

H1 HARDENER

1. Product And Company Identification

Supplier

Forbo Siegling, LLC
12201 Vanstory Dr.
Huntersville, NC 28078-8395

Company Contact: Mr. Jay Leighton
Telephone Number: 704-948-0800

Supplier Emergency Contacts & Phone Number

CHEMTREC: (800) 424-9300

Issue Date: 03/19/2007

Product Name: H1 HARDENER
CAS Number: Not Avail.
Chemical Formula: Mixture
MSDS Number: 723

2. Composition/Information On Ingredients

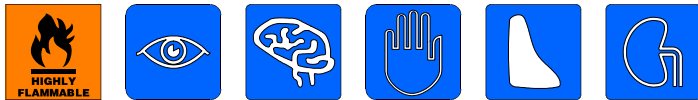
Ingredient Name	CAS Number	Percent Of Total Weight
2-METHOXYPROPYL ACETATE (PMA)	108-65-6	9.2
AROMATIC POLYISOCYANATE	Not Avail.	37.5
ETHYL ACETATE	141-78-6	44
ETHYL BENZENE	100-41-4	1.8
TOLUENE 2,4-DIISOCYANATE	584-84-9	< 0.3
XYLENE (MIXED ISOMERS)	1330-20-7	7.4

* - TDI residual monomer content is less than 0.3% based on resin solids.

EMERGENCY OVERVIEW

Flammable. Harmful if inhaled or swallowed. CONTACT YOUR LOCAL POISON CONTROL CENTER IF SWALLOWED! Contact with eyes or skin causes irritation. Effects central nervous system at high vapor concentrations. Excessive exposure may effect the kidneys and liver. Fire may produce irritating and poisonous gases.

Hazards Identification (Pictograms)



3. Hazards Identification

Skin Hazards

Repeated prolonged contact may cause defatting of skin and dermatitis. Contact may cause reddening and irritation. Skin contact may cause allergic sensitization in certain individuals, with resultant allergic dermatitis.

Ingestion Hazards

May cause vomiting, headache, nausea, dizziness. Irritation of mucous membranes likely.

Inhalation Hazards

Inhalation may cause upper respiratory irritation, headache, nausea, unconsciousness, and dizziness in high concentrations. Vapors and mists may irritate eyes, nose and throat. Symptoms include watering of the eyes, dryness of throat, coughing, headache, tightness in chest or burning sensation. Inhalation of high concentrations may cause systemic effects to the liver, kidneys and central nervous system.

Allergic respiratory or skin reaction may occur in some individuals, especially allergy prone individuals.

H1 HARDENER

First Aid (Pictograms)



4. First Aid Measures

Eye

If contact occurs flush eyes with water for 15 minutes; get medical attention.

Skin

Wash skin with soap/water. Moisturizing creams may be used as an aid to prevent drying & cracking of skin. Remove contaminated clothing; wash contaminated clothing before reuse.

Ingestion

CALL YOUR LOCAL POISON CONTROL CENTER IMMEDIATELY FOR ADVICE!

Keep victim calm. Administer CPR if necessary taking caution not to become contaminated while administering artificial respiration.

Inhalation

Remove inhalation victim to fresh air; give CPR or artificial respiration if breathing stops. Consult physician.

Note To Physician

SEE GENERAL POISONING: Prevention of absorption (oral ingestion): A) Emesis-although vomiting produces only 30% mean recovery of ingested dose, it is still probably a useful procedure. B) Lavage /PRC- with tap water for children saline for adults...C) Charcoal...many agents are absorbed on activated charcoal.../PRC 30 g in 3-4 ounces water for children, 100 g in 8-10 ounces of water for adults D) Cathartics....Dose: sodium or magnesium sulfate 250 mg/kg for children, orally; 20-30 g/dose to 100g total adults. (3)

Fire Fighting (Pictograms)



5. Fire Fighting Measures

Flash Point: 30 °F -1 °C

Flash Point Method: ASTM D56

Flammability Class: IB

Fire And Explosion Hazards

Flammable! Keep away from open flame, heat sources and fire. Vapors may form flammable/explosive mixtures with air in confined areas with poor ventilation. Vapors may flow along surfaces to distant ignition sources and flash back.

