

MATERIAL SAFETY DATA SHEET

MANUFACTURER: APPLIED TECHNOLOGIES, LLC
P. O. BOX 18476
FAIRFIELD, OH 45014
EMERGENCY RESPONSE NUMBER: CHEMTREC- 1-800-424-9300

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: SPEED PASTE PART A
CHEMICAL FAMILY: POLYURETHANE PREPOLYMER
DATE: JULY 1, 2003

SECTION II - HAZARDOUS INGREDIENTS AND OTHER COMPONENTS

<u>INGREDIENT</u>	<u>% BY WEIGHT</u>	<u>CM#</u>
Methylene Phenylene Isocyanate	35%	101-68-8
Urethane Prepolymer	22-28%	Trade Secret
Talc	7-13%	14807-96-6
MDI Homopolymer	6-12%	
Amorphous Silica	1-7%	68611-44-9
Quartz	0.1%	14808-60-7

SECTION III - PHYSICAL DATA

Boiling Point: 406° F 5 mm. Hg
VP: < 10 - 5 (MM HG)
VD: S.5 (MDI) AIR = I
Evaporation Rate: Slower than ethyl ether
Solubility in Water: Resin reacts slowly to liberate CO2 gas

% Volatile by wt: N.D.
Density: 10.31 LB/GAL

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: 398°F (method = PMCC)
Flammable Limits: LEL (%) N.D.
Extinguishing Media: Dry chemical, carbon dioxide foam, water spray for large fires.

UEL: (%) N.D.

SECTION V - HAZARDOUS SUMMARY

This material is designed and intended to be pumped, not sprayed. MDI becomes more hazardous when atomized (sprayed). The following data is derived from tests performed when the material is sprayed and should be considered but may not apply to pumping operations as recommended by the manufacturer. **Harmful if inhaled.** Toxic fumes are released in fire situations. Dark brown liquid. Mild odor.

NFPA Ratings: 0 = insignificant, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

Health	Flammability	Reactivity
3	1	1

HMIS Ratings: 0 = insignificant, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

Health	Flammability	Reactivity
3	1	1

PART A (CONT'D)

Potential Health Effects: At room temperature, MDI vapors are minimal due to low vapor pressure. However, heating, foaming or otherwise dispersing (drumming, venting or pumping) operations may generate more vapor or aerosol concentrations of isocyanate. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. Severe overexposure may lead to pulmonary edema. Respiratory sensitization with asthma-like symptoms may occur in susceptible individuals. MDI concentration below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Symptoms may include coughing, dryness of throat, headache, nausea, difficulty breathing and a feeling of tightness in the chest. Effects may be delayed. Impaired lung function (decreased ventilators capacity) has been associated with overexposure to isocyanate. **Persons With Know Respiratory or Allergy Problems Must Not Be Exposed to This Product.**

Skin Contact: No irritation is likely to develop following short contact periods with skin. Prolonged or repeated exposure can cause skin irritation, reddening, dermatitis and in some individuals, sensitization. Skin contact may result in allergic skin reactions or respiratory sensitization but is not expected to result in absorption or amounts sufficient to cause other adverse effects. May stain skin.

Eye Contact: As a liquid or dust, may cause irritation, inflammation and/or damage to sensitive eye tissue. Symptoms include watering or discomfort of eyes. Corneal injury is unlikely.

Ingestion: Single dose oral toxicity is considered to be extremely low. Can result in irritation and corrosive action in mouth, stomach tissue and digestive tract.

Chronic: As a result of previous repeated overexposure or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) or tissue injury in the upper respiratory tract. Animal tests indicate skin contact alone may also lead to allergic respiratory reaction. These effects may be permanent. Any person developing asthmatic reaction or other sensitization should be removed from further exposure.

Carcinogenicity: MDI and polymeric MDI are not listed by the NTP, IARC or regulated by OSHA as carcinogens. Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/Polymeric MDI (6mg/m3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects.

SECTION VI – FIRST AID MEASURES

Eyes: Flush eyes with plenty of water for at least 15 minutes. Materials containing MDI may react with the moisture of the eye forming a thick material that may be difficult to wash from the eyes. Seek medical attention.

