

Aggravation of Pre-Existing Conditions:

May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

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.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:	Material supports combustion.
Flash Point:	> 275° F (135° C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	Not determined.
Upper Flammable/Explosive Limit:	Not determined.
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.
Extinguishing Media:	Use carbon dioxide (CO ₂) or dry chemical when fighting fires involving this material.
Unsuitable Media:	Water or foam may cause frothing.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

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.
Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
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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.
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.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

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.
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.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
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.

EXPOSURE GUIDELINES

Carbon black :

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

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 Point:	Not determined.
Specific Gravity:	1.08
Solubility:	negligible
Vapor Density:	> 1 (air = 1)
Vapor Pressure:	
Percent Volatile:	0
Evaporation Rate:	<
pH:	7-8 @ 5 Percent Solution
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	> 275°F (135°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	0 g/L

Percent Solids by Weight 100

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Hazardous Polymerization: Not reported.

Conditions to Avoid: Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.

Incompatible 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.

SECTION 11 - TOXICOLOGICAL INFORMATION

Diethyltoluenediamine :

RTECS Number: CZ1583125

Skin: Oral - Rat LD50 : 472 mg/kg [Sense Organs and Special Senses (Eye) - Lacrimation Behavioral - Somnolence (general depressed activity) Musculoskeletal - Other changes]

Ingestion: Oral - Rat LD50 : 472 mg/kg [Sense Organs and Special Senses (Eye) - Lacrimation Behavioral - Somnolence (general depressed activity) Musculoskeletal - Other changes]

Epoxidized soybean oil :

RTECS Number: LL1100000

Skin: Oral - Rat LD50 : 22500 uL/kg [Details of toxic effects not reported other than lethal dose value.]
Administration onto the skin - Rabbit LD50 : > 20 mL/kg [Details of toxic effects not reported other than lethal dose value.]
Administration onto the skin - Rabbit Open irritation test: 500 mg [mild]

Ingestion: Oral - Rat LD50 : 22500 uL/kg [Details of toxic effects not reported other than lethal dose value.]

Carbon black :

RTECS Number: FF5800000

Skin: Oral - Rat LD50: > 15400 mg/kg [Behavioral - Somnolence (general depressed activity)]
Administration onto the skin - Rabbit LD50: > 3 gm/kg [Details of toxic effects not reported other than lethal dose value.]

Ingestion: Oral - Rat LD50: > 15400 mg/kg [Behavioral - Somnolence (general depressed activity)]

Carcinogenicity: IARC: Group 2B: Possibly carcinogenic to humans.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: No ecotoxicity data was found for the product.

Environmental Fate: No environmental information found for this product.

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.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name: Non regulated.

DOT UN Number: Not applicable.

DOT Hazard Class: Not applicable.

DOT Packing Group: Not applicable.

SECTION 15 - REGULATORY INFORMATION

Dipropylene glycol dibenzoate:

TSCA Inventory Status: Listed

Canada DSL: Listed

Diethyltoluenediamine:

TSCA Inventory Status: Listed

Canada DSL: Listed

Epoxidized soybean oil:

TSCA Inventory Status: Listed

Canada DSL: Listed

Carbon black:

TSCA Inventory Status: Listed

California PROP 65: Listed: cancer

Massachusetts: Listed

Pennsylvania: Listed

Canada DSL: Listed

Canadian Regulations: WHMIS Hazard Class(es): D2B, D2A
All components of this product are on the Canadian Domestic Substances List.

WHMIS Pictograms



SECTION 16 - ADDITIONAL INFORMATION

HMIS Fire Hazard: 1

HMIS Health Hazard: 2*

HMIS Reactivity: 0

HMIS Personal Protection: X

MSDS Revision Date: 06/15/2009

MSDS Author: Actio Corporation

View MSDS : [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 94 LIQUID RESIN
 Manufacturer Name: ITW
 Address: 30 Endicott Street
 Danvers, MA 01923
 General Phone Number: (978) 777-1100
 Emergency Phone Number: (800) 424-9300
 CHEMTREC: For emergencies in the US, call CHEMTREC: 800-424-9300
 Canutec: In Canada, call CANUTEC: (613) 996-6666 (call collect)
 MSDS Revision Date: 06/15/2009

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

* Chronic Health Effects:

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

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

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Irritant. Potential Sensitizer
Route of Exposure: Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:

Eye: Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.