Extinguishing Media

Carbon dioxide, AFFF/ATC Foam, alcohol type foam, dry chemical. Avoid use of water.

Fire Fighting Instructions

Always wear fire fighting protective gear and respiratory protection when fighting fires. During a fire highly irritating and toxic gases and smoke are present from decomposition/combustion products.

6. Accidental Release Measures

1. Remove/extinguish all ignition sources such as open flames.
2. Ventilate area of spill or leak.
3. For small quantities absorb on paper towels or similar material. Allow to evaporate in a safe place such as a fume hood. Never dispose of with trash since spontaneous combustion may occur!

H1 HARDENER

6. Accidental Release Measures - Continued

4. Large quantity: dike area with suitable absorbent such as vermiculite or kitty litter to prevent spread of material. If available use alcohol type foam to cover spill in order to prevent ignition. Do not allow material to enter confined areas such as pits or sewers since vapors may form explosive mixture with air. Use more absorbent material to soak up material and place drums or other container for disposal. Spilled product must be disposed of as an ignitable characteristics (EPA) hazardous waste via incineration or other acceptable method.

NOTE: ALWAYS WEAR PROTECTIVE EQUIPMENT SUCH AS ORGANIC VAPOR RESPIRATOR, GLOVES AND EYE PROTECTION WHEN HANDLING CONTAMINATED MATERIALS!

7. Handling And Storage

Handling And Storage Precautions

Store away from ignition sources. Keep containers closed when not in use. Store in a cool, dry, well ventilated, flammable liquid storage area.

Protective Clothing (Pictograms)



8. Exposure Controls/Personal Protection

Engineering Controls

If large quantities are used, local exhaust ventilation should be used.

If electrical equipment will be used in potentially flammable atmospheres, it must conform to NFPA and OSHA codes for Class I enclosures. Consult Article 500-505, NFPA/NEC electrical codes.

Eye/Face Protection

Use safety glasses, goggles or face shield to prevent accidental eye contact. Contact lenses should not be worn when working with this product.

Skin Protection

Nitrile or butyl rubber gloves may be used if repeated contact will occur.

Respiratory Protection

Respiratory protection should not be necessary under normal conditions of anticipated use in small quantities. If necessary, use a chemical cartridge respirator equipped with organic vapor cartridges for levels up to 1000 ppm ethyl acetate. Exposures to TDI monomer vapor above the OSHA PEL or ACGIH TLV requires the use of a self-contained breathing apparatus or type C supplied air respirator because TDI vapors lack adequate warning properties necessary to use an air purifying respirator according to the joint OSHA/NIOSH RESPIRATOR DECISION LOGIC. However, such decisions should be made by qualified professionals with knowledge of the working conditions.

Other/General Protection

Barrier creams may prove effective to prevent skin irritation.

Ingredient(s) - Exposure Limits

2-METHOXYPROPYL ACETATE (PMA)

No exposure limits established by ACGIH or OSHA

AIHA WEEL: 100 ppm

AROMATIC POLYISOCYANATE

No Exposure Limits Established by ACGIH or OSHA

ETHYL ACETATE

ACGIH TLV-TWA: 400 ppm

OSHA PEL-TWA: 400 ppm

ETHYL BENZENE

H1 HARDENER

8. Exposure Controls/Personal Protection - Continued

Ingredient(s) - Exposure Limits - Continued

ACGIH TLV-TWA: 100 ppm
 ACGIH TLV-STEL: 125 ppm
 OSHA PEL-TWA: 100 ppm
 TOLUENE 2,4-DIISOCYANATE
 ACGIH TLV-TWA: 0.005 ppm
 ACGIH TLV-STEL: 0.02 ppm
 OSHA PEL-CEILING: 0.02 ppm
 XYLENE (MIXED ISOMERS)
 ACGIH TLV-TWA: 100 ppm
 ACGIH TLV-STEL: 150 ppm
 OSHA PEL-TWA 100 ppm

9. Physical And Chemical Properties

Appearance

Transparent yellow liquid

Odor

Characteristic ether-like odor similar to pineapple or bananas

Chemical Type: Mixture
Melting Point: 21 °F -6 °C
Boiling Point: 170 °F 55 °C
Specific Gravity: 1.19 g/cc
Percent Volatiles: 50.7
Packing Density: 9.9 lb/gal
Vapor Pressure: 76 mm Hg
Solubility: Insoluble

10. Stability And Reactivity

Stability: Stable
Hazardous Polymerization: Will Not Occur

Conditions To Avoid (Stability)

Avoid mixing with water.