Skin: Wash off in flowing water or shower. Remove and wash contaminated clothing and discard contaminated shoes. Seek medical attention if redness, itching or a burning sensation develops or persists after the area is washed.

Ingestion: If swallowed, drink 1 or 2 glasses of water or milk. Do not induce vomiting unless directed to do so by medical personnel. If gastrointestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person.)

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

NOTE TO PHYSICIAN:

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision.

Skin: This material 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 of the irritating nature of this product.

SECTION VII – ACCIDENTAL RELEASE MEASURES

Spill: Evacuate spill area. With adequate ventilation and appropriate personal protective equipment, cover the area with an inert absorbent such as clay or vermiculite and transfer to metal waste containers. Saturate with water or decontamination solution below, but do not seal the container with the isocyanate mixture. Larger quantities of liquid may be transferred directly to drums for disposal.

Note: Isocyanate will react with water and generate carbon dioxide. This could result in the rupture of any closed container.

Clean up: The area should then be flushed with a decontamination solution. The decontamination solution is a 510% mixture of sodium carbonate and .5% liquid detergent in water solution or a 3% concentrated ammonium hydroxide and .5% liquid detergent in water. Use 10 parts decontamination solution to 1 part spilled material. If the ammonium hydroxide solution is used, ammonia will be evolved as a vapor. Use caution to avoid exposure to high concentrations of ammonia. Allow to stand for 48 hours letting evolved carbon dioxide to escape.

PART A (CONT'D)

Disposal: Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. Refer to RCRA 40 - CFR 261 and/or any other appropriate federal, state or local requirements for proper classification information.

Container Disposal: Drums/containers must be thoroughly drained to process or storage vessels before removal to an appropriate area for subsequent decontamination. Drums/containers must be decontaminated in properly ventilated areas by personnel protected from the inhalation of isocyanate vapors. Spray or pour 1 to 5 gallons of decontamination solution into the drum making sure the walls are well rinsed. Let the drum/container soak unsealed for 48 hours. Pour out the decontamination solution and triple rinse the empty container. Puncture or otherwise destroy the rinsed container before disposal. Do not heat or cut empty containers with electric or gas torch.

SECTION VIII – STORAGE AND HANDLING

Storage: When stored between 60°F and 85°F (15° and 30°C) in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Should freezing occur, the material must be thawed thoroughly and mixed until uniform. Opened containers must be handled properly to prevent moisture contamination.

Heating: Use personal protective equipment when transferring material to or from drums, totes or other containers. Safety glasses and gloves are the minimum protection. Additional precautions must be used when splash hazards are present. The reaction of polyols and isocyanates generate heat. Contact of the reacting materials with skin or eyes can cause severe burns and may be difficult to remove from the affected areas. Immediately wash affected areas with plenty of water and seek medical attention. In addition, such contact increases the risk of exposure to isocyanate vapors. Do not smoke or use naked lights, open flames, space heaters or other ignition sources near pouring or frothing operations.

SECTION IX – EXPOSURE CONTROL

Exposure: MDI contains reactive isocyanate groups. Use with adequate ventilation to keep airborne isocyanate level below TLV or 0.005 ppm TWA (ACGIH) and PEL 0.02 ppm ceiling (OSHA). These control limits do not apply to previously sensitized individuals, or to individuals with existing respiratory disease, such as bronchitis, emphysema or asthma. Respiratory protection may be needed where material is heated, sprayed or used in confined space, or if TLV is exceeded. Never try to detect MDI vapor by odor. **Persons with known respiratory or allergic problems must not be exposed to this product.**

Ventilation: MDI has a very low vapor pressure at room temperature. General/local ventilation typically controls exposure levels very adequately. More aggressive engineering controls or personal protective equipment may be required in some applications such as heating. Monitoring is required to determine engineering controls.

