

MATERIAL SAFETY DATA SHEET

INTERNATIONAL EPOXIES & SEALERS
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SECTION I - PRODUCT IDENTIFICATION

PART NUMBER: **8455** Side A

PRODUCT NAME: INTER-FOAM 10
DESCRIPTION: Polymeric Diphenylmethane Diisocyanate (MDI)

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	% TWA	STEL	Exposure Limits	
				ACGIH/TLV	OSHA/PEL
4,4'Diphenylmethane Diisocyanate(MDI)	101-68-8	25-35	.005ppnf	NE	.02 ppm (C)
Diphenylmethane Diisocyanate(2,2;2,4)	26447-40-5	1-10	NE	NE	NE
Higher Oligomers of MDI	9016-87-9	45-60	NE	NE	NE
2,2,4-trimethyl-1,3-pentanediol diisobutrate	6846-50-0	5-15	NE	NE	NE

NE=Not Established,NA=No Data Available, ca= Approximately, <= Less Than, C = Ceiling

SECTION III - HAZARD SUMMARY

Emergency Overview: Harmful if inhaled. Toxic fumes are released in fire situations. Light yellow to brown viscous liquid. Pungent odor.

Potential Health Effects: INHALATION: At room temperature, MDI vapors are minimal due to low vapor pressure. However, heating, spraying, foaming or otherwise mechanically dispersing (drumming, venting or pumping) operations may generate vapor or aerosol concentrations sufficient to cause irritation or other adverse effects. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. Severe overexposure may lead to pulmonary edema. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Symptoms may include coughing, dryness of throat, headache, nausea, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Impaired lung function (decreased ventilator capacity) has been associated with overexposure to isocyanates. Persons with known respiratory or allergy problems must not be exposed to this product.

Skin Contact: No irritation is likely to develop following short contact periods with skin. Prolonged or repeated exposure can cause skin irritation, reddening, dermatitis, and in some individuals, sensitization. Skin contact may result in allergic skin reactions or respiratory sensitization, but it is not expected to result in absorption amounts sufficient to cause other adverse effects. May stain skin.

Eye Contact: As a liquid or dust, may cause irritation, inflammation and/or damage to sensitive eye tissue. Symptoms include watering or discomfort of the eyes. Corneal injury is unlikely.

Ingestion: Single dose oral toxicity is considered to be extremely low. Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract.

Chronic: As a result of repeated overexposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) or tissue injury in the upper respiratory tract. Animal tests indicate skin contact alone may also lead to allergic respiratory reaction. These effects may be permanent. Any person developing asthmatic reaction or other sensitization should be removed from further exposure

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Carcinogenicity: MDI and Polymeric MDI are not listed by the NTP, IARC or regulated by OSHA as carcinogens. Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects.

SECTION IV - FIRST AID MEASURES

Eyes: Flush eyes with plenty of water for at least 15 minutes. Materials containing MDI may react with the moisture of the eye forming a thick material which may be difficult to wash from the eyes. Seek medical attention. **Skin:** Wash off in flowing warm water or shower with soap. Remove and wash contaminated clothing and discard contaminated shoes. If redness, itching or a burning sensation develops or persists after the area is washed, consult a physician. **Ingestion:** If swallowed, drink 1 or 2 glasses of water or milk. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention. **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

NOTE TO PHYSICIAN: EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. **SKIN:** This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as a thermal burn. **INGESTION:** Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound. **INHALATION:** Isocyanates are known pulmonary sensitizers. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate compound.

SECTION V - FIRE FIGHTING MEASURES**Flash Point:** > 261°F (COC)

NFPA Combustible Class III B

Autoignition Temp: NA**Flammable Limits (STP):** NA

Toxic fumes are released in fire situations.

Fire Degradation Products: Isocyanate vapor and mist, carbon dioxide, carbon monoxide, nitrogen oxides and traces of hydrogen cyanide.

Extinguishing Media: Use dry chemical, foam, carbon dioxide or halogenated agents. If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous. If possible, contain fire run-off water.

Protective Equipment: Wear positive pressure self-contained breathing apparatus with full-face mask and full protective clothing.