Incompatible Materials

Can react vigorously with oxidizing materials.

Hazardous Decomposition Products

May emit toxic combustion products of cyanide and others of an unknown identity

Conditions To Avoid (Polymerization)

None known.

11. Toxicological Information

Acute Studies

The information concerning TDI(monomer) is listed since TDI free monomers could be released when polymer is heated.

The following are studies of effects of 2,4-Toluene Diisocyanate (TDI):

Firemen exposed to fumes of TDI experienced symptoms during and after the fire. Symptoms were mainly gastrointestinal, respiratory, or neurological. Gastrointestinal symptoms subsided within two days of onset. Some firemen substained long-term respiratory tract damage.

Some workers become exceedingly sensitive to TDI vapors and respond dramatically to minute amounts in the

H1 HARDENER

11. Toxicological Information - Continued

Acute Studies - Continued

air.

TDI may produce a true hemorrhagic syndrome affecting the bone marrow and producing primarily thrombocyte series suppression.

Neurological symptoms were reported in 23 firemen heavily exposed to TDI during a manufacturing plant fire. Symptoms included euphoria, ataxia, and loss of consciousness with long lasting mild subjective symptoms of personality change, irritability, depression, and memory difficulties.

Eye Effects

TDI monomer is a severe irritant. Avoid contact with eyes at all times.

Xylene may cause eye irritation at a concentration of 200 ppm.

Acute Oral Effects

LD50 (RAT)-oral: 11300 mg/kg (ethyl acetate); LD50 (RABBIT)-oral: 4935 mg/kg;

LD50 (RAT)-oral: > 25 g/Kg (TDI based on 100% solids resin) ;

LD50 (RAT)-oral: 5800 mg/Kg RTECS (TDI monomer);

LDL0 (HUMAN)-oral: 50 mg/Kg (Xylene)

Acute Inhalation Effects

Respiratory sensitivity results in asthma-like symptoms on subsequent exposure even below the Threshold Limit Value (TDI). Skin sensitivity results in allergic dermatitis which may include rash, itching, hives and swelling of extremities.

Xylene inhalation at a concentration of 435-1300 mg/m³ for 15 minutes to 6 hours per day for 4 days has been reported to result in central nervous system disturbances including changes in numerative ability, reaction time and short-term memory.

The following toxicological data is for exposures to xylene:

LCL0 (HUMAN): 10000 ppm/6 hours

LC50 (RAT): 5000 ppm/4 hours

TCL0 (HUMAN): 200 ppm.

Chronic/Carcinogenicity

Toluene 2,4-Diisocyanate (TDI) is listed as an IARC Group 2B Carcinogen - A chemical, industrial process, or occupational exposure with sufficient evidence for carcinogenicity in animals, but inadequate data in humans. TDI is listed on the National Toxicology Program (NTP) 8h Annual Report on Carcinogens.

Miscellaneous Toxicological Information

NOTE: The health effects of this product as noted above are based on extrapolations from the available data for the pure components. To the best of our knowledge, adverse health effects have not been determined for the final H1 Hardener product formulation as a whole. Under the normal anticipated conditions of use of this product (in small quantities and for brief and intermittent exposures) it is believed that the likelihood of experiencing adverse effects is small. Consult the Reference Documentation section for references which are numbered in the body of the MSDS.

Conditions Aggravated By Exposure

Asthmatic or individuals prone to allergy may be hypersusceptible to the effects of this product due to the TDI monomer present.

Ingredient(s) - Carcinogenicity

TOLUENE 2,4-DIISOCYANATE

OSHA Regulated Carcinogen

NTP - Listed On The National Toxicology Program

Listed In The IARC Monographs

H1 HARDENER

12. Ecological Information

No effects known.

