



MSDS Name: **DEVCON® Flexane® 80 Putty**
 Manufacturer Name: ITW Devcon
 Stock No.: 15800

Components:	
	FLEXANE 80 LIQUID CURING AGENT
	FLEXANE 80 LIQUID RESIN
ITW Performance Polymers (Finished Goods) Product Code : 15800	

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FLEXANE 80 LIQUID CURING AGENT**
 Manufacturer Name: ITW Devcon
 Address: 30 Endicott Street
 Danvers, MA 01923
 MSDS Revision Date: 10/10/2006
 Emergency telephone number (800) 424-9300

HMIS

Health Hazard	2*
Fire Hazard	1
REACTIVITY	0
Personal Protection	X

* Chronic Health Effects:

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Dipropylene glycol dibenzoate	27138-31-4	60 - 100 by Weight
Diethyltoluenediamine	68479-98-1	0.1 - 0.1 by Weight
Epoxidized soybean oil	8013-07-8	1 - 5 by Weight
Carbon black	1333-86-4	0.1 - 1 by Weight

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SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Harmful. Irritant.

Primary Routes of Exposure: Eyes. Skin. Inhalation. Ingestion.

Potential Health Effects:

Eye Contact: Can cause severe eye irritation and burns. Eye contact may cause permanent damage or blindness.

Skin Contact: Causes severe skin irritation. May cause permanent skin damage.

Inhalation: Vapor or mist may cause severe respiratory system irritation.

Ingestion: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.

Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
Signs/Symptoms:	Overexposure may cause eye watering or discomfort, redness and swelling.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

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SECTION 4: FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

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SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties :	Material supports combustion.
Auto Ignition Temp :	Not determined.
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag closed cup (TCC)
Lower Explosive Limit (LEL)	Not determined.
Upper Explosive Limit (UEL)	Not determined.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Unsuitable Media:	Water or foam may cause frothing.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

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SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not store in reactive metal containers. Keep away from acids, oxidizers.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to
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control airborne levels. When such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

Carbon black:

Guideline ACGIH :	ACGIH TLV-TWA 3.5 mg/m ³
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	Mobile Black.
Odor:	mild ammonia like.
Boiling Point:	>450°F (232.2°C)
Melting / Freezing Point :	Not determined.
Solubility:	negligible
Specific Gravity:	1.08
pH:	7-8 @ 5 Percent Solution
Vapor Density:	>1 (air = 1)
Vapor Pressure:	<1 mmHg @70°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatibilities with Other Materials:	Oxidizers, acids, and chlorinated organic compounds. Reactive metals (e.g. sodium, calcium, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Materials reactive with hydroxyl compounds.
Hazardous Polymerization:	Not reported.

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SECTION 11: TOXICOLOGICAL INFORMATION

Diethyltoluenediamine:

Ingestion Effects:	Oral - Rat LD50: 472 mg/kg - [Sense Organs and Special Senses (Eye) - lacrimation oral - somnolence (general depressed activity) Musculoskeletal - other changes] (RTECS)
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Epoxidized soybean oil:

Skin Effects:	Skin - Rabbit Open irritation test -: 500 mg - [mild](RTECS) Skin - Rabbit LD50: >20 mL/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Ingestion Effects:	Oral - Rat LD50: 22500 uL/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

Carbon black:

Skin Effects:	Skin - Rabbit LD50: >3 gm/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Inhalation Effects:	Inhalation - Rat TClO - Lowest published toxic concentration: 7 mg/m ³ - [Lungs, Thorax, or Respiration - other changes Biochemical - Metabolism (Intermediary) - effect on inflammation or mediation of inflammation] (RTECS)

Ingestion Effects: Oral - Rat LD50: >15400 mg/kg - [oral - somnolence (general depressed activity)] (RTECS)
Carcinogenicity: IARC: Group 2B: Possibly carcinogenic to humans

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: No ecotoxicity data was found for the product.
Environmental Fate: No environmental information found for this product.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number : None

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Non regulated.
DOT UN Number: Not applicable.
DOT Hazard Class: Not applicable.
DOT Packing Group: Not applicable.

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SECTION 15: REGULATORY INFORMATION

WHMIS Pictograms



Carbon black:

TSCA Inventory Status: Listed
State: Listed in the State of Massachusetts Hazardous Substance List.
Listed in the Pennsylvania State Hazardous Substances List.
Canadian Regulations: WHMIS Hazard Class(es): D2B, D2A
All components of this product are on the Canadian Domestic Substances List.

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SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard: 2*
HMIS Fire Hazard: 1
HMIS Reactivity: 0
HMIS Personal Protection: X
MSDS Revision Date: 10/10/2006
Disclaimer: "This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment."

