

Section 1: Product Information	
Name:	GPI-300 Part B
Description:	Polyisocyanate solution
Use:	PVC-to-Glass bonding (Part A & Part B)
MSDS number:	YHAI-21
Appearance and odor:	Reddish-yellow liquid, sweet odor
Emergency telephone:	1-800-424-9300 CHEMTREC
Product information:	859-879-2853
Effective date:	5/20/2011
Supersedes date:	8/1/2008

Section 2: Hazardous Ingredients		
A hazard evaluation of this product has been performed. The components listed below are identified as hazardous chemicals under the criteria of the OSHA hazard communication standard (29 CFR 1910.1200).		
Common name / Chemical name	CAS number	Approximate %
Toluene diisocyanate prepolymer /	unknown	60 - 90
Toluene diisocyanate based adduct		
Ethyl acetate/Acetic acid ethyl ester	141-78-6	30 - 60
Tris (4-isocyanatophenyl) thiophosphate	4151-51-3	5-10
1,3 Toluene diisocyanate	26471-62-5	<1

Section 3: Emergency and First Aid Procedure
<p>Eye contact: Immediately flush eyes with water for at least 15 minutes. Lift upper and lower eyelids frequently. Get immediate medical attention.</p> <p>Skin contact: Immediately flush affected area with water for at least 15 minutes. For large exposures, use an emergency shower. Remove contaminated clothing and shoes. Cleanse skin with soap and water, including hair and under fingernails. Get immediate medical attention. Wash contaminated clothing separately before reuse.</p> <p>Inhalation: Remove to fresh air. If symptoms develop, seek immediate medical attention. If not breathing, give artificial respiration, preferably mouth to mouth.</p> <p>Ingestion: Seek medical attention. Unless advised otherwise, induce vomiting by either giving syrup of ipecac followed by 2 glasses of water or by sticking finger down throat. Do not give anything by mouth if the person is drowsy, unconscious, or has no gag reflex. Ingestion creates a high risk of aspiration and subsequent chemical pneumonitis. However, the presence of aromatic an/or chlorinated hydrocarbons makes evacuation of the stomach advisable.</p> <p><i>Note to physician:</i> Bronchial constriction may develop after extensive exposure to isocyanates, even in individuals who have not been shown to be previously sensitized. Use bronchodilators.</p>

Section 4: Health Effects Summary

Primary route(s) of exposure: **Eye - yes** **Skin - yes** **Inhalation - yes**

Eye contact:

Can cause irritation.

Can cause injury (i.e., burns) to the cornea and other tissues.

Corneal opacification and vascularization can occur.

The severity of reaction depends on duration of exposure and first aid procedures administered.

Skin contact:

Causes severe irritation.

Can cause burns.

Prolonged or repeated contact can de-fat the skin, cause irritation, and lead to the development of dermatitis.

Contact can cause hypersensitivity (i.e., allergic) reactions in susceptible individuals.

Inhalation:

Can cause irritation to the nose, throat, and upper respiratory tract.

Nausea, vomiting, and gastrointestinal upset can occur.

Can cause wheezing, coughing, shortness of breath, and the feeling of tightness in the chest.

Inhalation can cause severe respiratory hypersensitivity (i.e., allergic) reactions in susceptible individuals.

Ingestion:

Ingestion can cause severe irritation of the mouth, throat, and esophagus.

Can cause nausea, vomiting, and gastrointestinal upset.

Dizziness, faintness, drowsiness, and loss of coordination (ataxia) can occur.

Additional effects (target organs):

Liver.

Kidney.

Blood and/or hematopoietic system.

Respirator system.

Skin.

Aggravation of existing conditions:

Liver.

Kidney.

Blood and/or hematopoietic system.

Respiratory system.

Skin.

Immune system an/or specific chemical allergies.

Section 5: Toxicological Information**Toluene diisocyanate prepolymer****Toxic effects:**

Eye contact can cause mechanical irritation. Skin contact has been found to be non-irritating to laboratory animals.

Acute toxicity studies:

Oral-rat LD50: > 25 g/kg

Dermal-rabbit LD50: > 6.5 g/kg

Carcinogenicity - listed by:

ACGIH: no IARC monographs: no NTP annual report: no OSHA: no

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Skin protection:

Wear rubber boots and apron, protective clothing and impervious gloves. Because a variety of protective gloves exist, always consult glove manufacturer to determine the proper type for specific operation.

Respiratory protection:

Avoid breathing vapor and/or mist.