13. Disposal Considerations

Flash point is below 140°F. Spilled material should be disposed of as an ignitable hazardous waste (EPA-RCRA), via incineration or solidification and disposal in an approved secure landfill.

RCRA Information

Ethyl acetate is a RCRA hazardous waste U112 (40 CFR 261.33) and 003x (40 CFR 261.31).

Toluene 2,4-Diisocyanate is a RCRA hazardous waste U223 (40 CFR 261.33).

Xylene is classified as a RCRA hazardous waste from a non specific source (F003) as stated in 40 CFR 261.31.

14. Transport Information

Proper Shipping Name

ADHESIVES, containing a flammable liquid

Hazard Class

3 (Flammable Liquid)

DOT Identification Number

UN1133

DOT Shipping Label

FLAMMABLE LIQUID

Packaging Exceptions

173.150

Packaging Requirements

173.173

Additional Shipping Paper Description

Adhesives, containing a flammable liquid, 3, UN1133, III, (ethyl acetate, toluene diisocyanate) International Air Transport Association (IATA) packing instruction Y309, (packing group III).

Meets the DOT limited quantity exception when the conditions of 49 CFR 173.150 are met.

Meets the DOT small quantity exception when the conditions of 49 CFR 173.4 are met.

Product shipped in glass bottles (5g, 15g or 90g) within expanded plastic boxes.

Germany: "ArbStoffV" danger symbol "F".

DOT (Pictograms)



TDG - Canada (Pictograms)



15. Regulatory Information

SARA Hazard Classes

Acute Health Hazard

Chronic Health Hazard

Fire Hazard

H1 HARDENER

15. Regulatory Information - Continued

SARA Title III - Section 313 Supplier Notification

This product contains the following toxic chemicals that are subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

2-METHOXYPROPYL ACETATE (PMA) (108-65-6) 9.2 %
 AROMATIC POLYISOCYANATE (Not Avail.) 37.5 %
 ETHYL BENZENE (100-41-4) 1.8 %
 TOLUENE 2,4-DIISOCYANATE (584-84-9) <0.3 %
 XYLENE (MIXED ISOMERS) (1330-20-7) 7.4 %

This information must be included on all MSDSs that are copied and distributed for this material.

Ingredient(s) - U.S. Regulatory Information

2-METHOXYPROPYL ACETATE (PMA)
 SARA Title III - Section 313 Form "R"/TRI Reportable Chemical
 AROMATIC POLYISOCYANATE
 SARA Title III - Section 313 Form "R"/TRI Reportable Chemical
 ETHYL BENZENE
 SARA Title III - Section 313 Form "R"/TRI Reportable Chemical
 TOLUENE 2,4-DIISOCYANATE
 SARA Title III - EPA Part 355 Extremely Hazardous Substance
 SARA Title III - Section 313 Form "R"/TRI Reportable Chemical
 XYLENE (MIXED ISOMERS)
 SARA Title III - Section 313 Form "R"/TRI Reportable Chemical

State Regulations

"Universal" Labeling:

CONTENTS	
Ethyl Acetate	141-78-6
Toluene 2,4-Diisocyanate (Monomer)	584-84-9
Xylene	1330-20-7
Ethyl Benzene	100-41-4
2-PMA	108-65-6
Aromatic Isocyanate	

Ingredient(s) - State Regulations

2-METHOXYPROPYL ACETATE (PMA)
 New Jersey - Workplace Hazard
 ETHYL ACETATE
 New Jersey - Workplace Hazard
 New Jersey - Special Hazard
 Pennsylvania - Workplace Hazard
 Massachusetts - Hazardous Substance
 New York City - Hazardous Substance
 ETHYL BENZENE
 New Jersey - Workplace Hazard
 New Jersey - Environmental Hazard
 New Jersey - Special Hazard
 Pennsylvania - Workplace Hazard
 Pennsylvania - Environmental Hazard
 Massachusetts - Hazardous Substance
 New York City - Hazardous Substance
 TOLUENE 2,4-DIISOCYANATE
 New Jersey - Workplace Hazard
 New Jersey - Environmental Hazard

