ACGIH:TWA - STEL -		
PHTHALATE PLASTICIZER	10.0-20.0	Trade Secret
OSHA:TWA - STEL -		
ACGIH:TWA - STEL -		
DIBUTYL TIN DILAUATE	1.0-5.0	77-58-7
OSHA:TWA 0.10 mg/M3 STEL - (skin) (as Sn)		
ACGIH:TWA 0.10 mg/M3 STEL 0.20 mg/M3 (skin) (as Sn)		

Section 3 - Hazards Identification

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Emergency Overview:  
Clear yellow liquid. May cause skin, eye, nose, throat and respiratory tract irritation.  
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Potential Hlth Effect/Rte of Entry:  
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Inhalation:  
May cause nose, throat, and mucous membrane irritation, nausea, headaches, and dizziness.  
Eyes:  
May cause irritation.  
Ingestion:  
Toxic by ingestion.  
Skin:  
May cause irritation.

Aggravated Medical Conditions:  
Pre existing eye, skin and respiratory disorders may be aggravated by exposure.

Acute Health Effects:  
See effects described above.

Chronic Health Effects:  
Effects of long term exposure are unknown.

Section 4 - First Aid Measures

Inhalation:  
Leave area to breathe fresh air. Avoid further overexposure. If symptoms persist, get medical attention immediately.  
Eyes:  
Flush with running water for 15 minutes. If irritation persists, get medical attention immediately.  
Ingestion:  
Get medical attention immediately.

Skin:

Clean area of contact thoroughly using soap and water. If irritation, rash or other disorders develop, get medical attention.

Notes to Physician: N/A

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Section 5 - Fire Fighting Measures  
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Flash Point: >200 F  
Method: Seta  
Lower Flammability Limit: NOT ESTABLISHED  
Upper Flammability Limit: NOT ESTABLISHED  
Autoignition Temperature: NOT ESTABLISHED

Extinguishing Media:

If water fog is ineffective, use carbon dioxide, dry chemical or foam.

Fire and Explosion Hazards:

Not Applicable

Special Fire Fighting Procedures:

During a fire, personnel at the scene are to prevent exposure to fumes using accepted fire fighting techniques.

Fire Fighting Equipment: N/A

Other Precautions:

Not Applicable  
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Section 6 - Accidental Release Measures  
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Release Response Overview:

Absorb spill in sand, earth or other suitable material. Transfer to appropriate container for disposal.  
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Section 7 - Handling and Storage  
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Handling and Storage Precautions:

Store under normal warehouse conditions. Prevent inhalation of vapor, ingestion, and contact with skin and eyes. Keep container closed when not in use. Precautions also apply to emptied containers. Change soiled workclothes frequently. Clean hands thoroughly after handling. Personal protective equipment must be worn during maintenance or repair of contaminated mixer, reactor, or other equipment.  
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Section 8 - Exposure Controls/Personal Protection  
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Respiratory:

Wear appropriate, properly fitted NIOSH/MSHA approved organic vapor respirator when the vapor concentration exceeds the exposure limits indicated in Section 2. Follow manufacturer's directions for respirator use.

Skin:

Protect hands with impervious rubber gloves and wear rubber apron and overshoes. Prevent contact with skin.

Eyes:

Chemical splash goggles.

Face:

Face shield is recommended.

Engineering:

Use local exhaust when the general ventilation is not sufficient to keep the airborne contaminant concentration below the exposure limit in Section 2 of the MSDS.  
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Section 9 - Physical and Chemical Properties  
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Odor/Appearance: MILD/CLEAR YELLOW LIQUID

Color: LIGHT YELLOW  
Physical State: Liquid  
pH:  
Vapor Pressure: NOT ESTABLISHED  
Vapor Density: HEAVIER THAN AIR  
Boiling Point: >250 F  
Melting Point: NOT APPLICABLE  
Freezing Point: NOT APPLICABLE  
Solubility in Water: PARTIALLY  
Specific Gravity: 0.96  
% Volatile Weight: 0.0

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Section 10 - Reactivity/Stability  
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Stability:  
Stable  
Incompatible Products:  
Avoid contact with water, amines, bases, oxidizers, alcohols.  
Conditions to Avoid Polymerization:  
Hazardous polymerization will not occur.

