

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 1

I PRODUCT IDENTIFICATION

TRADE NAME: CLT-652

CHEMICAL FAMILY: POLYURETHANE

CHEMICAL NAME: ISOCYANATES

FORMULA: NOT APPLICABLE

DOT SHIPPING NAME: DIPHENYL METHANE - 4.4 DIISOCYANATE MIXTURE

DOT HAZARD CLASSIFICATION: NA-3082, CLASS 9, PG III

II INGREDIENTS AND HAZARDS

PRINCIPAL HAZARDOUS COMPONENTS	PERCENT	THRESHOLD LIMIT VALUE
ISOCYNATE 4,4 DIPHENYL METHANE	56-58	ACGIH & TLV .005 PPM
DIISOCYNATE AND HIGHER OLIGOMERS		TWA & OSHA PEL .02 PPM CEILING (MDI)
Polyurethane prepolymer of MDI & Polyether polyol	45-48	Non hazardous
Surfactant	<1	Non hazardous
Stabilizer	<1	Respiratory irritant

III PHYSICAL PROPERTIES

BOILING POINT: 590 F (DECOMPOSES)	VAPOR DENSITY:
VAPOR PRESSURE: .0003 mmHG @ 25 C	NOT DETERMINED
SPECIFIC GRAVITY: 1.11	
SOLUBILITY IN WATER: FORMS CO2 GAS	
APPEARANCE: MODERATE VISCOSITY LIQUID, MILKY TO YELLOWISH IN COLOR	

IV FIRE AND EXPLOSION HAZARD

FLASHPOINT: >200C OPEN CUP

AUTO IGNITION: NOT AVAILABLE

EXTINGUISHING MEDIA: CARBON DIOXIDE, DRY CHEMICAL, OR FOAM.
IF WATER IS USED, IT SHOULD BE USED IN LARGE QUANTITY. THE
REACTION BETWEEN WATER AND HOT ISOCYANATE MAY BE VIGOROUS.

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 2

IV FIRE AND EXPLOSION HAZARD (CONTINUED)

FIRE FIGHTING PROCEDURES:

PERSONNEL ENGAGED IN FIGHTING ISOCYANATE FIRES MUST BE PROTECTED AGAINST NITROGEN DIOXIDE FUMES AS WELL AS ISOCYANATE VAPORS. FIRE FIGHTERS MUST WEAR SELF-CONTAINED BREATHING APPARATUS AND TURNOUT GEAR.

UNUSUAL HAZARDS: AVOID WATER CONTAMINATION IN CLOSED CONTAINER OR CONFINED AREAS (CO₂ GAS EVOLVED).
PRESSURE BUILD-UP IN CONTAMINATED CLOSE CONTAINER.

V HEALTH EFFECTS

ROUTES OF ENTRY FOR SOLIDS AND LIQUIDS INCLUDE EYE AND SKIN CONTACT, INGESTION AND INHALATION. ROUTES OF ENTRY FOR GASES INCLUDE INHALATION AND EYE AND SKIN CONTACT.

TOXICOLOGY TEST DATA:

RAT: 4 HR INHALATION LC₅₀ - AEROSOL 490 MG/CU. M - HIGHLY TOXIC
RAT: 4 HR INHALATION LC₅₀ - VAPOR MG/L - TOXIC
RAT: ORAL LD₅₀ - >10,000 MG/KG - PRACTICALLY NONTOXIC
RAT: INHALATION ONCOGENICITY STUDY - @ ~0.2, 1, 6 MG/CU.M
URT IRRITANT; CARCINOGENIC @ 6 MG/M³

ACUTE OVEREXPOSURE EFFECTS:

EYE CONTACT WITH MDI MAY RESULT IN CONJUNCTIVAL IRRITATION AND MILD CORNEAL OPACITY. SKIN CONTACT MAY RESULT IN DERMATITIS, EITHER IRRITATIVE OR ALLERGIC.

INHALATION OF MDI VAPORS MAY CAUSE IRRITATION OF THE MUCOUS MEMBRANES OF THE NOSE, THROAT OR TRACHEA, BREATHLESSNESS, CHEST DISCOMFORT, DIFFICULT BREATHING AND REDUCED PULMONARY FUNCTION. AIR BORNE OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT ADDITIONALLY IN EYE IRRITATION, HEADACHE, CHEMICAL BRONCHITIS, ASTHMA-LIKE FINDINGS OR PULMONARY EDEMA. ISOCYANATES HAVE ALSO BEEN REPORTED TO CAUSE HYPERSENSITIVITY PNEUMONITIS, WHICH IS CHARACTERIZED BY FLU-LIKE SYMPTOMS, THE ONSET OF WHICH MAY BE DELAYED. GASTROINTESTINAL SYMPTOMS INCLUDE NAUSEA, VOMITING AND ABDOMINAL PAIN.