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FLEXANE 80 LIQUID RESIN**
Manufacturer Name: ITW Performance Polymers
Address: 30 Endicott Street
Danvers, MA 01923
MSDS Revision Date: 10/10/2006
Emergency telephone number (800) 424-9300

HMIS

Health Hazard	3*
Fire Hazard	1
REACTIVITY	1
Personal Protection	X

* Chronic Health Effects:

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In Canada, call CANUTEC: (613) 996-6666 (call collect)

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Related prepolymers of PICM	68310-52-1	60 - 100 by Weight
Dicyclohexylmethane-4,4'-diisocyanate	5124-30-1	10 - 30 by Weight

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SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Irritant. Potential Sensitizer
Primary Routes of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye Contact:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.
Skin Contact:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product. Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV ₁ , FVC). This should include pre-employment and periodic medical examinations. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, recurrent skin eczema or sensitization should be excluded from working with this product. Once sensitized no further exposure can be permitted.

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SECTION 4: FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation

	develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Note to Physicians:	Asthmatic type symptoms may develop, which may be immediate or delayed for several hours.

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SECTION 5: FIRE FIGHTING MEASURES

Auto Ignition Temp :	Not determined.
Flash Point:	>400°F (204.4°C)
Flash Point Method:	Tag closed cup (TCC)
Lower Explosive Limit (LEL)	Not determined.
Upper Explosive Limit (UEL)	Not determined.
Extinguishing Media:	Use carbon dioxide (CO ₂) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. Neutralize residue with appropriate neutralizer. Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump large quantities into closed but not sealed metal containers. Isocyanates will react with water and generate carbon dioxide, this could result in the rupture of any closed containers. Neutralize using 10 parts neutralizer to 1 part isocyanate solution. Mix and allow to stand for 48 hrs in containers, letting evolved carbon dioxide to vent. Neutralizer consist of 90% water, 3-8% concentrated ammonia (or sodium carbonate), 2% detergent.

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SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not reseal container if moisture or water contamination is suspected. Water contaminated material in a sealed container may rupture due to pressure buildup.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.

Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.
<u>Dicyclohexylmethane-4,4'-diisocyanate:</u>	
Guideline ACGIH :	ACGIH TLV-TWA 0.005 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	Clear
Odor:	Faint.
Boiling Point:	>300°F (148.8°C)
Melting / Freezing Point :	Not determined.
Solubility:	negligible
Specific Gravity:	1.04
pH:	7.0 @ 5 Percent Solution
Vapor Density:	Not determined.
Vapor Pressure:	<.001 mmHg @70°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Moisture and extended exposure over 85 F.
Incompatibilities with Other Materials:	Alcohols, amines, strong bases (alkali, ammonia), acids, metal compounds, moisture or water. Resin reacts with water to give off carbon dioxide.
Hazardous Polymerization:	Polymerization may occur under certain conditions.

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SECTION 11: TOXICOLOGICAL INFORMATION

Dicyclohexylmethane-4,4'-diisocyanate:

Eye Effect:	Eye - Rabbit Standard Draize Test : 100 uL/24H - [severe](RTECS)
Skin Effects:	Skin - Rabbit Standard Draize Test : 500 uL/24H - [Moderate](RTECS) Skin - Rabbit LD - Lethal dose: >10 gm/kg - [Behavioral - somnolence (general depressed activity) Behavioral - food intake (animal) Behavioral - muscle weakness](RTECS)
Inhalation Effects:	Inhalation - Guinea pig LC50: 51 mg/m ³ /1H - [Behavioral - somnolence (general depressed activity) Lungs, Thorax, or Respiration - cyanosis Lungs, Thorax, or Respiration - other changes] (RTECS)
Ingestion Effects:	Oral - Rat LD50: 9900 mg/kg - [oral - food intake (animal) Gastrointestinal - hypermotility, diarrhea Liver - other changes] (RTECS)

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.

RCRA Number : Not determined.

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Non regulated.
DOT UN Number: Not applicable.
DOT Hazard Class: Not applicable.
DOT Packing Group: Not applicable.

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SECTION 15: REGULATORY INFORMATION

WHMIS Pictograms



Dicyclohexylmethane-4,4'-diisocyanate:

TSCA Inventory Status: Listed
State: Listed in the State of Massachusetts Hazardous Substance List.
Listed in the New Jersey State Right to Know List.
Listed in the Pennsylvania State Hazardous Substances List.
EC Num : 615-009-00-0
Canadian Regulations: WHMIS Hazard Class(es): D2A; D2B

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SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard: 3*
HMIS Fire Hazard: 1
HMIS Reactivity: 1
HMIS Personal Protection: X
MSDS Revision Date: 10/10/2006



MSDS Name: **DEVCON® Flexane® 80 Putty**
 Manufacturer Name: ITW Devcon
 Stock No.: 15810