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Section 11 - Toxicological Information  
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Eyes: SEE SECTION 3  
Ingestion: " " "  
Inhalation: " " "  
Skin: " " "  
Subchronic: " " "  
Chronic: " " "

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Section 12 - Ecological Information  
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Ecotoxicological Data: N/A  
Chemical Fate: N/A

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Section 13 - Disposal Considerations  
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RCRA Class: N/A  
Disposal Method:  
Not regulated under RCRA. Recycle or dispose of in compliance with state  
and local regulations.  
EPA Reportable Quantities  
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N/A

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Section 14 - Transportation Data  
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DOT Shipping Name: NOT REGULATED  
DOT Hazard Class:  
DOT Label:  
UN/NA Number:  
Packing Group:  
Special Provisions:  
Packaging  
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Exceptions:  
Non-Bulk:  
Bulk:  
Quantity Limitations  
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Passenger Aircraft or Railcar:

Cargo Aircraft:  
Vessel Stowage Requirements

Vessel Stowage:  
Other Stowage:  
Transportation Notes: N/A

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Section 15 - Regulatory Information  
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TSCA Status: On the TSCA Inventory  
OSHA Status: Considered hazardous based on the following criteria:  
Toxic  
Irritant

Target Organs  
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Lung  
Skin  
Eye

OSHA Hazardous Components	CAS Number
DIBUTYL TIN DILAUATE	77-58-7

Compliance Quantities  
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No Compliance Quantities

SARA 311 Ratings  
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Immediate Health Hazard: Y  
Delayed Health Hazard: N  
Fire Hazard: N  
Reactivity Hazard: N  
Sudden Release of Pressure Hazard: N

SARA 313 Ingredients  
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No SARA 313 Ingredients

Proposition 65 Ingredients  
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No Proposition 65 Ingredients

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Section 16 - Other Information  
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FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.  
THE HAZARD INFORMATION HEREIN IS OFFERED SOLELY FOR THE CONSIDERATION  
OF THE USER, SUBJECT TO HIS OWN INVESTIGATION OF COMPLIANCE WITH APPLICABLE  
REGULATIONS, INCLUDING THE SAFE USE OF THE PRODUCT UNDER EVERY FORESEEABLE  
CONDITION.



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SECTION 1

Order Code: 227701 800

Product Name: VULKEM 116  
Chemical Name: POLYURETHANE SEALANT  
Chemical Family: Sealant  
Product Code: 416-7XX  
MSDS Preparer: R.A.MIKOL  
Date Prepared: 18-MAY-04  
Replaces Date: 24-MAY-01

Other Applications:  
THIS MATERIAL SAFETY DATA SHEET (MSDS) APPLIES TO THE FOLLOWING:  
416-701(DARK TAN), -712(GRAY), -720(ALUMINUM), -721(BRONZE), -722(BROWN),  
-723(REDWOOD TAN), -724(ALMOND), -802(BLACK), -805(LIMESTONE), -806(WHITE),  
AND OTHER COLORS.

Section 2 - Molecular Composition

Common Name and Chemical Name Exposure Limits	Weight %	CAS Number
AROMATIC POLYISOCYANATE RESIN OSHA:TWA - STEL - ACGIH:TWA - STEL -	30.0-60.0	Trade Secret
CALCIUM CARBONATE (LIMESTONE) OSHA:TWA 15 mg/M3 STEL - ACGIH:TWA 10 mg/M3 STEL -	10.0-20.0	1317-65-3 (total dust, 5mg/M3 respirable fraction) (total dust, no asbestos, <1% SiO2)
PHthalate PLASTICIZER OSHA:TWA - STEL - ACGIH:TWA - STEL -	5.0-10.0	Trade Secret
TACKIFIER OSHA:TWA - STEL - ACGIH:TWA - STEL -	5.0-10.0	Trade Secret
BUTYL BENZYL PHTHALATE OSHA:TWA 5 mg/M3 STEL - ACGIH:TWA 5 mg/M3 STEL 10 mg/M3	5.0-10.0	85-68-7
THICKENER OSHA:TWA - STEL - ACGIH:TWA - STEL -	3.0-7.0	Trade Secret
INERT FILLER OSHA:TWA - STEL - ACGIH:TWA - STEL -	1.0-5.0	Trade Secret
AROMATIC PETROLEUM DISTILLATES OSHA:TWA - STEL - ACGIH:TWA - STEL -	1.0-10.0	64742-95-6
TRIMETHYL BENZENES (MIXED ISOMERS) OSHA:TWA 25 ppm STEL - ACGIH:TWA 25 ppm STEL -	1.0-5.0	25551-13-7
4,4'- METHYLENE BIS(PHENYLISOCYANATE) OSHA:TWA - Ceil 0.020ppm ACGIH:TWA 0.005ppm STEL -	0.1-0.5	101-68-8
TOLUENE DIISOCYANATE (MIXED ISOMERS) OSHA:TWA 0.005ppm STEL 0.020ppm ACGIH:TWA 0.005ppm STEL 0.020ppm	0.1-0.5	26471-62-5
XYLENES (DIMETHYLBENZENES) OSHA:TWA 100 ppm STEL 150 ppm ACGIH:TWA 100 ppm STEL 150 ppm	0.1-0.5	1330-20-7