Unusual Hazards: At temperatures greater than 400°F, polymeric MDI can polymerize and decompose, which will cause pressure build-up in closed containers. Explosive rupture is possible. Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure build-up may rupture the containers. Downwind personnel must be evacuated.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Spill: Evacuate spill area. With adequate ventilation and appropriate personal protective equipment, cover the area with an inert absorbent material such as clay or vermiculite and transfer to metal waste containers. Saturate with water or decontamination solution below, but DO NOT seal the container with the isocyanate

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mixture. Larger quantities of liquid may be transferred directly to drums for disposal. Decontaminate or discard all clean-up equipment.

NOTE: ISOCYANATE WILL REACT WITH WATER AND GENERATE CARBON DIOXIDE. THIS COULD RESULT IN THE RUPTURE OF ANY CLOSED CONTAINERS.

Clean Up: The area should then be flushed with a decontamination solution. The decontamination solution is a 5-10% mixture of sodium carbonate and 0.5% liquid detergent in water solution or a 3-8% concentrated ammonium hydroxide and 0.5% liquid detergent in water. Use 10 parts decontamination solution to 1 part spilled material. If the ammonium hydroxide solution is used, ammonia will be evolved as a vapor. Use caution to avoid exposure to high concentrations of ammonia. Allow to stand for 48 hours letting evolved carbon dioxide to escape.

Disposal: Any disposal practice must be in compliance with all Federal, State and Local laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste of deciding to discard or dispose of the material. Product as sold is not a RCRA hazardous waste when disposed.

NOTE: DO NOT ALLOW material to enter sewers, a body of water or contact the ground. Refer to RCRA 40 CFR 261, and/or any other appropriate Federal, State or Local requirements for proper classification information.

Container Disposal: Drums/containers must be thoroughly drained to process or storage vessels before removal to an appropriate area for subsequent decontamination. Drums/ containers must be decontaminated in properly ventilated areas by personnel protected from the inhalation of isocyanate vapors. Spray or pour 1 to 5 gallons of decontaminating solution into a drum, making sure the walls are well rinsed. Let the drum/container soak unsealed for 48 hours. Pour out the decontaminating solution and triple rinse the empty container. Puncture or otherwise destroy the rinsed container before disposal. DO NOT heat or cut empty containers with electric or gas torch.

SECTION VII - STORAGE AND HANDLING

Storage: When store between 15° and 30°C (60°and 85°F) in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Should freezing occur, the material must be thawed thoroughly and mixed until uniform. Opened containers must be handled properly to prevent moisture pickup.

Handling: Use personal protective equipment when transferring material to or from drums, totes or other containers. Safety glasses and gloves are the minimum protection. Additional precautions must be used when splash hazards are present. The reaction of polyols and isocyanates generates heat. Contact of the reacting materials with skin or eyes can cause severe burns and may be difficult to remove from the affected areas. Immediately wash affected areas with plenty of water and seek medical attention. In addition, such contact increases the risk of exposure to isocyanate vapors. Do not smoke or use naked lights, open flames, space heaters or other ignition sources near pouring, frothing or spraying operations.

Special Emphasis For Spray Applications: Inspect the application area from the potential to expose other persons or for over spray to drift onto buildings, vehicles or other property. When spraying building exteriors, persons entering or exiting the building as well as those inside could be exposed to polyisocyanates due to wind conditions, open windows or air intakes. Do not begin application work until these potential problems have been corrected.

MATERIAL SAFETY DATA SHEET**HMIS RATINGS:**

Health 2
 Fire 1
 Reactivity 1

NFPA RATINGS:

Health 2
 Fire 1
 Reactivity 1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

SECTION VIII - EXPOSURE CONTROL

Exposure: MDI contains reactive isocyanate groups. Use with adequate ventilation to keep airborne isocyanate level below TLV of 0.005 ppm TWA (ACGIH) and PEL 0.02 ceiling (OSHA). These control limits do not apply to previously sensitized individuals or to individuals with existing respiratory disease, such as chronic bronchitis, emphysema or asthma. Respiratory protection may be needed where material is heated, sprayed or used in a confined space, or if TLV is exceeded. Never try to detect MDI vapor by odor. Persons with known respiratory or allergic problems must not be exposed to this product.

