

SDS RE-Hardener Rev.5

MATERIAL SAFETY DATA SHEET

NORMAC ADHESIVE PRODUCTS INC.

RE-HARDENER

Section 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Products Name: RE-HARDENER
Chemical Family: Cross-linker
Chemical Name: Isocyanate dissolved in a chlorinated hydrocarbon solvent.
Applications: Rubber Adhesive curative accelerator.

Supplier's Name: **Normac Adhesive Products Inc.**
1350 Heine Court
Burlington, Ontario, Canada, L7L 6M4
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Prepared by: Regulatory Affairs Group of Normac Adhesive Products Inc.
Preparation Date of MSDS: Oct. 23, 2015
24 Hour Emergency Telephone Number (Canutec): (613) 996-6666

Section 2 – HAZARD(S) IDENTIFICATION

WHMIS Hazardous Class: B2 FLAMMABLE LIQUIDS
D2A TOXIC MATERIALS
D2B TOXIC MATERIALS causing other effects.

NFPA RATINGS: HEALTH 2; FLAMMABILITY 3; INSTABILITY: 0
HMIS RATINGS: HEALTH 2; FLAMMABILITY 3; INSTABILITY: 0

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the Product

Target Word: Danger

Target Organs

Blood, Liver, Kidney, Central nervous system, Thymus., Spleen., Bone marrow, Lungs, Testes
STOT RE 2 (by inhalation) Specific target organ toxicity — repeated
STOT SE 3 (irritating to respiratory system) Specific target organ toxicity — single exposure

GHS Classification

Hazard	Classification
Flammable liquids	2
Acute toxicity, Oral	4
Acute toxicity, Inhalation	4
Skin corrosion/irritation	2
Skin sensitization	1B
Respiratory sensitization	1
Acute aquatic toxicity	2
Chronic aquatic toxicity	2
Serious eye damage/eye irritation	2A

GHS Labeling

Hazard Statements:

H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H302 + H332 Harmful if swallowed or if inhaled
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs (Olfactory organs) through prolonged or repeated exposure (inhalation).
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 Wear protective gloves.
P271 Use only outdoors or in a well-ventilated area.
P260 Do not breathe dust/gas/mist/vapours.
P261 Avoid breathing mist.
P284 In case of inadequate ventilation wear respiratory protection.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P264 Wash with plenty of water and soap thoroughly after handling.
Precautionary Statements (Response):
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P314 Get medical advice/attention if you feel unwell.
P303 + P361 IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash before reuse.
P337 + P311 If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Precautionary Statements (Disposal):
P501 Dispose of contents/container to hazardous or special waste collection point.

Labeling of special preparations (GHS):

Pictograms



CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED

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PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200
Emergency overview

WARNING:

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

AVOID CONTACT WITH SKIN AND EYES.

SKIN OR EYE CONTACT MAY CAUSE IRRITATION.

Section 3- COMPOSITION / INFORMATION ON INGREDIENTS

	Cas No.	Percentage (W/W)	Exposure Limits	
			ACGIH	OSHA
Ethyl Acetate	141-78-6	60 – 90*	400 ppm TLV	400 ppm TWA
Tris (4-isocyanatophenyl) Thiophosphate	4151-51-3	10 – 30*	0.005 ppm TLV	N.A.
Monochlorobenzene	108-90-7	1 – 5*	N.A.	N.A.

**Exact percentages are withheld as a trade secret however the health and environmental hazard effects stated in this SDS describe the effects of the highest concentration of each ingredient; in compliance with (ST/SG/AC.10/30/Rev.6) and (29 CFR 1910.1200).*

Section 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with gently flowing water for at least 15 minutes or until the chemical is removed. Hold eyelids open during flushing. Take care not to rinse the contaminated water into the unaffected eye or face. Seek immediate medical attention.
Skin Contact:	Remove contaminated clothing, including shoes, after flushing with water has begun. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention.
Inhalation:	If symptoms are experienced, remove source of contamination and, move victim to fresh air. If symptoms persist, get medical attention. If the affected person is not breathing, apply artificial respiration. If breathing is difficult, give oxygen. In situations where administering

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oxygen is appropriate, first aid administrator must be trained in the safe use and handling of oxygen. It is preferable to administer oxygen under a doctor's supervision or advice. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Obtain medical attention IMMEDIATELY.

Ingestion: Seek immediate medical attention. Do NOT Induce vomiting. Do not attempt to give anything by mouth to an unconscious or convulsing person. Give 1 to 2 cups of milk or water to drink. IMMEDIATELY contact local Poison Control Centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid aspirating the liquid into the lungs. Administer artificial respiration if breathing has stopped. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.

Note to Physician: Treatment based on sound judgment of physician and individual reactions of patient.
EYE: Stain for evidence of corneal injury. If cornea is burned, instil antibiotic steroid preparation frequently. Workplace vapours 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 thermal burn.
INGESTION: Treat symptomatically. There is NO specific antidote. Inducing vomiting is contraindicated because of the irritation nature of this compound.
RESPIRATORY: This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed immediately from exposure to any isocyanate.

Section 5 – FIRE FIGHTING MEASURES

Flash Point:	-4 °C
Flash Point Method:	(Closed cup)
Auto Ignition Temp:	460 °C
Flammable Limits in air (%):	Lower: 1.3% Upper: 11.5%
Extinguishing Media:	Use DRY Chemicals. CO2. alcohol foam or water spray. This material may produce a floating fire hazard in extreme fire conditions.
Special Exposure Hazards:	Flammable Liquid. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do so without risk. Fight fire from a safe distance and from a protected location. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. This material may produce a floating fire hazard in extreme fire conditions. Vapours are heavier than air and may accumulate in low areas. Vapours may travel along the ground to be ignited at distant locations. Do not allow runoff to enter waterways or sewer.
Hazardous Decomposition/ Combustion Materials:	A Complex mixture of airborne solids, liquids, gases including carbon monoxide, carbon dioxide, oxides of nitrogen, phosphorous, sulphur, HCL, isocyanates and traces of phosgene, chlorine and hydrogen cyanide will be evolved when this material undergoes combustion.
Special Protective Equipment:	Wear protective clothing and self-contained breathing apparatus.