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POLYMETHYLENE POLYPHENYL ISOCYANATE	0.1-0.5	9016-87-9
OSHA:TWA - Ceil 0.020ppm		
ACGIH:TWA 0.005ppm STEL -		
CRYSTALLINE SILICA (QUARTZ)	0.01-0.4	14808-60-7
OSHA:TWA 0.10 mg/M3 STEL - (respirable dust)		
ACGIH:TWA 0.10 mg/M3 STEL - (respirable dust)		
CARBON BLACK	0.0-2.0	1333-86-4
OSHA:TWA 3.50 mg/M3 STEL -		
ACGIH:TWA 3.50 mg/M3 STEL -		
TITANIUM DIOXIDE	0.0-10.0	13463-67-7
OSHA:TWA 10 mg/M3 STEL -		
ACGIH:TWA 10 mg/M3 STEL - (total dust, no asbestos, <1% SiO2)		
IRON OXIDE	0.0-7.0	1309-37-1
OSHA:TWA 10 mg/M3 STEL - (dust, fume as Fe)		
ACGIH:TWA 5 mg/M3 STEL - (fume as Fe)		

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Section 3 - Hazards Identification  
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Emergency Overview:

Various color pastes. Can cause headache, irritation, nausea, drowsiness, stupor, coughing spell and allergic respiratory sensitization. Leave area to breathe fresh air. Should be observed by physician immediately if over-exposure is severe.

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Potential Hlth Effect/Rte of Entry:  
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Inhalation:

Can cause headache, irritation, nausea, drowsiness, stupor, coughing spell and allergic respiratory sensitization.

Eyes:

Can cause irritation.

Ingestion:

Can cause gastrointestinal irritation.

Skin:

Can cause irritation, sensitization, dermatitis. Can be absorbed through skin.

Aggravated Medical Conditions:

Pre-existing eye, skin, liver, kidney, and respiratory disorders may be aggravated by exposure.

Acute Health Effects:

See effects described above.

Chronic Health Effects:

Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Prolonged or repeated exposure of butyl benzyl phthalate to rats produced decreased body weights, spleen and sex organ changes, increased liver and kidney weights, reduced food consumption, weakness, hind limb stiffness, and effects on the liver, testes and pancreas. Birth defects have been reported in mice and rats, but only at high doses that produce significant toxicity in the mother and offspring. Birth defects have not been observed in rabbits. Evidence of carcinogenicity has been mixed. Initial NTP studies has reported an increased incidence of mononuclear cell leukemias in female rats, a commonly occurring spontaneous disease in this

