SECTION I - GENERAL INFORMATION

MANUFACTURED BY: COURTAULDS COATINGS
400 S. 13TH STREET
LOUISVILLE, KY. 40203

EMERGENCY 24 HOURS CALL: 1-800-854-6813
INFORMATION 8AM - 5PM EST: 502-588-9200
EFFECTIVE DATE: FEBRUARY 15, 1995

MANUFACTURER'S IDENTIFICATION CODE/ORDER NO.: 99010A, WHITE
99002A, BLACK
99072A, OSHA RED
99073A, OSHA ORANGE
99074A, OSHA YELLOW
99058A, EXTRA DEEP BASE
99059A, LIGHT BASE
99060A, DEEP BASE
9908, CONVERTER

PRODUCT CLASS: N/A
PRODUCT IDENTITY: INTERTHANE 990HS

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS NO.	PERCENT BY WT. A	B	A+B	OCCUPATIONAL EXPOSURE LIMIT TLV(PPM)	PEL(PPM)	VAPOR PRESS. @ 20 C
AROMATIC PETROLEUM DISTILLATES	64742-95-6	3	5	3	100	100	10MMHG
ETHYL 3-ETHOXYPROPIONATE	763-69-9	4	0	4	50 RECOMMENDED	N/E	1.5MMHG
METHYL N-AMYL KETONE	110-43-0	13	0	12	50	100	2.14MMHG
BENZENE	71-43-2	.1	0	<.1	10	.1	75MMHG
N-BUTYL ACETATE	123-86-4	12	5	10	150	150	10MMHG
TRIMER POLYMER OF HEXAMETHYLENE DIISOCYANATE	3779-63-3	0	90	10	.005	N/E	N/A
HEXAMETHYLENE DIISOCYANATE MONOMER	822-06-0	0	.2	.02	.005 .02 CEILING RECOMMENDED	N/E	N/A

THESE ARE TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III AND OF 40 CFR 372.

CONTAINS HEXAMETHYLENE DIISOCYANATE, (HDI), A CHEMICAL WHICH IS IRRITATING TO THE EYES, NOSE, THROAT AND LUNGS AND WHICH IS KNOWN TO CAUSE HYPERSENSITIVITY (ALLERGIC) REACTIONS IN SOME PEOPLE. INHALATION OF VAPOR OR ABSORPTION OF SOLVENT THROUGH THE SKIN CAN CAUSE DIZZINESS, NAUSEA, HEADACHE AND SLEEPINESS. DELIBERATELY BREATHING CONCENTRATED SOLVENT VAPOR (GLUE SNIFFING) CAN CAUSE PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE OR DEATH. DIRECT EYE OR SKIN CONTACT MAY CAUSE SEVERE IRRITATION. SOME PEOPLE DEVELOP SKIN OR RESPIRATORY SYSTEM ALLERGIES AND REACT TO HDI AT EVEN LOW EXPOSURE LEVELS. RESPIRATORY ALLERGIC REACTIONS INCLUDE CHEST TIGHTNESS, WHEEZING, SHORTNESS OF BREATH OR ASTHMA ATTACK AT THE TIME OF EXPOSURE OR SEVERAL HOURS LATER. SKIN REACTIONS INCLUDE BLISTERS, RASHES AND HIVES, AND MAY ALSO BE DELAYED FOR SEVERAL HOURS. SENSITIZATION MAY BE TEMPORARY OR PERMANENT. PROLONGED OR REPEATED OVER-EXPOSURE TO COMPONENTS OF THIS MIXTURE IS ALSO REPORTED TO CAUSE NERVOUS SYSTEM DAMAGE, ANEMIA, LIVER AND KIDNEY DAMAGE.

WARNING: PRODUCTS 99002, 99058, 99059, 99060, 99072, 99073, 99074 CONTAIN A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

SECTION III - PHYSICAL DATA

BOILING RANGE: 210-365 F. PERCENT VOLATILE BY VOLUME: A=36-42, B=13, A&B=33-39

WEIGHT PER GALLON: A=9.9-11.4 LBS. B=8.8 LBS., A&B=9.8-11.2 LBS. VAPOR DENSITY: XX HEAVIER THAN AIR ___ LIGHTER THAN AIR

EVAPORATION RATE: ___ FASTER THAN ETHER

SECTION IV - FIRE & EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: OSHA: FLAMMABLE, CLASS IC DOT: FLAMMABLE FLASH POINT: A= 99 F. B=105 F., A&B=103 F.