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 3

V HEALTH EFFECTS (CONTINUED)

CHRONIC OVEREXPOSURE EFFECTS:

ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC SYMPTOMS OF THE LOWER RESPIRATORY TRACT (ASTHMA-LIKE), INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. SUBSEQUENT REACTIONS MAY OCCUR AT OR SUBSTANTIALLY BELOW THE PEL AND TLV. ASTHMA CAUSED BY ISOCYANATES, INCLUDING MDI, MAY PERSIST IN SOME INDIVIDUALS AFTER REMOVAL FROM EXPOSURE AND MAY BE IRREVERSIBLE. SOME ISOCYANATE SENSITIZED PERSONS MAY EXPERIENCE ASTHMA REACTIONS UPON EXPOSURE TO NON-ISOCYANATE CONTAINING DUSTS OR IRRITANTS. CROSS SENSITIZATION TO DIFFERENT ISOCYANATES MAY OCCUR.

LONG-TERM OVEREXPOSURE TO ISOCYANATES HAS ALSO BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION, WHICH MAY BE PERMANENT. AN ANIMAL STUDY INDICATES THAT MDI MAY INDUCE RESPIRATORY HYPERSENSITIVITY FOLLOWING DERMAL EXPOSURE. RESULTS FROM A LIFETIME INHALATION STUDY IN RATS INDICATE THAT MDI AEROSOL WAS CARCINOGENIC AT 6 MG/M3, THE HIGHEST DOSE TESTED. ONLY IRRITATION WAS NOTED AT THE LOWER CONCENTRATION OF 0.2 AND MG/M3.

FIRST AID PROCEDURES - SKIN:

WASH AFFECTED AREAS WITH SOAP AND WATER. REMOVE AND LAUNDER CONTAMINATED CLOTHING BEFORE REUSE. GET IMMEDIATE MEDICAL ATTENTION.

FIRST AID PROCEDURES - EYES:

IMMEDIATELY WASH EYES WITH RUNNING WATER FOR 15 MINUTES. GET IMMEDIATE MEDICAL ATTENTION.

FIRST AID PROCEDURES - INGESTION:

IF SWALLOWED, DILUTE WITH WATER. **DO NOT INDUCE VOMITING.** NEVER GIVE FLUIDS OR INDUCE VOMITING IF THE VICTIM IS UNCONSCIOUS OR HAVING CONVULSIONS. GET IMMEDIATE MEDICAL ATTENTION.

FIRST AID PROCEDURES - INHALATION:

MOVE TO FRESH AIR. AID IN BREATHING, IF NECESSARY, AND GET IMMEDIATE MEDICAL ATTENTION.

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 4

HEALTH EFFECTS (CONTINUED)

FIRST AID PROCEDURES - NOTES TO PHYSICIANS:

THERE IS NO SPECIFIC ANTIDOTE TO COUNTERACT THE EFFECTS OF MDI. CARE SHOULD BE SUPPORTIVE AND TREATMENT SHOULD BE BASED ON THE JUDGEMENT OF THE PHYSICIAN IN RESPONSE TO THE REACTION OF THE PATIENT.

FIRST AID PROCEDURES - AGGRAVATED MEDICAL CONDITIONS:

INDIVIDUALS WHO ARE SENSITIZED TO ISOCYANATES AND THOSE WITH PRE-EXISTING LUNG DISEASES OR CONDITIONS, INCLUDING NON-SPECIFIC BRONCHIAL HYPERACTIVITY OR ASTHMA, MUST AVOID ALL EXPOSURE TO ISOCYANATES.

FIRST AID PROCEDURES - SPECIAL PRECAUTIONS:

NONE

OTHER FIRST AID PROCEDURES:

MEDICAL SUPERVISION OF ALL EMPLOYEES WHO HANDLE OR COME INTO CONTACT WITH MDI IS RECOMMENDED. RE-EMPLOYMENT AND PERIODIC MEDICAL EXAMINATIONS WITH RESPIRATORY FUNCTION TESTS (FEV₁, FVC AS A MINIMUM ARE SUGGESTED). PERSONS WITH ASTHMATIC CONDITIONS CHRONIC BRONCHITIS, OTHER CHRONIC RESPIRATORY DISEASES, RECURRENT ECZEMA OR PULMONARY SENSITIZATION SHOULD BE EXCLUDED FROM WORKING WITH MDI. ONCE A PERSON IS DIAGNOSED AS HAVING PULMONARY SENSITIZATION (ALLERGIC ASTHMA) TO MDI, FURTHER EXPOSURE IS NOT PERMISSIBLE.