strain, but no increase in tumors in mice. However, a repeat study has not found an increase in leukemias, although a increase in kidney and bladder lesions in females and in pancreatic tumors in males was noted. Furthermore, a concurrent study that restricted diet also has not revealed any increase in tumors in male and female rats. Numerous studies also have indicated that it is not genotoxic. A long-term NTP study showed that oral exposure to toluene diisocyanate (TDI) caused cancer in rats and mice. A lifetime inhalation study sponsored by the International Isocyanate Institute did not show carcinogenic activity in rats. Diphenylmethane diisocyanate (methylene bis phenylisocyanate) caused an increased incidence of lung tumors in experimental animals following long term inhalation at concentrations in excess of 100 times the exposure limit. Overexposure to isocyanate can cause a decrease in lung function. Skin and respiratory sensitization is possible. Inhalation of crystalline silica (quartz) can cause cancer based on animal data, and IARC concludes sufficient evidence in humans (Group 1). Prolonged and repeated overexposure to free crystalline silica dust above the TLV level may cause scarring of the lungs with cough and shortness of breath. A delayed lung injury, silicosis may result from breathing free silica. No serious health effects have been established in man when exposed to carbon black. Inflammation, lung fibrosis, and tumors have been observed in animals at levels which overload lung clearance mechanisms. Carbon black contains varying amounts of polynuclear aromatic compounds (PNA's) which have been found to cause cancer in animals. Solvent extracts of carbon black are carcinogenic to the skin of mice. It is classified by IARC to be a known animal carcinogen and a possible human carcinogen (Group 2B). Fillers are encapsulated and not expected to be released from product under normal conditions of use.

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Section 4 - First Aid Measures  
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Inhalation:

Leave area to breathe fresh air. Should be observed by physician immediately if overexposure is severe.

Eyes:

Flush immediately with running water for 15 minutes, lifting the upper and lower lids occasionally. Get medical attention immediately.

Ingestion:

Get medical attention immediately.

Skin:

Wash area of contact thoroughly with hand cleaner followed by soap and water. If irritation, rash or other disorders develop, get medical attention immediately.

Notes to Physician:

N/A

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Section 5 - Fire Fighting Measures  
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Flash Point: 150 F  
Method: TAG CLOSED CUP  
Lower Flammability Limit: 0.6% (SOLVENT)  
Upper Flammability Limit: 7.0% (SOLVENT)  
Autoignition Temperature: NOT ESTABLISHED

Extinguishing Media:

If water fog is ineffective, use carbon dioxide, dry chemical or foam.

Fire and Explosion Hazards:

Never use welding or cutting torch on or near container (even empty). Product, residue or vapor may ignite. See Section 7 for additional precautions.

Special Fire Fighting Procedures:

During a fire, personnel at the scene are to prevent exposure to fumes using accepted fire fighting techniques.

Fire Fighting Equipment: N/A

Other Precautions:  
Hydrocyanic acid, oxides of nitrogen can form.

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Section 6 - Accidental Release Measures  
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Release Response Overview:  
Remove sources of ignition immediately. Ventilate to reduce the airborne contaminant concentration below the exposure limit in Section 2 of the MSDS. Absorb spill in sand, earth or other suitable material. Transfer to appropriate container for disposal.

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Section 7 - Handling and Storage  
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Handling and Storage Precautions:  
Store in closed container below 80F. Keep product and vapor away from heat, sparks and flame. Do not store in direct sunlight. Prevent inhalation of vapor, ingestion, and contact with skin and eyes. Keep container closed when not in use. Vapor may migrate to sources of ignition. Do not smoke, weld, generate sparks, or use flame near container. Change soiled workclothes frequently. Clean hands thoroughly after handling. Precautions also apply to emptied containers. Personal protective equipment must be worn during maintenance or repair of contaminated mixer, reactor, or other equipment.

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Section 8 - Exposure Controls/Personal Protection  
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Respiratory:  
Wear appropriate, properly fitted NIOSH/MSHA approved respirator when airborne contaminant level(s) exceed exposure limits indicated in Section 2. Select positive pressure supplied air respirator (TC19C or equivalent) for isocyanates.  
Skin:  
Protect hands with impervious rubber gloves and wear rubber apron and overshoes. Prevent contact with skin.  
Eyes:  
Wear suitable safety eyewear.  
Face:  
Not required.  
Engineering:  
Use local exhaust when the general ventilation is not sufficient to keep the airborne contaminant concentration below the exposure limit in Section 2 of the MSDS.

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Section 9 - Physical and Chemical Properties  
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Odor/Appearance: SOLVENT/VARIOUS COLOR PASTE  
Color: VARIOUS  
Physical State: PASTE  
pH: NOT APPLICABLE  
Vapor Pressure: NOT ESTABLISHED  
Vapor Density: >1 (AIR=1)  
Boiling Point: 280F (SOLVENT)  
Melting Point: NOT ESTABLISHED  
Freezing Point: NOT ESTABLISHED  
Solubility in Water: NEGLIGIBLE  
Specific Gravity: 1.3  
% Volatile Weight: 10.0#

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Section 10 - Reactivity/Stability  
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Stability:  
Stable  
Incompatible Products:  
Avoid contact with water, amines, bases, oxidizers, alcohols.  
Conditions to Avoid Polymerization:  
Hazardous polymerization will not occur.