Respiratory Protection: A supplied air, full face piece, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold values. A positive pressure self-contained breathing apparatus can be used in emergencies or other unusual situations. All equipment must be NIOSH/MSHA approved and maintained. Air purifying (cartridge type) respirators are not approved for protections against isocyanates.

Eye Protection: Chemical splash goggles or safety glasses or full face shield must be used consistent with splash hazard present. If vapor exposure causes eye discomfort, use a full-face piece respirator or air supplied hood.

Protective Clothing: Wear clothing and gloves impervious to MDI under conditions of use. Materials may include butyl rubber, nitrile rubber, neoprene and Saranex coated Tyvek

SECTION X – STABILITY AND REACTIVITY

Stability: Polyisocyanates are highly reactive chemicals and should be handled and stored in a way to avoid exposure to many common substances, including water and moisture. Material is stable when stored in sealed containers under normal conditions. Avoid extended exposure over 110°F (45°C).

Hazardous Polymerization: May occur with incompatible reactants especially strong bases, water or temperatures over 320°F (160°C). Possible evolution of carbon dioxide gas from overheating or exposure to contaminants may rupture closed containers.

Reactivity: Reacts with water, acids, bases, alcohols, metal compounds. The reaction with water is very slow under 102°F (50°C), but is accelerated at higher temperatures and in the presence of alkalis, tertiary amines and metal compounds. Some reactions can be vigorous or even violent.

PART A (CONT'D)

SECTION XI – SHIPPING INFORMATION

DOT(Domestic surface): Not regulated (Class 55)

IMO(Ocean): Not regulated

ICAO(AIR): Not regulated

SECTION XII – REGULATORY INFORMATION

OSHA Status: This product is hazardous under the criteria of the Federal OSHA Hazard Communications Standard 29 CFR 1910.1200.

TSCA Status: On the TSCA inventory

CERCLA Reportable Quantity: 4,4, Diphenylmethane Diisocyanata = 5,000 lbs.

SARA Title III:

Section 302 Extremely Hazard Substances: None

Section 311/312 Hazard Categories: Immediate Health Hazard, Delayed Health Hazard, Reactive Hazard

Section 313 Toxic chemicals: 4,4 Diphenylmethane Diisocyanata (MDI) CAS # 101-68-8 ca 100%

RCRA Status: MDI is not a hazardous waste. However, under RCRA, it is the responsibility of the user of products to determine, at any time of disposal, whether a product meets any of the criteria for hazardous water. This MSDS complies with 29 CFR 1910.1200 (hazard communication standard). Read MSDS and safety/handling sheet before use.

All statements, technical information and recommendations contained herein are based upon available scientific test or data which we believe to be reliable since we cannot anticipate all conditions under which this information and our products or the products of other manufacturers in combination with our products may be used. Applied Technologies makes no warranties, express or implied, and assumes no responsibility in connection with any use of this information.

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FAIRFIELD, OH 45014
EMERGENCY RESPONSE NUMBER: CHEMTREC- 1-800-424-9300

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: SPEED PASTE PART B
CHEMICAL FAMILY: CURATIVE
DATE: JULY 1, 2003

SECTION II - HAZARDOUS INGREDIENTS AND OTHER COMPONENTS

<u>INGREDIENT</u>	<u>% BY WEIGHT</u>	<u>CM#</u>
Methylene Phenylene Isocyanate	38 - 42%	Trade Secret
Urethane Prepolymer	19 - 23%	Trade Secret
Talc	21 - 25%	14807-96-6
Polyol	5 - 9%	Trade Secret
Urethane Prepolymer	1-5%	
Quartz	0.1 - 2.2%	14808-60-7
Clay	1 - 5%	Trade Secret

SECTION III - PHYSICAL DATA

Boiling Point: 406° F 5 mm. Hg
VP: < 10 - 5 (MM HG)
VD: S.5 (MDI) AIR = I
Evaporation Rate: Slower than ethyl ether
Solubility in Water: Resin reacts slowly to liberate CO2 gas

% Volatile by wt: N.D.
Density: 10.31 LB/GAL

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: 398°F (method = PMCC)
Flammable Limits: LEL (%) N.D.
Extinguishing Media: Dry chemical, carbon dioxide foam, water spray for large fires.