Ventilation: MDI has a very low vapor pressure at room temperature. General/local ventilation typically control exposure levels very adequate. Uses requiring heating and/or spraying may require more aggressive engineering controls or personal proactive equipment. Monitoring is required to determine engineering controls.

Respiratory Protection: A supplied air, full face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold values. A positive pressure self-contained breathing apparatus can be used in emergencies or other unusual situations. All equipment must be NIOSH/MSHA approved and maintained. Air purifying (cartridge type) respirators are not approved for protection against isocyanates.

Eye Protection: Chemical splash goggles or safety glasses or full face mask must be used consistent with splash hazard present. If vapor exposure causes eye discomfort, use a full face-piece respirator or supplied air hood.

Protective Clothing: Wear clothing and gloves impervious to MDI under conditions of use. Materials may include butyl rubber, nitrile rubber, neoprene and Saranax™ coated Tyvek™.

Other Protective Equipment: An eyewash station shower or other drenching facilities is recommended in the work area.

SECTION IX - TYPICAL PROPERTIES

Physical Form: Light yellow to brown viscous liquid.

Solubility In Water: Not soluble, reacts. Odor: Pungent.

Specific Gravity at 25 C: > 1 pH: NA Reacts with water.

Viscosity at 77° F: NA cps Boiling Point: > 400 degrees F

% Volatile by weight: Negligible. Vapor Pressure (mm at 20j C): NA

SECTION X - STABILITY AND REACTIVITY

Stability: Polyisocyanates are highly reactive chemicals and should be handled and stored in a way to avoid exposure to many common substances, including water and moisture. Material is stable when stored in sealed containers under normal conditions. Avoid extended exposure over 110 degrees F (45 degrees C).

Hazardous Polymerization: May occur with incompatible reactants especially strong bases, water or temperatures over 320 degrees F (160 degrees C). Possible evolution of carbon dioxide gas from overheating or exposure to contaminants may rupture closed containers.

Reactivity: Reacts with water, acids, bases, alcohols, metal compounds. The reaction with water is very slow under 120 degrees F (50 degrees C), but is accelerated at higher temperatures and in the presence of alkalis, tertiary amines and metal compounds. Some reactions can be vigorous or even violent.

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SECTION XI - SHIPPING INFORMATION

DOT (Domestic Surface) Hazard class or Division: Not regulated

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SECTION XII - FEDERAL REGULATORY INFORMATION**OSHA Status:** This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.**TSCA Status:** On TSCA inventory.**CERCLA Reportable Quantity:** 4,4'Diphenylmethane Diisocyanate = 5,000 lbs.**SARA Title III:**

Section 302 Extremely Hazardous Substances: None

Section 311/312 Hazard Substances: Immediate Health Hazard, Delayed Health Hazard,
Reactive Hazard.

Section 313 Toxic Chemicals:

Polymethylene Polyphenyl Isocyanate CAS Number 9016-87-9

4,4'Diphenylmethane Diisocyanate (MDI) CAS Number 101-68-8

Also known as Methylenebis (phenylisocyanate) (MDI)

RCRA Status: MDI is not listed as a hazardous waste. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

SECTION XIII - ADDITIONAL REGULATORY INFORMATION**Individual State Requirements:****California Proposition 65:** This product does not contain any chemicals known to the State of California to cause cancer.

SECTION XIV - COMMENTS

This MSDS complies with 29 CFR 1916.12CO (Hazard Communication Standard).

DISCLAIMER

The information and recommendations provided herein are believed to be accurate as of the date hereof. However, such information and recommendations are provided without warranty of any kind and International Epoxies & Sealers disclaims any and all liability or legal responsibility or use or reliance upon same.