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Section 11 - Toxicological Information  
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Eyes:	SEE SECTION 3
Ingestion:	" " "
Inhalation:	" " "
Skin:	" " "
Subchronic:	" " "
Chronic:	" " "

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Section 12 - Ecological Information  
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Ecotoxicological Data: N/A  
Chemical Fate: N/A

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Section 13 - Disposal Considerations  
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RCRA Class: N/A  
Disposal Method:  
Waste not regulated under RCRA. Incinerate at EPA approved facility or  
dispose of waste in compliance with state and local regulations.

EPA Reportable Quantities  
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N/A

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Section 14 - Transportation Data  
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DOT Shipping Name: NOT REGULATED

DOT Hazard Class:  
DOT Label: NOT REGULATED  
UN/NA Number:  
Packing Group:  
Special Provisions:  
Packaging  
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Exceptions:  
Non-Bulk:  
Bulk:

Quantity Limitations  
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Passenger Aircraft or Railcar:  
Cargo Aircraft:

Vessel Stowage Requirements  
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Vessel Stowage:  
Other Stowage:

Transportation Notes: N/A

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 Section 15 - Regulatory Information  
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TSCA Status: On the TSCA Inventory  
 OSHA Status: Considered hazardous based on the following criteria:  
 Irritant  
 Sensitizer

Target Organs  
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Liver  
 Kidney  
 Nerve  
 Blood  
 Reproductive  
 Lung  
 Skin  
 Eye

OSHA Hazardous Components	CAS Number
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CALCIUM CARBONATE (LIMESTONE)	1317-65-3
* CRYSTALLINE SILICA (QUARTZ)	14808-60-7
INERT FILLER	Trade Secret
* CARBON BLACK	1333-86-4
TITANIUM DIOXIDE	13463-67-7
IRON OXIDE	1309-37-1
BUTYL BENZYL PHTHALATE	85-68-7
TRIMETHYL BENZENES (MIXED ISOMERS)	25551-13-7
XYLENES (DIMETHYLBENZENES)	1330-20-7
4,4'-METHYLENE BIS (PHENYLISOCYANATE)	101-68-8
POLYMETHYLENE POLY(PHENYL ISOCYANATE)	9016-87-9
* TOLUENE DI-ISOCYANATE (MIXED ISOMERS)	26471-62-5
* - CHEMICAL IS LISTED AS AN IARC, NTP, OSHA, or ACGIH CARCINOGEN	

Compliance Quantities  
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N/A

SARA 311 Ratings  
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Immediate Health Hazard: Y  
 Delayed Health Hazard: Y  
 Fire Hazard: N  
 Reactivity Hazard: N  
 Sudden Release of Pressure Hazard: N

SARA 313 Ingredients	CAS Number
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BUTYL BENZYL PHTHALATE	85-68-7
TRIMETHYL BENZENES (MIXED ISOMERS)	25551-13-7
XYLENES (DIMETHYLBENZENES)	1330-20-7
4,4'-METHYLENE BIS(PHENYL ISOCYANATE)	101-68-8
POLYMETHYLENE POLY(PHENYL ISOCYANATE)	9016-87-9
TOLUENE DI-ISOCYANATE (MIXED ISOMERS)	26471-62-5

Proposition 65 Ingredients  
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WARNING! Contains chemicals known to the State of California to cause cancer, birth defects and/or other reproductive harm.	CAS Number
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CRYSTALLINE SILICA (QUARTZ)	14808-60-7
AROMATIC PETROLEUM DISTILLATES	64742-95-6
TOLUENE DI-ISOCYANATE (MIXED ISOMERS)	26471-62-5

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Section 16 - Other Information  
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FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.  
THE HAZARD INFORMATION HEREIN IS OFFERED SOLELY FOR THE CONSIDERATION  
OF THE USER, SUBJECT TO HIS OWN INVESTIGATION OF COMPLIANCE WITH APPLICABLE  
REGULATIONS, INCLUDING THE SAFE USE OF THE PRODUCT UNDER EVERY FORESEEABLE  
CONDITION.