UEL: (%) N.D.

SECTION V - HAZARDOUS SUMMARY

This material is designed and intended to be pumped, not sprayed. MDI becomes more hazardous when atomized (sprayed). The following data is derived from tests performed when the material is sprayed and should be considered but may not apply to pumping operations as recommended by the manufacturer. **Harmful if inhaled.** Toxic fumes are released in fire situations. Dark brown liquid. Mild odor.

NFPA Ratings: 0 = insignificant, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

Health	Flammability	Reactivity
3	1	1

HMIS Ratings: 0 = insignificant, 1 = slight, 2 = moderate, 3 = high, 4 = extreme

Health	Flammability	Reactivity
3	1	1

PART B (CONT'D)

Potential Health Effects: At room temperature, MDI vapors are minimal due to low vapor pressure. However, heating, foaming or otherwise dispersing (drumming, venting or pumping) operations may generate more vapor or aerosol concentrations of isocyanate. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. Severe overexposure may lead to pulmonary edema. Respiratory sensitization with asthma-like symptoms may occur in susceptible individuals. MDI concentration below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Symptoms may include coughing, dryness of throat, headache, nausea, difficulty breathing and a feeling of tightness in the chest. Effects may be delayed. Impaired lung function (decreased ventilators capacity) has been associated with overexposure to isocyanate. **Persons With Know Respiratory or Allergy Problems Must Not Be Exposed to This Product.**

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Ingestion: Single dose oral toxicity is considered to be extremely low. Can result in irritation and corrosive action in mouth, stomach tissue and digestive tract.

Chronic: As a result of previous repeated overexposure or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) or tissue injury in the upper respiratory tract. Animal tests indicate skin contact alone may also lead to allergic respiratory reaction. These effects may be permanent. Any person developing asthmatic reaction or other sensitization should be removed from further exposure.

Carcinogenicity: MDI and polymeric MDI are not listed by the NTP, IARC or regulated by OSHA as carcinogens. Lung tumors have been observed in laboratory animals exposed to aerosol droplets of MDI/Polymeric MDI (6mg/m3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effect.

SECTION VI – FIRST AID MEASURES

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Ingestion: If swallowed, drink 1 or 2 glasses of water or milk. Do not induce vomiting unless directed to do so by medical personnel. If gastrointestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person.)

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility immediately.

NOTE TO PHYSICIAN:

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision.

Skin: This material is known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn.

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Note: Isocyanate will react with water and generate carbon dioxide. This could result in the rupture of any closed container.

Clean up: The area should then be flushed with a decontamination solution. The decontamination solution is a 510% mixture of sodium carbonate and .5% liquid detergent in water solution or a 3% concentrated ammonium hydroxide and .5% liquid detergent in water. Use 10 parts decontamination solution to 1 part spilled material. If the ammonium hydroxide solution is used, ammonia will be evolved as a vapor. Use caution to avoid exposure to high concentrations of ammonia. Allow to stand for 48 hours letting evolved carbon dioxide to escape.

PART B (CONT'D)

Disposal: Any disposal practice must be in compliance with all federal, state and local laws and regulations. Chemical additions, processing, storage, or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Waste characterization and disposal compliance is the responsibility solely of the party generating the waste or deciding to discard or dispose of the material. Refer to RCRA 40 - CFR 261 and/or any other appropriate federal, state or local requirements for proper classification information.

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SECTION VIII – STORAGE AND HANDLING

Storage: When stored between 60°F and 85°F (15° and 30°C) in sealed containers, typical shelf life is 6 months or more from the date of manufacture. Consult technical data sheet for shelf life requirements affecting performance quality. Should freezing occur, the material must be thawed thoroughly and mixed until uniform. Opened containers must be handled properly to prevent moisture contamination.