VI REACTIVITY DATA

REACTIVITY - STABILITY DATA: STABLE

REACTIVITY - INCOMPATIBILITY: WATER, ALCOHOLS AND STRONG BASES.

REACTIVITY - CONDITIONS/HAZARDS TO AVOID:

REACTION WITH MOISTURE MAY FORM CO₂.

REACTIVITY - HAZARDOUS DECOMPOSITION/POLYMERIZATION:

HAZARDOUS DECOMPOSITION PRODUCTS: CO, NO_x, HCN

POLYMERIZATION: MAY OCCUR.

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 5

VI REACTIVITY DATA (CONTINUED)

REACTIVITY - OXIDIZER PROPERTIES:

HAZARDOUS POLYMERIZATION MAY OCCUR. AVOID CONTAMINATION WITH MOISTURE AND OTHER PRODUCTS THAT REACT WITH ISOCYANATES. CONTACT WITH CERTAIN RUBBERS AND PLASTICS CAN CAUSE IMBRITTEMENT OF THE MATERIAL WITH SUBSEQUENT LOSS IN STRENGTH.

VII PERSONAL PROTECTION

PERSONAL PROTECTION - CLOTHING:

RUBBER GLOVES, COVERALLS, HARD HAT, BOOTS AND RUBBER APRON TO AVOID SKIN CONTACT. CONTAMINATED EQUIPMENT OR CLOTHING SHOULD BE CLEANED AFTER EACH USE OR DISPOSED OF.

PERSONAL PROTECTION - EYES:

WEAR FITTED CHEMICAL GOGGLES OR FACE SHIELD AND SAFETY GLASSES.

PERSONAL PROTECTION - RESPIRATION:

IF THE PERMISSIBLE EXPOSURE LIMIT IS EXCEEDED, WEAR A NIOSH APPROVED AIR-SUPPLIED RESPIRATOR.

PERSONAL PROTECTION - VENTILATION:

USE LOCAL EXHAUST AS NECESSARY TO MAINTAIN P.E.L.

PERSONAL PROTECTION - EXPLOSION PROOFING:

NONE REQUIRED.

OTHER PERSONAL PROTECTION DATA:

EYEWASH FOUNTAINS AND SAFETY SHOWERS MUST BE EASILY ACCESSIBLE. MAINTAIN WORK AREA BELOW P.E.L.

VIII SPILL - LEAK/ENVIRONMENTAL

SPILL/LEAK PROCEDURES - GENERAL:

EVACUATE AND VENTILATE SPILL AREA, DIKE SPILL TO PREVENT ENTRY INTO WATER SYSTEM, WEAR FULL PROTECTIVE EQUIPMENT INCLUDING RESPIRATORY EQUIPMENT DURING CLEAN UP. (SEE SECTION 7).

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 6

VIII SPILL - LEAK/ENVIRONMENTAL (CONTINUED)

MINOR SPILL:

ABSORB THE ISOCYANATE WITH AN ACCEPTABLE ABSORBENT PER THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984 (HSWA). SEE 40 CFR SECTIONS 260, 264, AND 265 FOR FURTHER INFORMATION. SHOVEL INTO OPEN TOP CONTAINERS, DO NOT MAKE PRESSURE TIGHT. TRANSPORT TO A WELL VENTILATED AREA (OUTSIDE) AND TREAT WITH NEUTRALIZING SOLUTION CONSISTING OF A MIXTURE OF 90% WATER, 3-8% AMMONIA AND 2-7% DETERGENT. ADD ABOUT 10 PARTS OF PER PART OF ISOCYANATE WITH MIXING. ALLOW TO STAND FOR 48 HOURS LETTING EVOLVED CARBON DIOXIDE TO ESCAPE. PROCEED WITH FINAL "CLEAN UP" OF SPILL AREA.

CLEAN UP:

DECONTAMINATE SPILL AREA USING NEUTRALIZING SOLUTION AND LETTING STAND OVER AFFECTED AREAS FOR AT LEAST 10 MINUTES.

SPILL/LEAK PROCEDURES - WASTE DISPOSAL:

INCINERATE OR LANDFILL IN A LICENSED FACILITY. DO NOT DISCHARGE INTO WATERWAYS OR SEWER SYSTEMS.

