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Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name:

R-24-486

Chemical Name:

Polyurethane Resin

Recommended Use:

Component for the manufacture of Polyurethanes

Restrictions on Use:

Chemical Manufacturer Information

Name:

NCFI Polyurethanes

Phone:

(800) 346-8229

Address:

1515 Carter St Mount Airy, NC 27030

Fax:

(336) 789-9586

Website: www.NCFI.com **Emergency Phone:**

CHEMTREC: 800-968-793 (Toll Free)

Section 2: Hazard Identification

Classification of the substance or mixture:

GI	GHS Classification:		
	Skin irritation, Category 3	•	Eye irritation, Category 2

GHS Labeling:



Ha	zard Statements:		
•	May cause skin irritation	•	May cause eye irritation
•	May cause respiratory irritation	•	

Precautionary Statements:				
0	Do not breathe fume/gas/mist/vapors/spray	•	Wear protective gloves/eye protection/face protection	
•	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	•	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing	
•	IF ON SKIN: Wash with plenty of soap and water			

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

CAS#	Weight %	Name
Proprietary	<1	Tertiary amine catalysts

Section 4: First Aid Measures

Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician.	
Flush with water for at least 15 minutes. See a physician if irritation develops.	
Do not induce vomiting unless told to do so by a medical professional.	
May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization.	
N/A	
Wash with soap and water at first opportunity.	

Section 5: Fire-Fighting Measures

Suitable extinguishing media:	Water, dry chemicals, CO ₂ None	
Unsuitable extinguishing media:		
Special hazards arising from the chemical:	None	
Precautions for fire-fighters:	A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors	

Section 6: Accidental Release Measures

Personal precautions, protective equipment, and	Clear area. Ensure adequate ventilation. Wear suitable personal	
emergency procedures:	protective clothing and equipment.	
Environmental precautions:	Do not discharge into drains/surface waters/groundwater	
Methods and material for containment and cleanup:	Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations.	



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Section 7: Handling and Storage

Precautions for safe handling:	Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container.	
Conditions for safe storage, including any incompatibilities:	Keep tightly sealed.	

Section 8: Exposure Controls and PPE

Exposure Limits

Component:	Туре	Value
Tertiary Amine Catalysts ¹	TWA	None established

Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

Respiratory Protection:	The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. 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 limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained.
Hand, eye, skin, body protection:	Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available.

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

Appearance:	Liquid	Flammability:	N/A
Color:	Amber	Upper/lower flammability or explosive limits:	N/A
Odor:	Faint ammonia odor	Vapor pressure:	N/A
Odor threshold:	N/A	Vapor density:	N/A
pH:	N/A	Relative density:	1.078g/mL
Melting pt/freezing pt:	<32°F	Solubility(ies):	highly soluble in water
Boiling pt/boiling range:	>200°F	Partition coefficient (n- octanol/water):	N/A
Flash point:	>200°F	Auto-ignition temperature:	>500°F
Evaporation rate:	Slower than ether	Decomposition temperature:	>500°F



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Section 10: Stability and Reactivity

Chemical stability:	Stable
Possibility of hazardous reactions:	N/A
Conditions to avoid:	N/A
Incompatible materials:	Isocyanates and other chemicals that react with hydroxyl groups.
Hazardous decomposition products:	When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids and possibly carbonyl halides.

Section 11: Toxicological Information

Acute toxicity:	May cause skin irritation
Chronic toxicity:	Not available
Likely routes of exposure:	Skin
Symptoms related to physical, chemical and toxicological characteristics:	May cause skin irritation
Delayed and immediate effects and chronic effects from short and long-term exposure:	May cause skin irritation; avoid contact with eyes
Numerical toxicity measures:	Not available

Section 12: Ecological Information

Ecotoxicity:	Not a marine pollutant	
Persistance and degradability:	No known significant effects	
Bioaccumulative potential:	Does not bioaccumulate	
Mobility in soil:		

Section 13: Disposal

Waste disposal:	R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance
	with pertinent regulations

Section 14: Transport

UN number:	Not regulated
UN Proper shipping name:	Not regulated
Transport Hazard class(es):	Not regulated
Packing group, if applicable:	Not regulated
Marine pollutant (YorN):	N
Special precautions:	None



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

Inventory Status:	All components TSCA listed
US Regulations:	No ingredients listed
US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information:	No ingredients listed

Section 16: Other

MSDS Preparation Date:	06/26/2014
Revision Date:	

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Section 1: Identification

Product Identifier

Trade Name:

A-24-486

Chemical Name:

Diphenylmethane Diisocyanate (MDI)

Recommended Use:

Component for production of polyurethanes

Restrictions on Use:

Chemical Manufacturer Information

Name:

NCFI Polyurethanes

1515 Carter St Mount Airy, NC 27030

Phone: Fax:

(800) 346-8229 (336) 789-9586

Address: Website:

www.NCFI.com

Emergency Phone:

CHEMTREC: 800-968-793 (Toll Free)

