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USE NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS AND BODY COVERING PROTECTIVE CLOTHING

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

UNUSUAL FIRE AND EXPLOSION HAZARDS: WATER CONTAMINATION WILL PRODUCE CARBON DIOXIDE. DO NOT RE-SEAL CONTAMINATED CONTAINERS AS PRESSURE BUILDUP MAY RUPTURE.

===== SECTION V - REACTIVITY DATA =====

**STABILITY:** STABILITY: STABLE - UNDER RECOMMENDED STORAGE CONDITIONS.  
**CONDITIONS TO AVOID**

Special sensitivity (Heat, Light, Moisture): This product is Hydroscopic. Containers should be tightly sealed to prevent moisture contamination. Do not expose to high temperatures for any length of time.

**INCOMPATIBILITY (MATERIALS TO AVOID)**

INCOMPATIBILITY (MATERIAL TO AVOID): WATER, ACID, BASES, METAL COMPOUNDS AND SURFACE ACTIVE MATERIALS. AVOID WATER AS IT REACTS TO FORM HEAT, CO<sub>2</sub> AND INSOLUBLE UREA. THE COMBINED EFFECT OF THE CO<sub>2</sub> AND HEAT CAN PRODUCE ENOUGH PRESSURE TO RUPTURE A CLOSED CONTAINER. SOME REACTIONS ARE VIOLENT IN THE PRESENCE OF THE ABOVE MENTIONED MATERIALS.

**HAZARDOUS DECOMPOSITION OR BYPRODUCTS**

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: ISOCYANATE VAPOR AND MIST, CARBON DIOXIDE, CARBON MONOXIDE, NITROGEN OXIDES AND TRACES OF HYDROGEN CYANIDE.

**HAZARDOUS POLYMERIZATION:** HAZARDOUS POLYMERIZATION: MAY OCCUR WITH INCOMPATIBLE REACTANTS, ESPECIALLY STRONG BASES, WATER OR TEMPERATURES OVER 347 F (175 C.). TEMPERATURES OVER 120 F (49 C.) ACCELERATE THE REACTION WITH WATER.

===== SECTION VI - HEALTH HAZARD DATA =====

**ANIMAL TOXICITY:**

ORAL, LD50 (INGESTION).....: >20 g/kg (Rats)

DERMAL, LD50 (SKIN CONTACT).....: >15.8 g/kg (Rabbits)

INHALATION, LC50 (4HR).....: APPROX. 370 mg/m<sup>3</sup> (Rats)

AQUATIC, LC50 (24HR).....: >500 mg/l (Dapnea, Limna invertebrates & Zebra fish)

EYES.....: Not irritating (Rabbits) OECD guidelines

SKIN.....: Slight irritation (Rabbits) OECD guidelines & Sensitizer in Guinea pigs.

**INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE**

INHALATION: MAY CAUSE RESPIRATORY SENSITIZATION IN SUSCEPTIBLE INDIVIDUALS. AT ROOM TEMPERATURE, VAPORS ARE MINIMAL DUE TO LOW VAPOR PRESSURE. IF HEATED OR SPRAYED AS AN AEROSOL, EXCESSIVE CONCENTRATIONS ARE ATTAINABLE THAT COULD BE HAZARDOUS ON SINGLE EXPOSURE. EXCESSIVE EXPOSURE MAY CAUSE IRRITATION OF THE EYES, UPPER RESPIRATORY TRACT AND LUNGS. EFFECTS MAY BE DELAYED. DECREASED VENTILATION CAPACITY HAS BEEN ASSOCIATED WITH EXPOSURE TO SIMILAR ISOCYANATES; IT IS POSSIBLE THAT EXPOSURE TO TDI-MDI MAY CAUSE IMPAIRMENT OF LUNG FUNCTION.

**SKIN AND EYE CONTACT HEALTH RISKS AND SYMPTOMS OF EXPOSURE**

SKIN CONTACT: REMOVE PRODUCT AND IMMEDIATELY FLUSH AFFECTED AREA WITH WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. WASH BEFORE REUSE. LAUNDRY CONTAMINATED CLOTHING PRIOR TO REUSE. CONTAMINATED LEATHER WEAR SHOULD BE DISCARDED. CALL PHYSICIAN. VICTIMS OF A MAJOR SKIN AREA CONTACT SHOULD REMAIN UNDER MEDICAL OBSERVATION FOR AT LEAST 24 HOURS DUE TO POSSIBLE DELAYED EFFECTS.

EYE CONTACT: FOLLOWING EYE CONTACT, FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IMMEDIATELY.

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**SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE**

May cause allergic skin reaction in susceptible individuals. Prolonged or repeated contact may cause skin irritation. May stain the skin.

**INGESTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE**

INGESTION: THIS IS NOT CONSIDERED A COMMON OCCUPATIONAL ROUTE OF EXPOSURE, AND SINGLE DOSE TOXICITY IS LOW. DO NOT INDUCE VOMITING. CONSULT PHYSICIAN IMMEDIATELY.

**HEALTH HAZARDS (ACUTE AND CHRONIC)**

INHALATION: MAY CAUSE RESPIRATORY SENSITIZATION IN SUSCEPTIBLE INDIVIDUALS. AT ROOM TEMPERATURE, VAPORS ARE MINIMAL DUE TO LOW VAPOR PRESSURE. IF HEATED OR SPRAYED AS AN AEROSOL, EXCESSIVE CONCENTRATIONS ARE ATTAINABLE THAT COULD BE HAZARDOUS ON SINGLE EXPOSURE. EXCESSIVE EXPOSURE MAY CAUSE IRRITATION OF THE EYES, UPPER RESPIRATORY TRACT AND LUNGS. EFFECTS MAY BE DELAYED. DECREASED VENTILATION CAPACITY HAS BEEN ASSOCIATED WITH EXPOSURE TO SIMILAR ISOCYANATES; IT IS POSSIBLE THAT EXPOSURE TO TDI-MDI MAY CAUSE IMPAIRMENT OF LUNG FUNCTION.

**CARCINOGENICITY: NTP CARCINOGEN: No IARC MONOGRAPHS: Yes OSHA REGULATED: No**

Aromatic petroleum oils have been found to cause skin cancer in animals. Compounds naturally present in this product are known to cause cancer in animals. This product should be considered a potential human skin carcinogen.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE**

PRE EXISTING MEDICAL CONDITIONS WHICH MAY BE AGRAVATED BY EXPOSURE INCLUDE, BUT NOT LIMITED TO, CHRONIC RESPIRATORY AND SKIN DISEASE AND CENTRAL NERVOUS SYSTEM DISORDERS.

**EMERGENCY AND FIRST AID PROCEDURES**

EMERGENCY/FIRST AID: NOTE TO PHYSICIAN - NO SPECIFIC ANTIDOTE. SUPPORTIVE CARE. TREATMENT BASED ON JUDGEMENT OF PHYSICIAN IN RESPONSE TO REACTIONS OF THE PATIENT. THE MANIFESTATIONS OF RESPIRATORY SYSTEMS, INCLUDE PULMONARY EDEMA, RESULTING FROM ACUTE EXPOSURE, MAY BE DELAYED. MAY CAUSE RESPIRATORY SENSITIZATION.

EMERGENCY/FIRST AID: EYE CONTACT - FLUSH WITH CLEAN, LUKE WARM WATER AT LOW PRESSURE FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING EYELIDS. CONSULT A PHYSICIAN IMMEDIATELY.

EMERGENCY/FIRST AID: INGESTION - NO ADVERSE EFFECTS ANTICIPATED BY THIS ROUTE OF EXPOSURE INCIDENTAL TO PROPER INDUSTRIAL HANDLING.

EMERGENCY/FIRST AID: SKIN CONTACT - REMOVE CONTAMINATED CLOTHING. WASH EXPOSED AREA WITH WARM SOAPY WATER THOROUGHLY. CONTAMINATED CLOTHING SHOULD BE PROPERLY LAUNDERED BEFORE REUSING.

EMERGENCY/FIRST AID: INHALATION - REMOVE VICTIM FROM AREA OF EXPOSURE TO SAFE AREA. IF NOT BREATHING GIVE MOUTH TO MOUTH RESUSCITATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CONSULT A PHYSICIAN IMMEDIATELY.

**===== SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE =====****STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

RELEASE OR SPILL: Clean up - Decontaminate area using water/ammonia solution with 1-2% added detergent, letting it stand over affected area for at least 10 minutes. Cover mop, brooms, etc. used for this with plastic and dispose of properly.

RELEASE OR SPILL: MINOR SPILLS - Contain the spilled material and then cover with a loose, absorbent material such as Oildry, Vermiculite, sawdust or Fuller's Earth. Shovel waste material into proper waste containers, Do not make pressure tight. Transport to a well-ventilated area and treat with a neutralizing solution consisting of a mixture of water and 30% concentrated Ammonium Hydroxide or 5-10% Sodium Carbonate. Add about 10 parts of neutralizer per part of Isocyanate with mixing. Allow to stand 48 hours, letting evolved CO2 escape.

RELEASE OR SPILL: MAJOR SPILLS - Call manufacturer immediately! If it is a transportation spill, notify CHEMTREC (800) 424-9300. Evacuate and ventilate spill area. Dike spill to prevent entry into the environment. Wear full protective equipment including respiratory protection during clean up.