When established airborne exposure limits are surpassed (see airborne exposure limits in this section), wear NIOSH/MSHA approved equipment. Determine the appropriate type equipment for specific application by consulting the respirator manufacturer. Observe the respirator use limitations specified by NIOSH/MSHA or the manufacturer.

High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator. In addition, respiratory protection programs must be in compliance with 29 CFR 1910.134.

Ventilation:

Maintain airborne concentration below the established exposure limits (See airborne exposure limits in this section) by providing adequate ventilation. General (dilution) ventilation may be acceptable. However, local exhaust ventilation is recommended when vapors, mists, or dusts can be released.

Personal hygiene:

Wash thoroughly after handling, especially before eating, drinking, smoking, or using restroom facilities. Wash contaminated goggles, faceshield, and gloves. Professionally launder contaminated clothing. Discard contaminated shoes.

Airborne exposure limits

Toluene diisocyanate prepolymer

ACGIH TLV-TWA: not established

OSHA PEL: not established

Since this material is a prepolymer its volatility does not resemble that of TDI. Furthermore, free TDI should not be released during normal handling and use of this prepolymer.

Ethyl Acetate

ACGIH TLV-TWA: 400 ppm 1440 mg/m3

OSHA PEL: 400 ppm 1400 mg/m3

Tris (4-isocyanatophenyl) thiophosphate

ACGIH TLV-TWA: not established

OSHA PEL: not established

Toluene diidocyanate

ACGIHTLV-TWA: 0.005 ppm 0.036 mg/m3

STEL: 0.02 ppm 0.14 mg/m3

OSHA PEL: 0.005 ppm 0.04 mg/m3

STEL: 0.02 ppm 0.15 mg/m3

Section 7: Fire Protection Information

Flash point: 25oF, -4oC Test method: setaflash closed cup

Explosive limits: LEL (%) No data UEL (%) No data

Auto-ignition temperature: No data

Extinguishing media:

Small fires: use dry chemical, carbon dioxide, halon, water spray, or foam.

Large fires: use water spray, fog, or alcohol foam.

Special fire fighting procedures:

Fire fighters and others who may be exposed to the products of combustion should be equipped with NIOSH approved positive pressure self-contained breathing apparatus (SCBA) and full protective clothing.

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Unusual fire and explosion hazards:

When exposed to flames or high temperatures encountered during fire conditions, sealed containers may rupture because of the build up of internal pressure. Cool containers with water.

Vapors may be heavier than air and may travel considerable distances from the material handling point.

Vapors can be ignited by a spark, flame, cigarette, electric motor, static discharge, engine, pilot light, hot surface, or other ignition source.

May liberate irritating or toxic vapors during combustion or decomposition.

Section 8: Reactivity Data

Stable under normal conditions of storage and use: yes

Materials to avoid:

Amines.

Oxidizing agents.

Acids.

Strong bases.

Water.

Hazardous polymerization:

Hazardous polymerization will not occur.

Thermal decomposition products:

If heated to high temperatures, this product may emit the following compounds:

Flammable solvent vapors.

Smoke, soot, & toxic fumes (e.g. carbon dioxide & carbon monoxide).

Section 9: Spill and Leak Procedures**Response to spills:**

Stop discharge, if it can be performed safely, and contain material. Use an absorbent such as fuller's earth, clay, or other appropriate synthetic absorbent. Place contaminated material in a suitable container for disposal. Appropriate safety measures and protective equipment should be used (see section 6).

Do not flush to streams, rivers, or other bodies of water.

Precautions:

Eliminate all sources of ignition.

If the airborne concentration exceeds ϵ (TLV or PEL), or if high airborne concentrations can occur, evacuate employees and ventilate the area.

A supplied air respirator or self-contained breathing apparatus (SCBA), should be used for entry into enclosed spaces, or in areas with inadequate ventilation.

Disposal methods:

If discarded in its original unused form, this product exhibits the characteristics of a RCRA hazardous waste as defined under:

40 CFR 261.21 (i.e. ignitable - D001)

Therefore, it must be managed (stored/ treated/disposed/etc.) at a properly permitted facility, in compliance with all-applicable federal, state, and local requirements. Be sure to contact the appropriate government environmental agencies if further guidance is required.

It is recommended that an alternative be selected according to the waste management hierarchy.

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Section 10: Special Precautions

Recommended storage practice and conditions:

Store in cool, dry, well ventilated area. Do not store near heat or ignition sources, or in direct sunlight. Always keep containers tightly closed to avoid contamination.

Special warning: Hot organic chemical vapors or mists can suddenly and without warning combust when mixed with air. Ignition can occur at typical elevated temperature process conditions. Any proposed use in such processes should be evaluated thoroughly to assure safe operating conditions.