Components:	
	FLEXANE 80 LIQUID CURING AGENT
	FLEXANE 80 LIQUID RESIN
ITW Performance Polymers (Finished Goods) Product Code : 15810	

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FLEXANE 80 LIQUID CURING AGENT**
 Manufacturer Name: ITW Devcon
 Address: 30 Endicott Street
 Danvers, MA 01923
 MSDS Revision Date: 10/10/2006
 Emergency telephone number (800) 424-9300

HMIS

Health Hazard	2*
Fire Hazard	1
REACTIVITY	0
Personal Protection	X

* Chronic Health Effects:

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In the US, call CHEMTREC: (800) 424-9300

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Dipropylene glycol dibenzoate	27138-31-4	60 - 100 by Weight
Diethyltoluenediamine	68479-98-1	0.1 - 0.1 by Weight
Epoxidized soybean oil	8013-07-8	1 - 5 by Weight
Carbon black	1333-86-4	0.1 - 1 by Weight

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SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Harmful. Irritant.

Primary Routes of Exposure: Eyes. Skin. Inhalation. Ingestion.

Potential Health Effects:

Eye Contact: Can cause severe eye irritation and burns. Eye contact may cause permanent damage or blindness.

Skin Contact: Causes severe skin irritation. May cause permanent skin damage.

Inhalation: Vapor or mist may cause severe respiratory system irritation.

Ingestion: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.

Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
Signs/Symptoms:	Overexposure may cause eye watering or discomfort, redness and swelling.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

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SECTION 4: FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

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SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties :	Material supports combustion.
Auto Ignition Temp :	Not determined.
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag closed cup (TCC)
Lower Explosive Limit (LEL)	Not determined.
Upper Explosive Limit (UEL)	Not determined.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Unsuitable Media:	Water or foam may cause frothing.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

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SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not store in reactive metal containers. Keep away from acids, oxidizers.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to
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control airborne levels. When such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

Carbon black:

Guideline ACGIH :	ACGIH TLV-TWA 3.5 mg/m ³
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	Mobile Black.
Odor:	mild ammonia like.
Boiling Point:	>450°F (232.2°C)
Melting / Freezing Point :	Not determined.
Solubility:	negligible
Specific Gravity:	1.08
pH:	7-8 @ 5 Percent Solution
Vapor Density:	>1 (air = 1)
Vapor Pressure:	<1 mmHg @70°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatibilities with Other Materials:	Oxidizers, acids, and chlorinated organic compounds. Reactive metals (e.g. sodium, calcium, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Materials reactive with hydroxyl compounds.
Hazardous Polymerization:	Not reported.

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SECTION 11: TOXICOLOGICAL INFORMATION

Diethyltoluenediamine:

Ingestion Effects:	Oral - Rat LD50: 472 mg/kg - [Sense Organs and Special Senses (Eye) - lacrimation oral - somnolence (general depressed activity) Musculoskeletal - other changes] (RTECS)
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Epoxidized soybean oil:

Skin Effects:	Skin - Rabbit Open irritation test -: 500 mg - [mild](RTECS) Skin - Rabbit LD50: >20 mL/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Ingestion Effects:	Oral - Rat LD50: 22500 uL/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

Carbon black:

Skin Effects:	Skin - Rabbit LD50: >3 gm/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Inhalation Effects:	Inhalation - Rat TClO - Lowest published toxic concentration: 7 mg/m ³ - [Lungs, Thorax, or Respiration - other changes Biochemical - Metabolism (Intermediary) - effect on inflammation or mediation of inflammation] (RTECS)

Ingestion Effects: Oral - Rat LD50: >15400 mg/kg - [oral - somnolence (general depressed activity)] (RTECS)
Carcinogenicity: IARC: Group 2B: Possibly carcinogenic to humans

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: No ecotoxicity data was found for the product.
Environmental Fate: No environmental information found for this product.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number : None

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Non regulated.
DOT UN Number: Not applicable.
DOT Hazard Class: Not applicable.
DOT Packing Group: Not applicable.

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SECTION 15: REGULATORY INFORMATION

WHMIS Pictograms



Carbon black:

TSCA Inventory Status: Listed
State: Listed in the State of Massachusetts Hazardous Substance List.
Listed in the Pennsylvania State Hazardous Substances List.
Canadian Regulations: WHMIS Hazard Class(es): D2B, D2A
All components of this product are on the Canadian Domestic Substances List.

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SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard: 2*
HMIS Fire Hazard: 1
HMIS Reactivity: 0
HMIS Personal Protection: X
MSDS Revision Date: 10/10/2006
Disclaimer: "This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment."