Section 2: Hazard Identification

Classification of the substance or mixture

GHS Classification:	
Skin irritation, Category 2	Acute toxicity, Inhalative, Category 4
 Sensitization of respiratory airways, Category 1 	Eye irritation, Category 2
 Carcinogenicity, Category 2 	Sensitization of the skin, Category 1
 Specific target organ toxicity (repeated exposure), Category 2 	Specific target organ toxicity (single exposure), Category 3

GHS Labeling:





Danger

•	May cause an allergic skin reaction	0	Causes skin irritation
0	Harmful if inhaled	0	Causes serious eye irritation
0	May cause respiratory irritation	•	May cause allergy or asthma symptoms or breathing difficulties if inhaled
•	May cause damage to organs through prolonged or repeated exposure	•	Suspected of causing cancer

Precautionary Statements:				
•	Do not breathe dust/fume/gas/mist/vapors/spray	•	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing	
•	Wear protective gloves/eye protection/face protection	•	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
•	IF ON SKIN: Wash with plenty of soap and water			

Other Hazards: Persons with respiratory conditions should avoid handling this product.



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Section 3: Composition

Hazardous Components

Type of product: substance

CAS#	CAS# Weight % Name		
101-68-8 38.0%		Diphenylmethane-4,4'-diisocyanate (MDI)	
26447-40-5 < 10.0%		MDI Mixed Isomers	
9016-87-9 < 55.0% P-MDI		P-MDI	

Section 4: First Aid Measures

General:	Remove contaminated clothing	
Inhalation: Remove affected individual to fresh air and keep person calm. Assist in breathing if necessary. Immedical attention required.		
Skin Contact:	Contact: Wash affected areas with soap and water. Seek medical attention for irritation.	
Eye Contact: Rinse for at least 15 minutes with water. Immediate medical attention required.		
Ingestion: Rinse mouth and drink plenty of water. Do not induce vomiting. Immediate medical attention required		

Section 5: Fire-Fighting Measures

Suitable extinguishing media: Carbon dioxide, foam, dry powder, water spray	
Unsuitable extinguishing media:	High volume water jet
Special hazards arising from the chemical:	Burning releases CO, CO2, oxides of
	nitrogen, isocyanate vapors and traces of hydrogen cyanide.
Precautions for firefighters:	Firefighters should be equipped with self-contained breathing apparatus and turn-
	out gear.

Section 6: Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures:	Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.
Environmental precautions:	Do not discharge into drains/surface waters/groundwater
Methods/material for containment and cleanup:	Remove mechanically; cover remainder with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approx. one hour transfer to waste container and do not seal (evolution of CO2?). Keep damp in a safe ventilated area for several days.

Spill area can be decontaminated with the following recommended decontamination solution:

Decontamination Solution #1: 8-10% sodium carbonate and 2% liquid soap in water

Decontamination Solution #2: Liquid/yellow soap (potassium soap with ~15% anionic denside): 20 ml; Water: 700 ml; Polyethylenglycol (PEG 400): 350 ml



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Section 7: Handling and Storage

Precautions for safe handling:	Provide sufficient air exchange and/or exhaust in work rooms. Occupational exposure limits should not be exceeded (refer to Section 8). Contact with skin and eyes and inhalation of vapors must be avoided. Keep away from foodstuffs, drinks, and tobacco. Wash hands before breaks and at end of work.
Conditions for safe storage, including any	Keep container tightly closed and protect against moisture. Segregate from bases.
incompatibilities:	Store from 32F – 110F.

Section 8: Exposure Controls and PPE

Exposure Limits

Component	Type	Value
P-MDI	OSHA PEL	CLV 0.02 ppm 0.2 mg/m3
Diphenylmethane-4,4'-diisocyanate (MDI)	OSHA PEL	CLV 0.02 ppm 0.2 mg/m3

Exposure Controls

Respiratory Protection:	Respiratory protection required in insufficiently ventilated working areas and during spraying. An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter is recommended.	
Hand, eye, skin, body protection:	: Chemical resistant protective gloves should be worn to prevent all skin contact. Wear	
Av. save door over government	eye/face protection. Wear suitable protective clothing	

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

Appearance:	liquid	Flammability	not applicable
Color	dark amber	Upper/lower flammability or explosive limits	
Odor	earthy, musty	Vapor pressure	0.00016 mmHg
Odor threshold	not established	Vapor density	not established
pH	not established	Relative density	1.24
Melting pt/freezing pt	3°C	Solubility(ies)	Reacts with water
Boiling pt/boiling range	> 300°C	Partition coefficient (n-octanol/water)	not established
Flash point	> 250°C	Auto-ignition temperature	not applicable
Evaporation rate	not established	Decomposition temperature	not established

Section 10: Stability and Reactivity

Chemical stability:	Polymerises at about 200°C with evolution of CO2
Possibility of hazardous reactions:	Exothermic reaction with amines and alcohols; reacts with water forming CO2; in closed containers, risk of bursting owing to increase of pressure
Conditions to avoid:	Avoid moisture
Incompatible materials:	water, alcohols, strong bases



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Hazardous decomposition products: carbon monoxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapors

Section 11: Toxicological Information

Acute toxicity (inhalation):	LC50: 490mg/kg, vapor, 4hr rat
Chronic toxicity:	2 years, inhalation; NOAEL: 0.2mg/m3, (rat, Male/Female,
	6hrs/day 5 days/week)
Likely routes of exposure:	Skin, inhalation
Symptoms related to physical, chemical and toxicological characteristics:	Minor skin irritation; asthma-like symptoms
Delayed and immediate effects and chronic effects from short	Possible sensitization
and long-term exposure:	
Numerical toxicity measures:	

Section 12: Ecological Information

Ecotoxicity:	LC0: >1,000mg/l (Zebra fish 96 hrs) LC0: >3,000mg.l (Killifish 96hrs)
Persistance and degradability:	0%
Bioaccumulative potential:	Does not bioaccumulate
Mobility in soil:	

Section 13: Disposal

Waste disposal:	Incinerate or dispose of in a licensed facility. Do not discharge	
150	substance/product into sewer system. Do not burn empty drums or cut open with gas or an electric torch	
	toxic decomposition products may be liberated. Do not reuse empty containers.	

Section 14: Transport

Land transport

USDOT	Not classified as dangerous good
China	Not classified as dangerous good

Sea transport

II	MDG	Not classified as dangerous good

Air transport

IATA/ICAO	Not classified as dangerous good
IATA/ICAO	Not classified as dangerous good

Further information

DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Refer to Section 15 for the RQ of this product.



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Section 15: Regulatory

Relevant safety, health, and environmental regulations:	
Inventory Status:	TSCA listed
US Regulations:	Not regulated
US Superfund Amendments and Reauthorization Act (SARA)	Methylene Bis Phenylisocyanate 101-68-8 5000 lbs. See MSDS –
Title III Section 313 information:	A Component
	(Same as Diphenylmethane diisocyanate (MDI)
	Polymeric Diphenylmethane diisocyanate 9016-87-9 See MSDS
	- A Component

Section 16: Other

MSDS Preparation Date:	06/26/2014	
Revision Date:		

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NCFI SYSTEM 24-486

DESCRIPTION:

NCFI 24-486 is a plural component, water blown, all PMDI-based, nominal 4 pcf density, polyurethane foam system designed for concrete slab raising, under-slab void fill and cavity fill applications. NCFI 24-486 is formulated to be machine processed using applicable plural component polyurethane processing equipment.

DISTINGUISHING CHARACTERISTICS:

- Excellent Gel Pressure Development
- Excellent Compressive Strength

24-486 R

24-486 A

· Good Dimensional Stability

TYPICAL RESIN PROPERTIES:

		·
Viscosity (@ 72°F	
	620 cps	200 cps
Lbs./Gallo	AND THE REST	
99.1	9.0 lbs.	10.2 lbs.
Appearanc		
	transparent,	transparent,
241 (1001)	black liquid	brown liquid
Shelf Life	792 792	70 5GE
	6 months	6 months
MIX RATIO:		
	04 406 B	24 406 4
	<u>24-486 R</u>	<u>24-486 A</u>
By Weigh	t 100 parts	115 parts
-, ···g	Paris	Paris
By Volume	e 100 parts	100 parts

TYPICAL REACTION PROPERTIES:

Hand Mix @ 72°F, 1500 rpms

Cream Time	25 seconds
Gel Time	50 seconds
Tack Free Time	75 seconds
Rise Time	90 seconds
Density (FRC)	4 pcf

TYPICAL PHYSICAL PROPERTIES:

Typical In-place Density ASTM D-1622	6 pcf
Compressive Strength ASTM D-1621	100 psi
Tensile Strength ASTM D-1623	146 psi
Shear Strength ASTM C-273	69 psi
Closed Cell Content NCFITM 300	>90%
Water Absorption, ASTM D-2842	≤0.04 lbs/sq ft
Resistance to Solvents	Excellent
Resistance to Mold and Mildew	Excellent
Maximum Service Temperature	200°F

^{*}The above values are average values obtained from laboratory experiments and should serve only as guide lines

NCFI 24-486 APPLICATION INFORMATION

EQUIPMENT AND COMPONENT RATIOS:

NCFI 24-486 should be mixed by pour machines designed to mix urethane chemicals. Consult with your NCFI Account Manager or Tech Support Representative for information regarding qualified metering equipment and the appropriate process parameters recommended. NCFI 24-486 **R** is connected to the **resin/polyol** pumps with NCFI 24-486 **A** being connected to the **isocyanate** pumps.

STORAGE AND USE OF CHEMICALS:

Keep temperature of chemicals at 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. Storage temperature should not exceed 100°F. Prolonged exposure to temperatures below 60°F can cause the 'A' component to freeze. Do not store in direct sunlight. Keep drums tightly closed when not in use and under nitrogen pressure of 2 - 3 psi after they have been opened.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further

information refer to "MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal" publication AX-119 published by the Center For The Polyurethanes Industry 1300 Wilson Blvd, Suite 800, Arlington, VA 22209.

Caution:

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions. Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI Polyurethanes warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and NCFI Polyurethanes expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI Polyurethanes of all liability with respect to the material or the use thereof.