
MATERIAL SAFETY DATA SHEET

NORMAC ADHESIVE PRODUCTS INC.
NR-606 PART "A"

Section 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Products Name: NR-606 Part "A"
Chemical Family: Polyurethane Prepolymer Resin
Chemical Name: Reaction product of a polyether with toluene diisocyanate (TDI).
Applications: Protective coating.

Supplier's Name: **Normac Adhesive Products Inc.**
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Section 2 – HAZARD(S) IDENTIFICATION

Emergency Overview: **DANGER** - Very Toxic material causing other effects.

May be harmful or fatal if swallowed.
 Causes eye irritation and risk of serious injury to eyes
 May cause skin irritation.
 May cause skin sensitization.
 May cause irritation of the respiratory tract.
 Has a narcotic effect.
 Repeated exposure may cause sensitization of the respiratory tract and the development of an asthmatic reaction on further exposure.

Section 3- COMPOSITION / INFORMATION ON INGREDIENTS

	Cas No.	Percentage (W/W)	Exposure Limits	
			ACGIH	OHSA
Toluene-2,4-diisocyanate (1) Toluene-2,6-diisocyanate (2) and Mixture of (1) and (2) - TDI	26471-62.5	0.1 - 1.0	.02 ppm Ceiling STEL	N.A.
Dihydro-1(3H)-furanone	96-48-0	1 – 20	N.A.	N.A.
Non-Hazardous PTMEG (Polyol)	25190-06-1	80 – 99	N.A.	N.A.

Section 4 - FIRST AID MEASURES

Eye Contact:	Flush eyes immediately with water for at least 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention if irritation persists.
Skin Contact:	Remove contaminated clothing. Wipe excess material from the skin. Wash skin with alcohol, followed by soap and water. Obtain medical attention.
Inhalation:	Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing AND no pulse. Obtain medical attention immediately.
Ingestion:	Drink promptly a large quantity of milk, egg white or gelatine solution. If not available, drink a large quantity of water. Obtain medical attention immediately.
Note to Physicians:	Treat for potential respiratory irritation.
Routes of Entry:	Eyes, skin, ingestion, inhalation, mist.

Section 5 – FIRE FIGHTING MEASURES

Flash Point:	> 204 °C
Flash Point Method:	Closed Cup.
Auto Ignition Temp:	Not available.
Flammable Limits in air (%):	Not available.
Extinguishing Media:	Use DRY Chemicals or water spray.
Hazardous Decomposition/ Combustion Materials:	Thermal decomposition products are toxic and may include hydrocarbons, oxides of carbon and nitrogen, hydrogen cyanide and traces of isocyanates.
Special Protective Equipment:	Wear protective clothing and self-contained breathing apparatus.
Unusual Fire/Explosion Hazard:	Contamination of isocyanates with water could lead to dangerous pressure inside closed containers by generation of carbon dioxide.
NFPA RATINGS:	HEALTH 2; FLAMMABILITY 1; INSTABILITY: 0
HMIS RATINGS:	HEALTH 2; FLAMMABILITY 1; INSTABILITY: 0

Section 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures:	Wear appropriate protective equipment. Refer to Section 8.
Environmental Precautionary Measures:	Prevent entry into sewers or streams, dike if needed. Prevent contamination of soil. Consult Local authorities.
Procedure for Clean-Up:	Isolate hazard area and restrict access. Stop the leak if it can be done without risk. Prevent contamination of waterways. Absorb with an inert dry material and place in an appropriate waste disposal container. Large spills, dike and pump into suitable containers. Clean up all residual with absorbent material. Place in appropriate container. Notify applicable government authority if release is reportable or could adversely affect the environment. Ventilate the area thoroughly.
Decontaminant:	Supplies of suitable decontaminant/commercial decontaminant should always be kept available. Contain and cover the spillage with inert

absorbent (sand, earth, vermiculite) and decontaminant/commercial decontaminant. Leave to react for at least 30 minutes. Shovel residues into open-top drums and remove for further decontamination if necessary. Clean area with water and additional decontaminant/commercial decontaminant. Test atmosphere for vapours to ensure safe working conditions before other personnel are allowed into the area.

Decontaminant Solution: Commercial solution or Water 90-95% + concentrated ammonia solution 5-10% + liquid detergent 0.2 – 2%.

Section 7 – HANDLING AND STORAGE

Handling: For industrial use only. Use only with adequate ventilation. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personal protective equipment. Use normal "good" industrial hygiene and housekeeping practices.

Other Precautions: Avoid contact with moisture and prolonged exposure to temperatures above 60 °C. Purge containers with dry nitrogen before resealing. Do not use spot heating devices such as band heaters or torches. Make sure contents are completely liquid and uniform before using.

Storage: Store in a cool, dry, well ventilated area. Keep containers tightly closed. Store under dry nitrogen. Isocyanate based products react with water, liberating carbon dioxide, which can lead to excessive pressure in closed containers and form solid, insoluble polymers. Contact with copper or copper alloys and galvanised surfaces must be avoided and valves etc. made of these materials must not be used in equipment for storing and handling diisocyanates. Do not store in open containers.

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation is required to maintain exposure to within applicable limits. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator.