SPILL/LEAK PROCEDURES - CONTAINER DISPOSAL:

STEEL DRUMS MUST BE EMPTIED (AS DEFINED BY RCRA, SECTION 261.7 OR STATE REGULATIONS THAT MAY BE MORE STRINGENT) AND CAN BE SENT TO A LICENSED DRUM RE-CONDITIONER FOR REUSE, A SCRAP METAL DEALER, OR AN APPROVED LANDFILL. CHECK WITH RE-CONDITIONER TO DETERMINE IF THEY REQUIRE THEM TO BE DECONTAMINATED. DRUMS DESTINED FOR A SCRAP DEALER OR LANDFILL MUST BE DECONTAMINATED AND PUNCTURED OR CRUSHED TO PREVENT REUSE.

ENVIRONMENTAL TOXICITY TEST DATA:

DAPHNIA MAGNA: 24 HR LC50 - >500 MG/L
PRACTICALLY NONTOXIC
ZEBRA FISH: STATIC 24 HR LC50 - >MG/L
PRACTICALLY NONTOXIC

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 7

IX STORAGE AND HANDLING

STORAGE AND HANDLING - GENERAL:

KEEP CONTAINERS CLOSED AND STORE IN WELL-VENTILATED AREA AT 80-95F. OUTAGE OF CONTAINER SHOULD BE FILLED WITH DRY INERT GAS AT ATMOSPHERIC PRESSURE TO AVOID REACTION WITH MOISTURE. CONTAMINATION BY MOISTURE OR BASIC COMPOUNDS CAN CAUSE DANGEROUS PRESSURE BUILD-UP IN CLOSED CONTAINERS. MIX BEFORE USING.

X-A FEDERAL REGULATORY INFORMATION

TSCA INVENTORY STATUS

LISTED ON INVENTORY: YES

SARA - 313 LISTED CHEMICALS:

CAS#	AMOUNT:
101-68-8	34.0%

NAME: 4,4' DIPHENYLMETHANE DIISOCYANATE

RCRA HAZ. WASTE NO: NO

CERCLA: YES **REPORTABLE QTY.: (IF YES)** 5000 LBS

EPA REGISTRATION NO.: N/A

X-B STATE REGULATORY INFORMATION

STATE REGULATORY INFORMATION: (BY COMPONENT)	NJ/PA/MA RTK
CAS#: 101-68-8	NO
NAME: 4,4' DIPHENYLMETHANE DIISOCYANATE	NO
CAS#: 9016-87-9	NO
NAME: POLYMERIC MDI	NO
CAS#: 26447-40-5	NO
NAME: MDI MIXED ISOMERS	

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE: 10/3/07

PAGE 8

X-C OTHER REGULATORY INFORMATION

HAZARD RATINGS:

	HEALTH:	FIRE:	REACTIVITY:	SPECIAL:
HMIS	3	1	1	
FDA APPROVED: NO	USE:			

X-D ADDITIONAL REGULATORY TEXT

THIS PRODUCT CONTAINS ONE OR MORE CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS AND/OR REPRODUCTIVE HARM.

XI TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: DIPHENYLMETHANE 4,4' DIISOCYANATE MIXTURE

TECHNICAL SHIPPING NAME: METHYLENE DIPHENYL DIISOCYANATE
FREIGHT CLASS PACKAGE: CHEMICALS, NOI (ISOCYANATE), NMFC 60000

DOT LABEL REQUIRED: DOMESTIC SURFACE

PROPER SHIPPING NAME: OTHER REGULATED SUBSTANCES, LIQUID, N.O.S.,
*SEE NOTE BELOW

UN/NA NUMBER: 3082

PACKING GROUP: III

HAZARDOUS SUBSTANCE: MDI, (METHYLENE DIPHENYL DIISOCYANATE)

DOT PRODUCT RQ LBS (KGS): 10000 LBS (4536.0 KGS)

HAZARD LABEL(S): CLASS 9

HAZARD PLACARD(S): CLASS 9

*WHEN IN INDIVIDUAL CONTAINERS OF LESS THAN THE PRODUCT RQ, THIS MATERIAL SHIPS AS NON-REGULATED.

IMO/IMDG CODE (OCEAN)

HAZARD CLASS DIVISION NUMBER: NON-REGULATED

ICAO/IATA (AIR)

HAZARD CLASS DIVISION NUMBER : NON-REGULATED

MATERIAL SAFETY DATA SHEET

CLT-652

ISSUE DATE: 10/3/07

REVISED DATE:10/3/07

PAGE 9

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