MATERIAL SAFETY DATA SHEET**SECTION I - PRODUCT IDENTIFICATION**PART NUMBER: **8455** Side B

PRODUCT NAME: INTER-FOAM 10

DESCRIPTION: Polyurethane Polyol blend with surfactant and catalyst

SECTION II - HAZARDOUS INGREDIENTS

Exposure Limits

INGREDIENT	CAS NO.	ACGIH / TLV		OSHA / PEL	
		%	TWA	STEL	
Polyether Polyol	9049-71-2 25-35	NE	NE	NE	
Polyether Polyol	35176-07-9 25-35	NE	NE	NE	
Polyether Polyol	25322-69-4 25-35	NE	NE	NE	
Dimethylethanolamine	108-01-0 2-10	NE	NE	NE	
Triethylenediamine	280-57-9 0-2	NE	NE	NE	
Dimethyl polysiloxane	67762-85-0 0-2	NE	NE	NE	
Water	7732-18-5 0-5	NE	NE	NE	

SECTION III - HAZARD SUMMARY**Emergency Overview:** Harmful if inhaled. Toxic fumes are released in fire situations. Amber viscous liquid. Amine odor.**Potential Health Effects:** The information listed below is based on the individual components of this mixture.**Inhalation:** Heating, spraying, foaming or otherwise mechanically dispersing (drumming, venting or pumping) operations of this blend may generate more vapor or aerosol concentrations of its components. Tertiary amines can produce severe respiratory tract irritation. This will be experienced as a discomfort in the nose, throat and chest, with nasal discharge, cough, headache and difficulty with breathing.**Skin Contact:** Prolonged contact may lead to burning associated with severe reddening, swelling and possible tissue destruction.**Eye Contact:** Will cause irritation on contact. Symptoms from tertiary amine exposure include watering or discomfort of the eyes with marked excess redness and swelling. Severe exposure could produce chemical burns of the cornea. Tertiary amines have also been known to produce a transient blurring of vision against a general bluish haze and the appearance of halos around bright objects (referred to as "blue haze").**Ingestion:** Tertiary amines can cause severe irritation and possible chemical burns of the mouth, throat, esophagus and stomach with pain or discomfort in the mouth, throat, chest and abdomen. Symptoms include; nausea, vomiting, diarrhea, dizziness, thirst, circulatory collapse and coma.**Carcinogenicity:** The components of this blend are not listed by the NTP, IARC or regulated by OSHA as carcinogens.**SECTION IV - FIRST AID MEASURES****Eyes:** Flush eyes with plenty of water for at least 15 minutes. Use fingers to assure that the eyelids are separated and that the eye is being irrigated. Consult a physician. **Skin:** Remove all contaminated clothing and shoes. Wash skin with large quantities of water and soap. Wash clothing before wearing again and clean shoes. If redness, itching or a burning sensation develops or persists after the area is washed, consult a physician. **Ingestion:** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Give large quantities of water for dilution. Never give anything by mouth to an unconscious person. Seek medical attention. **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If**Product Number: 8455 Side B INTER-FOAM 10**

breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

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NOTE TO PHYSICIAN: EYES: Exposure to tertiary amine vapors in this product may cause minor transient edema of the corneal epithelium known as "blue haze". **SKIN:** Thoroughly cleansing of the entire contaminated area of the body including the scalp and nails is extremely important. **INGESTION:** Treat symptomatically. Inducing vomiting is contraindicated because of the irritating nature of this product.

INHALATION: Tertiary amines produce severe respiratory tract irritation. This will be experienced as a discomfort in the nose, throat and chest, with nasal discharge, cough and difficulty with breathing.

SECTION V - FIRE FIGHTING MEASURES

Flash Point: > 230°F (COC)

NFPA Combustible Class III B

Autoignition Temp: NA

Flammable Limits (STP): NA

Toxic fumes are released in fire situations.

Fire Degradation Products: Combustion may produce carbon dioxide, carbon monoxide, nitrogen oxides and silicon oxides.

Extinguishing Media: Use dry chemical, foam, carbon dioxide or halogenated agents or water. Use cold water spray to cool fire-exposed containers to minimize risk of rupture. A solid stream of water directed into the hot burning liquid could cause frothing. If possible, contain fire run-off water.

Protective Equipment: Positive pressure self-contained breathing apparatus with full face mask and full protective clothing should be worn by fire fighters.