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NFPA RATINGS:
HMIS RATINGS:

HEALTH 2; FLAMMABILITY 3; INSTABILITY: 0
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Section 6 – ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.

Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed.
Prevent contamination of soil. Consult Local authorities.

Procedure for Clean Up: Immediately evacuate the area. Isolate hazard area and restrict access. 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.

Section 7 – HANDLING AND STORAGE

Handling: For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personal protective equipment. Avoid splash filling. Use normal "good" industrial hygiene and housekeeping practices. Containers exposed to heat may be under internal pressure. These should be cooled and carefully vented before opening. A face shield and apron should be worn.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep containers tightly closed. Store out of direct sunlight and on an impermeable floor. Do not store in aluminium containers. Attacks some types of rubber, plastics and coatings. Confirm suitability of a material before using.

Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation as required to maintain exposure to within applicable limits. Use explosion proof equipment. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense vapours may collect.

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. Butyl or nitrile rubber gloves.

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

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use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

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	
Ethyl Acetate	=400 ppm TWA	400 ppm TWA	2,000 ppm

Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid.
Colour:	Yellow to brown amber.
Odour:	Solvent odour.
Specific Gravity:	1.0 (water = 1)
Boiling Point:	77°C
Melting/Freezing Point:	Not available
% Volatility:	Not available
Vapour Pressure:	73 mm Hg.) @ 20°C
Vapour Density:	Not applicable
Viscosity:	Not available
Odour threshold:	Not available
Solubility:	Partially soluble in water. Isocyanate: not soluble, reacts slowly with water to liberate CO ₂ gas.
Evaporation Rate:	Not available.

Section 10 – STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions.
Hazardous Polymerization:	May occur with contact with moisture or other materials which react with isocyanates..
Conditions to Avoid:	High temperatures, sparks, open flames and all sources of ignition.
Materials to Avoid:	Water, oxidizing agents, strong bases, strong alkalis, alcohols and strong acids
Hazardous decomposition Products:	By fire: Oxides of carbon, nitrogen, phosphorous, sulphur, and, hydrochloric acid, isocyanates, traces of phosgene, chlorine and hydrogen cyanide.

Section 11 – TOXICOLOGICAL INFORMATION

Principle Routes of Exposure:

Eye Contact: High vapour concentration will cause eye irritation, tearing, reddening, and swelling. Left untreated, corneal damage may result.

Skin Contact: Repeated or prolonged contact may cause defatting and drying of the skin which may result in skin irritation and dermatitis.

Inhalation: Isocyanate vapour/mists at concentrations above the exposure limits

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can irritate (burning sensation) the mucous membranes in the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, difficult breathing and reduced pulmonary functioning. Persons with pre-existing non specific bronchial hyperreactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema. Effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms have also been reported. These symptoms can be delayed up to several hours after exposure. Solvent vapours may be irritating to the eyes, nose and throat. May cause headache, dizziness and nausea. May result in narcosis. May cause fatigue and loss of appetite.

Ingestion: Harmful if swallowed. Causes irritation of the mouth, throat and esophagus. May result in abdominal pain, nausea, vomiting and diarrhea.

Acute Test of Product:	Ethyl Acetate	Analogous products
Acute Oral LD50:	5,600 mg/kg (Rat)	>2,0000 mg/kg (Rat).
Acute Dermal LD50:	> 20 mL/kg. (Rabbit)	Not available.
Acute Inhalation LC50:	16,000 ppm (Rat – 6 hr.)	Not available.

Carcinogenicity: **IARC** – Not listed.
ACGIH – Not listed.

Carcinogenicity Comment: No additional information available.

**Reproductive Toxicity/
Terratogenicity/Embryotoxicity/
Mutagenicity:** Not available.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information:	Ecotoxicity – Fish Species Data	Ecotoxicity Freshwater Algae
Ethyl Acetate:	LC50 (Pimephales promelas) 230 mg/L 3,300 mg/L LC50 (Oncorhynchus mykiss) 484 mg/L	EC50 (Scenedesmus subspicatus)
Other Information:	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: Flammable Liquid, N.O.S. (Ethyl Acetate Solution)
TDG (IATA and IMO): Cl. 3 UN 1993 PG. II
Hazard Label / Placards: FLAMMABLE

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.

<u>US Regulatory Rules</u>	CECLA/SARA Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA Section 313:
RE Hardener 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: B2 FLAMMABLE LIQUIDS
D2A TOXIC MATERIALS
D2B TOXIC MATERIALS causing other effects.

NFPA RATINGS: HEALTH 2; FLAMMABILITY 3; INSTABILITY: 0
HMIS RATINGS: HEALTH 2; FLAMMABILITY 3; INSTABILITY: 0

Section 16 – OTHER INFORMATION

All employees or contractors etc. who use this product must have access to this 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.

DATE OF ISSUE: Oct. 27, 2015
HISTORY REVISION: SDS updated to comply with GHS regulations.
Replaces MSDS dated Dec 01, 2014.
PREPARED BY: Regulatory Affairs Group

END OF SDS

SDS Code: RE-HARDENER - 5