Do not store above: 100oF, 38oC

Container use procedures:

Containers should be supported and grounded before opening, dispensing, mixing, pouring, and emptying. Open with no-sparking tools. If the container is warm, open bung slowly to release internal pressure.

Empty container precautions:

This container is hazardous when empty. Do not use heat, sparks, open flames, torches, or cigarettes on or near empty container. Empty containers can retain product residues. Do not reuse empty container for food, clothing, or products for human or animal consumption or where skin contact may occur.

Supplemental section 10 information:

HMIS classification - health: 2*; flammability: 3; reactivity: 0.

* = Chronic effects

Section 11: Physical Data

% non-volatile (by weight):	65.5
pH:	not applicable
Vapor density (air=1):	not established
Solubility in water:	reacts with water
Evaporation rate (n-butyl acetate=1)	not established
Vapor pressure (mmHg @25oC):	not established
Specific gravity (water=1);	1.13
Approximate boiling point:	not established
Supplemental section 11 information	VOC = not established

Note: The physical data presented above are typical values and should not be construed as a specification.

Section 12: Label and Transportation Information

DOT shipping name:	Resin solution
DOT label:	Flammable liquid
DOT identification No.:	UN 1866

Supplemental section 12 information:

Hazard class:

3 (IATA, HM-181), 3.2 (IMO); packing group: II; emergency response guide No.: 26

All shipping information applies to HM-181, IATA/ICAO, and IMO.

Section 13: Regulatory Information

Toxic substance control act (TSCA)
 Chemical component(s) in this product are on the section 8 (b) chemical substance inventory list (40 CFR 710).

SARA title III information

Section 313 - toxic chemicals

Pursuant to section 313, this product contains one or more toxic chemicals that are present in excess of 1 percent of the mixture (0.1 percent, if the listed toxic chemical is a carcinogen).

Toluene diisocyanate

Section 302 - extremely hazardous substances

Pursuant to section 302, this product contains the following extremely hazardous substances:

Toluene diisocyanate

Section 311/312 - hazard categories

Pursuant to section 311/312 of, the physical and health hazard categories for this product are identified below:

Fire hazard: yes

Sudden release of pressure hazard: yes

Reactivity hazard: no

Immediate (acute) health hazard: yes

Delayed (chronic) health hazard: yes

Hazardous materials information review regulation - Canada

This material safety data sheet provides information that complies with the requirement set forth under the Canadian workplace hazardous materials information system (WHMIS).

Claim for exemption registry No.: not applicable

Expiration date: not applicable

Section 14: Users Responsibility

A bulletin such as this cannot be expected to cover all possible individual situation. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions - in addition to those described herein - are required. Any health hazard and safety information contained herein should be passed on to your customers or employees, as the case may be.

Disclaimer of liability

The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations of warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.

If you have questions with regard to health effects, or other information presented in this document, contact:

Neil Dalton
Director of Environment, Health and Safety
Yokohama Tire Corporation
1500 Indiana Avenue
Salem, VA 24153
Tel.) 540-375-8209
Fax.)540-375-0226

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State of California addendum to the material safety data sheet

Product name: **GPI-300 Part B**

Effective date: 5/20/2011

The California safe drinking water and toxic enforcement act of 1986, otherwise known as proposition 65, requires that persons potentially exposed to certain substances be made aware of the chronic effects of the substances specified by the state of California.

This product contains the following substances known to the state of California to cause cancer, birth defects, or other reproductive harm.

Ingredients

Toluene diisocyanate

Toluene

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Commonwealth of Pennsylvania addendum to the material safety data sheet

Product name: **GPI-300 Part B**
Effective date: 5/20/2011

All of the materials in this product that are required by the commonwealth of Pennsylvania to be identified are listed below. In addition, some of the materials identified may have been placed by the commonwealth of Pennsylvania on their hazardous substance list.

<u>Ingredients</u>	<u>CAS Number</u>	<u>Weight %</u>
Toluene diisocyanate prepolymer / Toluene diisocyanate based adduct	unknown	60 - 90
Ethyl acetate / Acetic acid ethyl ester	141-78-6	30 - 60
Tris (4-isocyanatophenyl) thiophosphate	4151-51-3	5-10
Toluene diisocyanate / *	see below	0.56
Non-hazardous trade secret ingredient(s)	proprietary	0.27

* Note:

Toluene diisocyanate / mixture (CAS # 26471-62-5) comprised of 80% CAS # 584-84-9 and 20% CAS # 91-08-7.

The specific chemical identity of any substance not identified with a chemical abstract service number is being held as a trade secret.