Heating: Use personal protective equipment when transferring material to or from drums, totes or other containers. Safety glasses and gloves are the minimum protection. Additional precautions must be used when splash hazards are present. The reaction of polyols and isocyanates generate heat. Contact of the reacting materials with skin or eyes can cause severe burns and may be difficult to remove from the affected areas. Immediately wash affected areas with plenty of water and seek medical attention. In addition, such contact increases the risk of exposure to isocyanate vapors. Do not smoke or use naked lights, open flames, space heaters or other ignition sources near pouring or frothing operations.

SECTION IX – EXPOSURE CONTROL

Exposure: MDI contains reactive isocyanate groups. Use with adequate ventilation to keep airborne isocyanate level below TLV or 0.005 ppm TWA (ACGIH) and PEL 0.02 ppm ceiling (OSHA). These control limits do not apply to previously sensitized individuals or to individuals with existing respiratory disease, such as bronchitis, emphysema or asthma. Respiratory protection may be needed where material is heated, sprayed or used in confined space, or if TLV is exceeded. Never try to detect MDI vapor by odor. **Persons with known respiratory or allergic problems must not be exposed to this product.**

Ventilation: MDI has a very low vapor pressure at room temperature. General/local ventilation typically controls exposure levels very adequately. More aggressive engineering controls or personal protective equipment may be required in some applications such as heating. Monitoring is required to determine engineering controls.

Respiratory Protection: A supplied air, full face piece, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold values. A positive pressure self-contained breathing apparatus can be used in emergencies or other unusual situations. All equipment must be NIOSH/OSHA approved and maintained. Air purifying (cartridge type) respirators are not approved for protections against isocyanates.

Eye Protection: Chemical splash goggles or safety glasses or full face shield must be used consistent with splash hazard present. If vapor exposure causes eye discomfort, use a full-face piece respirator or air supplied hood.

Protective Clothing: Wear clothing and gloves impervious to MDI under conditions of use. Materials may include butyl rubber, nitrile rubber, neoprene and Saranex coated Tyvek.

SECTION X – STABILITY AND REACTIVITY

Stability: Polyisocyanates are highly reactive chemicals and should be handled and stored in a way to avoid exposure to many common substances, including water and moisture. Material is stable when stored in sealed containers under normal conditions. Avoid extended exposure over 110°F (45°C).

Hazardous Polymerization: May occur with incompatible reactants especially strong bases, water or temperatures over 320°F (160°C). Possible evolution of carbon dioxide gas from overheating or exposure to contaminants may rupture closed containers.

Reactivity: Reacts with water, acids, bases, alcohols, metal compounds. The reaction with water is very slow under 102°F (50°C), but is accelerated at higher temperatures and in the presence of alkalis, tertiary amines and metal compounds. Some reactions can be vigorous or even violent.

PART B (CONT'D)

SECTION XI – SHIPPING INFORMATION

DOT(Domestic surface): Not regulated (Class 55)

IMO(Ocean): Not regulated

ICAO(AIR): Not regulated

SECTION XII – REGULATORY INFORMATION

OSHA Status: This product is hazardous under the criteria of the Federal OSHA Hazard Communications Standard 29 CFR 1910.1200.

TSCA Status: On the TSCA inventory

CERCLA Reportable Quantity: 4,4, Diphenylmethane Diisocyanata = 5,000 lbs.

SARA Title III:

Section 302 Extremely Hazard Substances: None

Section 311/312 Hazard Categories: Immediate Health Hazard, Delayed Health Hazard, Reactive Hazard

Section 313 Toxic chemicals: 4,4 Diphenylmethane Diisocyanata (MDI) CAS # 101-68-8 ca 100%

RCRA Status: MDI is not a hazardous waste. However, under RCRA, it is the responsibility of the user of products to determine, at any time of disposal, whether a product meets any of the criteria for hazardous waste. This MSDS complies with 29 CFR 1910.1200 (hazard communication standard). Read MSDS and safety/handling sheet before use.

All statements, technical information and recommendations contained herein are based upon available scientific test or data which we believe to be reliable since we cannot anticipate all conditions under which this information and our products or the products of other manufacturers in combination with our products may be used. Applied Technologies makes no warranties, express or implied, and assumes no responsibility in connection with any use of this information.