Gloves: Impervious chemical resistant gloves.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protective Data: Ensure that eyewash stations and safety showers are proximal to the work station location.

Ingredients	Exposure Limit	Exposure Limit	Immediately Dangerous to Life or Health – IDLH
	ACGIH	OHSA	
Toluene 2,4-diisocyanate (1) Toluene 2,6-diisocyanate (2) Mixture of (1) and (2) (TDI):	0.02 ppm	0.2 ppm (Ceiling, STEL)	
Dihydro-2(3H) –furanone	N.A.	N.A.	N.A.

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Viscous liquid.
Colour:	Clear, colourless.
Specific Gravity:	1.2 g/cc @ 20°C
Boiling Point:	Not applicable, decomposes.
Melting/Freezing Point:	<15°C (Solidification temperature)
Vapour Pressure:	Not available
Vapour Density (air = 1)	Not available
Volatile Organic Compounds:	No data available
Appearance:	Clear, colourless, viscous liquid.
Odour:	Characteristic – irritating at high temperatures
Odour Threshold:	Not available
Evaporation Rate:	Low

Section 10 – STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions see also Section 7.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	Moisture.
Materials to Avoid:	Alcohols, strong oxidizing agents, water.
Hazardous combustion Products:	Hydro carbons, oxides of carbon and nitrogen, hydrogen cyanide, and traces of isocyanates.

Section 11 – TOXICOLOGICAL INFORMATION

Toxicological Data:	Toluene-2,4-diisocyanate (1) Toluene-2,6-diisocyanate (2) and Mixture of (1) and (2) - TDI	Dihydro-2(3H) -furanone
Oral LD50:	> 5,000 mg/kg (Rat)	1,582 mg/kg (Rat)
Dermal LD50:	> 9,400 mg/kg (Rabbit)	>5,000 mg/kg (Guinea pig)
Inhalation LC50:	370 mg/m ³ (rat, 4hr).	> 6.1 mg/L (4 hr) (Rat)
Skin Contact:	Severe Irritation (Rabbit)	Non-Irritating (Rabbit)
Eye Contact:	Severe Irritation (Rabbit)	Risk of Serious Injury (Rabbit)
Sensitization:	Positive (guinea pig)	Not observed.
Carcinogenicity:	IARC – Group 2B (TDI). ACGIH – A4 (TDI)	
Carcinogenicity Comment:	Component: Toluene-2,4-diisocyanate (1) Toluene-2,6-diisocyanate (2) and Mixture of (1) and (2) – TDI Oral gavage administration of TDI in corn oil to rats and mice for 2 years resulted in an incidence of tumours. Six hour daily inhalation exposure to rats and mice of 0.05	

and 0.15 ppm TDI for 2 years did not show evidence of carcinogenic activity.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information:	Ecotoxicity – Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity Freshwater Algae
Toluene-2,4-diisocyanate (1) Toluene-2,6-diisocyanate (2) and Mixture of (1) and (2) – TDI:	LC50 (Grass shrimp) >508 mg/L LC50 (Fathead Minnow) 147 mg/L.	Not Available	Not Available
Dihydro-2(3H) -furanone	LC50 (Golden orfe) >220 - < 460 mg/L.	EC50 (Water flea) >500 mg/L	Not Available

Section 13 – DISPOSAL CONSIDERATIONS

Disposal of Waste Method:	Disposal of all wastes must be done in accordance with local, state/provincial and federal regulations.
Contaminated Packaging:	Empty containers should be recycled or disposed of through an approved waste management facility.

Section 14 – TRANSPORT INFORMATION

Proper Shipping Name:	This product is Not Regulated.
TDG (IATA and IMO):	This product is Not Regulated.
Hazard Label / Placards:	None

Section 15 – REGULATORY INFORMATION

U.S. TSCA Inventory Status:	All compounds of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.		
Canadian DSL Inventory Status:	All compounds of this product are either on the Domestic Substances List (DSL); the Non- Domestic Substances List (NDSL) or exempt.		
Note: Not available.			
US Regulatory Rules	CECLA/SARA Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA Section 313:
NR-606 components:	Not Listed	Listed	Listed
California Proposition 65:	Listed.		
MA Right to Know List:	Listed.		
New Jersey Right-to-know List:	Listed.		
Pennsylvania Right to Know List:	Listed.		
WHMIS Hazardous Class:	D2A VERY TOXIC MATERIALS causing other effects.		

D2B TOXIC MATERIALS.

NFPA RATINGS: HEALTH 2; FLAMMABILITY 1; INSTABILITY: 0
HMIS RATINGS: HEALTH 2; FLAMMABILITY 1; INSTABILITY: 0

Section 16 – OTHER INFORMATION

All employees or contractors etc. who use this product must have access to this Material Safety Data Sheet.

This information is furnished without warranty, representation, inducement or licence of any kind, except that it is accurate to the best of Normac Adhesive Products Inc. knowledge or is obtained from sources believed by Normac Adhesive Products Inc. to be accurate. Normac Adhesive Products Inc. makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use or reliance on same. Customers are encouraged to conduct their own tests.

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*****END OF MSDS*****

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