Skin: 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, 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.

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.

SECTION 5 - FIRE FIGHTING MEASURES

Flash Point:	453°F (233.8°C)
Flash Point Method:	Pensky-Martens Closed Cup
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	Not determined.
Upper Flammable/Explosive Limit:	Not determined.
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.
Extinguishing Media:	Use carbon dioxide (CO ₂) or dry chemical when fighting fires involving this material.
Unsuitable Media:	Water may cause frothing.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
Unusual Fire Hazards:	Do not reseal containers if contaminated with water, resin will react with water to release carbon dioxide. As a result of the water contamination, pressure will build up in the sealed container causing it to rupture.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

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.
Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
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.

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.

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.

Hygiene Practices:

Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

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.

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.

Skin Protection Description:

Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.

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.

EXPOSURE GUIDELINES
Dicyclohexylmethane-4,4'-diisocyanate :**Guideline ACGIH:**

0.005 ppm
TLV-TWA: 0.005 ppm

Notes :

Only established PEL and TLV values for the ingredients are listed.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:

Liquid.

Color:

Clear

Odor:

Slightly musty.

Boiling Point:	> 300°F (148.8°C)
Melting Point:	Not determined.
Specific Gravity:	1.04 @ 77°F
Solubility:	Insoluble
Vapor Density:	8.5 MDI (air = 1)
Vapor Pressure:	< 10 mmHg @ 77°F (MDI)
Percent Volatile:	0
Evaporation Rate:	Not determined.
pH:	Not determined.
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	453°F (233.8°C)
Flash Point Method:	Pensky-Martens Closed Cup
Auto Ignition Temperature:	Not determined.
VOC Content:	0 g/L
Percent Solids by Weight	100

SECTION 10 - STABILITY and REACTIVITY

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

SECTION 11 - TOXICOLOGICAL INFORMATION

[Dicyclohexylmethane-4,4'-diisocyanate :](#)

RTECS Number:	NQ9250000
Eye:	Eye - Rabbit Standard Draize Test: 100 uL Eye - Rabbit Standard Draize Test: 100 uL/24H
Skin:	Oral - Rat LD50: 9900 mg/kg [Behavioral - Food intake (animal) Gastrointestinal - Hypermotility, diarrhea Liver - Other changes]
Ingestion:	Oral - Rat LD50: 9900 mg/kg [Behavioral - Food intake (animal) Gastrointestinal - Hypermotility, diarrhea Liver - Other changes]

SECTION 12 - ECOLOGICAL INFORMATION

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

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.
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RCRA Number: Not determined.

SECTION 14 - TRANSPORT INFORMATION

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

SECTION 15 - REGULATORY INFORMATION

Related prepolymers of PICM:

TSCA Inventory Status: Listed

Canada NDSL: Listed

Dicyclohexylmethane-4,4'-diisocyanate:

TSCA Inventory Status: Listed

SARA: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.

New Jersey: Listed: NJ Hazardous List; Substance Number: 3757

Massachusetts: Listed

Pennsylvania: Listed

Canada DSL: Listed

Canadian Regulations. WHMIS Hazard Class(es): D2A: D2B
 All components of this product are on the Canadian Domestic Substances List.

WHMIS Pictograms



SECTION 16 - ADDITIONAL INFORMATION

HMIS Fire Hazard: 1
 HMIS Health Hazard: 3*
 HMIS Reactivity: 1
 HMIS Personal Protection: X
 MSDS Revision Date: 06/15/2009
 MSDS Author: Actio Corporation

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