H1 HARDENER

15. Regulatory Information - Continued

Ingredient(s) - State Regulations - Continued

New Jersey - TCPA Extraordinarily Hazardous Substance
Pennsylvania - Workplace Hazard
California - Proposition 65
California - CalARP Table 3 Regulated Substance
Massachusetts - Hazardous Substance
New York City - Hazardous Substance
XYLENE (MIXED ISOMERS)
New Jersey - Workplace Hazard
New Jersey - Environmental Hazard
New Jersey - Special Hazard
Pennsylvania - Workplace Hazard
Pennsylvania - Environmental Hazard
Massachusetts - Hazardous Substance
New York City - Hazardous Substance

Canadian Regulatory Information

Class B - Combustible or Flammable Material
Class D, Div 2 - Poisonous or Infectious Material: other toxic effects

Ingredient(s) - Canadian Regulatory Information

ETHYL ACETATE
WHMIS - Ingredient Disclosure List
ETHYL BENZENE
WHMIS - Ingredient Disclosure List
TOLUENE 2,4-DIISOCYANATE
WHMIS - Ingredient Disclosure List
XYLENE (MIXED ISOMERS)
WHMIS - Ingredient Disclosure List

European Union (EU) Regulatory Information

European Union Risk Phrases -
R11 - Highly Flammable
R36/37/38 - Irritating to the eyes, respiratory system and skin
R43 - May cause sensitization from skin contact

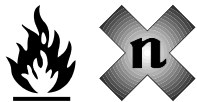
European Union Safety Phrases -
S9 - Keep container in a well-ventilated place
S16 - Keep away from sources of ignition - no smoking
S23 - Do not breathe gas/fumes/vapor/spray.
S24 - Avoid contact with skin
S25 - Avoid contact with eyes
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S36/37 - Wear suitable protective clothing and gloves
S39 - Wear eye/face protection
S51 - Use only in well ventilated areas

WHMIS - Canada (Pictograms)



H1 HARDENER

DSCL - Europe (Pictograms)



16. Other Information

HMIS Rating

Health: 2

Fire: 3

Reactivity: 1

Personal Protection: B

Revision/Preparer Information

This MSDS Supersedes A Previous MSDS Dated: 11/19/2003

Reference Documentation

Primary references used in the creation of this document:

- (1) Mobay Chemical Corp. MSDS for Mondur CB-75, 8/3/84, Pittsburgh, PA.
- (2) NIOSH Registry Of Effects Of Chemical Substances (RTECS); U.S. Dept. HEW RTECS# AH5425000
- (3) Rumack Poison index 1975-present
- (4) Guide to Occupational Exposure Values - 2006, ACGIH.
- (5) 29 CFR 1910 OSHA General industry standards 1910.1000 et.seq.
- (6) Patty's Industrial Hygiene And Toxicology 3rd. Ed. (1978) John Wiley & Sons, New York
- (7) 10th Annual Report On Carcinogens
- (8) Documentation Of The Threshold Limit Values And Biological Exposure Indices, 1996, ACGIH
- (9) Siegling Safety Data Sheet for H1 Hardener, 05/89, Hannover, Germany.
- (10) IARC Monographs Supplement 7.
- (11) Desmodur L 67 MSDS - (Miles, Inc., 02/02/90)

Other Information

Glossary -

ACGIH = American Conference of Governmental Industrial Hygienists

API = American Petroleum Institute

DOT = U.S. Department of Transportation

EPA = U.S. Environmental Protection Agency

IARC = International Agency For Research On Cancer

MSHA = Mine Safety and Health Administration

NFPA = National Fire Protection Association

NIOSH = National Institute of Occupational Safety and Health

NTP = National Toxicology Program

OSHA = U.S. Occupational Safety & Health Administration

PEL = Permissible Exposure Limit (OSHA)

REL = Recommended Exposure Limit (NIOSH)

STEL = Short-Term Exposure Limit

TLV = Threshold Limit Value (ACGIH)

TWA = Time Weighted Average (8 hr.)

WHMIS = Canadian Workplace Hazardous Materials Information System

AP = approximately < = Less than > = Greater than

N/A = Not Applicable NE = Not Established ND = Not Determined

Disclaimer

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no

H1 HARDENER

Disclaimer - Continued

responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Siegling America, Inc.