HMIS RATINGS:

Health 2

Fire 1

Reactivity 0

NFPA RATINGS:

Health 2

Fire 1

Reactivity 0

0= Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

NE= NotEstablished, NA=No Data Available, ca=Approximately, <=Less Than, C = ceiling

SECTION VI - ACCIDENTAL RELEASE MEASURES

Spill: Isolate and confine spill area. Remove all sources of flames, heating elements, gas engines, etc. Emergency clean-up personnel should select the specific respirator based on contamination levels found. Air purifying respirator equipped with full-face organic vapor cartridge if vapors are detected, or are irritating. In areas of high concentrations, fresh air-line respirators or self-contained breathing apparatus and protective clothing should be used. Prevent spreading and contamination of surface waters and drinking supplies. Notify local health officials and other agencies if such contamination should occur.

Clean Up: With adequate ventilation and appropriate personal protective equipment, cover the area with an inert absorbent material such as clay or vermiculite and transfer to steel waste containers. The spill area should then be washed down with soap and water to dilute and remove remaining traces of material. Ventilate area to remove the remaining vapors.

Disposal: Any disposal practice must be in compliance with all Federal, State and Local laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance are the responsibility solely of the party generating the waste of deciding to discard or dispose of the material.

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NOTE: DO NOT ALLOW material to enter sewers, a body of water or contact the ground. Refer to RCRA 40 CFR 261, and/or any other appropriate Federal, State or Local requirements for proper classification information.

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Container Disposal: Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize or expose such containers to heat, flame, sparks, static electricity or other sources of ignition. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION VII - STORAGE AND HANDLING

Storage: When store between 15 and 30°C (60 and 85° F) in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Opened containers must be handled properly to prevent moisture pickup.

Handling: Avoid skin and eye contact. Use personal protective equipment when transferring material to or from drums, totes or other containers. Safety glasses and gloves are the minimum protection. Additional precautions must be used when splash hazards are present. Consult the INTER-FOAM 5 Polyisocyanates Handling and Safety information when this "B" blend is used in conjunction with the isocyanate "A" blend. If contamination with isocyanates is suspected, do not reseal containers. Do not smoke or use naked lights, open flames, space heaters or other ignition sources near pouring, frothing or spraying operations.

Special Emphasis For Spray Applications: Inspect the application area from the potential to expose other persons or for over spray to drift onto buildings, vehicles or other property. When spraying building exteriors, persons entering or exiting the building as well as those inside could be exposed to polyisocyanates due to wind conditions, open windows or air intakes. Do not begin application work until these potential problems have been corrected.

SECTION VIII - EXPOSURE CONTROL

Ventilation: Local exhaust ventilation is recommended when working with this product. Uses requiring heating and/or spraying may require more ventilation or personal protective equipment.

Respiratory Protection: The specific respirator selected must be based on contamination levels of this blend found in the workplace and must not exceed the working limits of the respirator and be jointly approved by NIOSH and MSHA. Air purifying respirators equipped with full-faced organic vapor cartridge can be used only if isocyanate vapors are not present from the ÓAO component. In areas of high concentrations, fresh air-line respirators or self-contained breathing apparatus can be used in emergencies or other unusual situations.

Eye Protection: Chemical splash goggles or safety glasses or full face mask must be used consistent with splash hazard present. If vapor exposure causes eye discomfort, use a full face-piece respirator or supplied air hood.

Protective Clothing: Wear clothing, boots and gloves resistant to permeation of product. Materials may include butyl rubber, nitrile rubber, neoprene and Saranax™ coated Tyvek™.

Other Protective Equipment: An eyewash station and safety shower or other drenching facilities are recommended in the work area.

DISCLAIMER The information and recommendations provided herein are believed to be accurate as of the date hereof. However, such information and recommendations are provided without warranty of any kind and International Epoxies & Sealers disclaims any and all liability or legal responsibility or use or reliance upon same.

Product Number: 8455 Side B INTER-FOAM 10

SECTION IX - TYPICAL PROPERTIES

Physical Form: Amber liquid.

Solubility In Water: Slight.

Odor: Amine odor.

Specific Gravity at 25°C: > 1.00

pH: NA

Viscosity at 77°C: NA