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View Section : **1** **2** **3** **4** **5** **6** **7** **8** **9** **10** **11** **12** **13** **14** **15** **16**

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FLEXANE 80 LIQUID RESIN**
Manufacturer Name: ITW Performance Polymers
Address: 30 Endicott Street
Danvers, MA 01923
MSDS Revision Date: 10/10/2006
Emergency telephone number (800) 424-9300

HMIS

Health Hazard	3*
Fire Hazard	1
REACTIVITY	1
Personal Protection	X

* Chronic Health Effects:

In the US, call CHEMTREC: (800) 424-9300
In Canada, call CANUTEC: (613) 996-6666 (call collect)

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Related prepolymers of PICM	68310-52-1	60 - 100 by Weight
Dicyclohexylmethane-4,4'-diisocyanate	5124-30-1	10 - 30 by Weight

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SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Irritant. Potential Sensitizer
Primary Routes of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye Contact:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.
Skin Contact:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product. Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV ₁ , FVC). This should include pre-employment and periodic medical examinations. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, recurrent skin eczema or sensitization should be excluded from working with this product. Once sensitized no further exposure can be permitted.

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SECTION 4: FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation

	develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Note to Physicians:	Asthmatic type symptoms may develop, which may be immediate or delayed for several hours.

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SECTION 5: FIRE FIGHTING MEASURES

Auto Ignition Temp :	Not determined.
Flash Point:	>400°F (204.4°C)
Flash Point Method:	Tag closed cup (TCC)
Lower Explosive Limit (LEL)	Not determined.
Upper Explosive Limit (UEL)	Not determined.
Extinguishing Media:	Use carbon dioxide (CO ₂) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. Neutralize residue with appropriate neutralizer. Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump large quantities into closed but not sealed metal containers. Isocyanates will react with water and generate carbon dioxide, this could result in the rupture of any closed containers. Neutralize using 10 parts neutralizer to 1 part isocyanate solution. Mix and allow to stand for 48 hrs in containers, letting evolved carbon dioxide to vent. Neutralizer consist of 90% water, 3-8% concentrated ammonia (or sodium carbonate), 2% detergent.

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SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not reseal container if moisture or water contamination is suspected. Water contaminated material in a sealed container may rupture due to pressure buildup.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.

Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.
<u>Dicyclohexylmethane-4,4'-diisocyanate:</u>	
Guideline ACGIH :	ACGIH TLV-TWA 0.005 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	Clear
Odor:	Faint.
Boiling Point:	>300°F (148.8°C)
Melting / Freezing Point :	Not determined.
Solubility:	negligible
Specific Gravity:	1.04
pH:	7.0 @ 5 Percent Solution
Vapor Density:	Not determined.
Vapor Pressure:	<.001 mmHg @70°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Moisture and extended exposure over 85 F.
Incompatibilities with Other Materials:	Alcohols, amines, strong bases (alkali, ammonia), acids, metal compounds, moisture or water. Resin reacts with water to give off carbon dioxide.
Hazardous Polymerization:	Polymerization may occur under certain conditions.

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SECTION 11: TOXICOLOGICAL INFORMATION

Dicyclohexylmethane-4,4'-diisocyanate:

Eye Effect:	Eye - Rabbit Standard Draize Test : 100 uL/24H - [severe](RTECS)
Skin Effects:	Skin - Rabbit Standard Draize Test : 500 uL/24H - [Moderate](RTECS) Skin - Rabbit LD - Lethal dose: >10 gm/kg - [Behavioral - somnolence (general depressed activity) Behavioral - food intake (animal) Behavioral - muscle weakness](RTECS)
Inhalation Effects:	Inhalation - Guinea pig LC50: 51 mg/m ³ /1H - [Behavioral - somnolence (general depressed activity) Lungs, Thorax, or Respiration - cyanosis Lungs, Thorax, or Respiration - other changes] (RTECS)
Ingestion Effects:	Oral - Rat LD50: 9900 mg/kg - [oral - food intake (animal) Gastrointestinal - hypermotility, diarrhea Liver - other changes] (RTECS)

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal: Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.

RCRA Number : Not determined.

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Non regulated.
DOT UN Number: Not applicable.
DOT Hazard Class: Not applicable.
DOT Packing Group: Not applicable.

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SECTION 15: REGULATORY INFORMATION

WHMIS Pictograms



Dicyclohexylmethane-4,4'-diisocyanate:

TSCA Inventory Status: Listed
State: Listed in the State of Massachusetts Hazardous Substance List.
Listed in the New Jersey State Right to Know List.
Listed in the Pennsylvania State Hazardous Substances List.
EC Num : 615-009-00-0
Canadian Regulations: WHMIS Hazard Class(es): D2A; D2B

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SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard: 3*
HMIS Fire Hazard: 1
HMIS Reactivity: 1
HMIS Personal Protection: X
MSDS Revision Date: 10/10/2006