RELEASE OR SPILL: MAJOR SPILLS - If Temporary control of isocyanate vapor is required, a blanket of protein foam may be placed over the spill. Large quantities may be pumped into closed BUT NOT SEALED containers for disposal.

**WASTE DISPOSAL METHOD**

WASTE DISPOSAL: WASTE MATERIAL MAY BE INCINERATED OR DISPOSED OF UNDER LOCAL, STATE AND FEDERAL REGULATIONS CONTROLLING ENVIRONMENTAL PROTECTION.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING**

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HANDLING AND STORAGE: STORAGE TEMPERATURE - (MIN/MAX) 65 F. TO 85 F.

HANDLING AND STORAGE: AVERAGE SHELF LIFE - 6 MONTHS FROM DATE OF MFG.

HANDLING AND STORAGE: SPECIAL SENSITIVITY (HEAT - LIGHT - MOISTURE) - This product is reactive with water. Containers should be tightly sealed to prevent moisture contamination. A nitrogen blanket should be used for bulk storage. Store at a temperature of 65 F. to 85 F. Protect from freezing.

HANDLING AND STORAGE: CONTAMINATION - If contamination of the MDI is suspected, do not re-seal container because of possible rupture due to pressure buildup. Always slowly vent container when opening to relieve any pressure buildup.

**OTHER PRECAUTIONS**

HANDLING AND STORAGE: PRECAUTIONS - IF CONTAMINATION OF THE TDI-MDI IS SUSPECTED, DO NOT RE-SEAL CONTAINER BECAUSE OF POSSIBLE RUPTURE DUE TO PRESSURE BUILDUP. ALWAYS SLOWLY VENT CONTAINER WHEN OPENING TO RELIEVE ANY PRESSURE BUILDUP.

**===== SECTION VIII - CONTROL MEASURES =====****RESPIRATORY PROTECTION**

RESPIRATORY PROTECTION: THIS PRODUCT HAS DEMONSTRATED NO OBSERVABLE EFFECT AT ROOM TEMPERATURE, HOWEVER IT IS HIGHLY RECOMMENDED THAT AN AIR PURIFYING RESPIRATOR WITH ORGANIC FILTER CARTRIDGES BE WORN. IN ADDITION, IN ANY SPRAY APPLICATION, A SUPPLIED AIR SOURCE MUST BE PROVIDED.

**VENTILATION**

VENTILATION: NATURAL OR MECHANIC. LOCAL EXHAUST WILL DROP THE TLV BELOW MINIMUM IN MOST CASES. SPILLS OR OTHER EMERGENCIES MAY REQUIRE MORE FORCEFUL VENTILATION MEANS.

**PROTECTIVE GLOVES**

SKIN PROTECTION: CHEMICAL RESISTANT GLOVES SUCH AS NATURAL RUBBER, OR POLYVINYL ALCOHOL. COVER AS MUCH EXPOSED SKIN AS POSSIBLE WITH APPROPRIATE CLOTHING. IF SKIN CREAMS ARE USED, KEEP THE AREA COVERED BY THE CREAM TO A MINIMUM.

**EYE PROTECTION**

EYE PROTECTION: LIQUID CHEMICAL GOGGLES OR FULL FACE SHIELD. NO CONTACT LENSES SHOULD BE WORN.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT**

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: SAFETY SHOWERS AND EYE WASH STATIONS SHOULD BE PROVIDED IN ALL WORK AREAS. ALL EMPLOYEES SHOULD BE PROPERLY TRAINED.

**WORK/HYGIENIC PRACTICES**

WORK/HYGIENIC PRACTICES: SAFETY SHOWERS AND EYE WASH STATIONS SHOULD BE PROVIDED IN ALL WORK AREAS. ALL EMPLOYEES SHOULD BE PROPERLY TRAINED.

**===== SECTION IX - REGULATORY INFORMATION =====**

PROPER SHIPPING NAME: Methylene diphenyl diisocyanate

HAZARD CLASS: NON-REGULATED

UN NUMBER: N/A

FREIGHT CLASS (BULK): Methylene diphenyl diisocyanate

FREIGHT CLASS (PACKAGE): CHEMICALS, NOI (ISOCYANATE), NMFC 60000

PRODUCT LABEL: PRODUCT LABEL ESTABLISHED

PLACARDS REQUIRED: NONE

TSCA: All ingredients are in the TSCA Inventory of Chemical Substances and/or are otherwise in compliance with TSCA.

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SECTION X COMMENTS  
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The Information Contained in this Material Safety Data Sheet is based on the neat or concentrated product as shipped.

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SECTION XI - DISCLAIMER  
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FOR FURTHER INFORMATION, CONTACT EUGENE LEE, MANAGER, ENVIRONMENTAL, HEALTH AND SAFETY.

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