LEL: 0.7-1.0

EXTINGUISHING MEDIA: XX_ FOAM ___ ALCOHOL FOAM XX_ DRY CHEMICAL ___ WATER FOG XX_ CARBON DIOXIDE ___ OTHER

UNUSUAL FIRE & EXPLOSION HAZARDS: KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, SPARKS, ELECTRICAL EQUIPMENT, AND OPEN FLAME. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT. IN THE ABSENCE OF ELECTRICITY, A WATER SPRAY (A FOG NOZZLE IS PREFERRED) MAY BE USED TO COOL CONTAINERS. AVOID EXPOSURE TO DECOMPOSITION. HIGH HEAT AND FIRE MAY PRODUCE; CARBON DIOXIDE, CARBON MONOXIDE, OXIDES OF NITROGEN, HCN, HDI. FULL EMERGENCY EQUIPMENT WITH SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING SHOULD BE WORN BY FIRE FIGHTERS.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: INHALATION: VAPORS ARE IRRITATING TO NOSE AND THROAT AND COULD CAUSE NAUSEA, DIZZINESS AND VOMITING.

ACUTE: SKIN CONTACT: COULD CAUSE IRRITATION. EYE CONTACT: DEFINITE IRRITATION. COULD CAUSE INJURY.

CHRONIC: ALLERGIC SKIN OR RESPIRATORY REACTION MAY OCCUR IN SOME PEOPLE. RESPIRATORY SENSITIVITY RESULTS IN ASTHMA-LIKE SYMPTOMS ON SUBSEQUENT EXPOSURE EVEN BELOW THE TLV (THRESHOLD LIMIT).

EMERGENCY FIRST AID PROCEDURES: VAPORS: REMOVE FROM EXPOSURE. KEEP WARM AND QUIET. NOTIFY PHYSICIAN. FOR SPLASH IN EYES: FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. TAKE TO PHYSICIAN FOR MEDICAL TREATMENT. FOR SPLASH ON SKIN: WASH AFFECTED AREAS WITH LARGE AMOUNTS OF WATER. REMOVE CONTAMINATED CLOTHING. (SEE ATTACHMENT ONE FOR FURTHER INFORMATION)

SECTION VI - REACTIVITY DATA

STABILITY: ___UNSTABLE XX_STABLE

INCOMPATIBILITY (MATERIALS TO AVOID): WATER, AMINES, STRONG BASES, ALCOHOLS, METAL COMPOUNDS AND SURFACE ACTIVE MATERIALS

HAZARDOUS DECOMPOSITION PRODUCTS: MAY PRODUCE HAZARDOUS FUMES WHEN HEATED TO DECOMPOSITION AS IN WELDING. FUMES MAY PRODUCE CARBON DIOXIDE AND CARBON MONOXIDE, OXIDES OF NITROGEN, HCN, HDI

HAZARDOUS POLYMERIZATION: XX_MAY OCCUR ___WILL NOT OCCUR

CONDITIONS TO AVOID: CONTACT WITH MOISTURE OR OTHER MATERIALS WHICH REACT WITH ISOCYANATES OR TEMPERATURES OVER 400 F. MAY CAUSE POLYMERIZATION.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
REMOVE ALL SOURCES OF IGNITION (FLAMES, HOT SURFACES, AND ELECTRICAL, STATIC OR FRICTION SPARKS). AVOID BREATHING VAPORS, WEAR APPROVED (NIOSH OR MHSA) RESPIRATOR, AND VENTILATE AREA. REMOVE WITH INERT ABSORBANT SUCH AS SAND, KITTY LITTER, ETC. AND USE NON-SPARKING TOOLS.
WASTE DISPOSAL METHOD: DISPOSE OF IN A SAFE MANNER IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS THAT APPLY TO INCINERATION OR SECURE LANDFILL.

S E C T I O N VIII-S P E C I A L P R O T E C T I O N I N F O R M A T I O N

ISOCYANATE MONOMER CONCENTRATION GREATER THAN 10 TIMES THE TLV: USE A POSITIVE PRESSURE AIR SUPPLIED RESPIRATOR (TC19C NIOSH/MHSA APPROVED). ISOCYANATE MONOMER CONCENTRATION LESS THAN 10 TIMES THE TLV: USE ABOVE RESPIRATOR OR A SUPPLIED APPROVED VAPOR/PARTICULATE RESPIRATOR FOR ISOCYANATE VAPORS AND MISTS. RESPIRATORY PROTECTION: INDOOR OR OPEN AREAS WITH UNRESTRICTED VENTILATION, USE NIOSH/MHSA-APPROVED MECHANICAL FILTER RESPIRATOR TO REMOVE SOLID AIRBORNE PARTICLES OR OVERSPRAY DURING SPRAY APPLICATION. IN RESTRICTED VENTILATION AREAS, USE NIOSH/MHSA-APPROVED MECHANICAL FILTER RESPIRATORS DESIGNED TO REMOVE PARTICULATES, GAS AND VAPOR. IN CONFINED AREAS, USE NIOSH/MHSA AIR-LINE RESPIRATORS AND HOOD.
VENTILATION INFORMATION: PROVIDE GENERAL DILUTION OR LOCAL EXHAUST VENTILATION IN A VOLUME AND PATTERN TO KEEP THE THRESHOLD LIMIT VALUES (TLV) BELOW THE STATED OSHA LIMITS AND THE LOWER EXPLOSION LEVEL (LEL) BELOW THE STATED LIMIT AND TO REMOVE DECOMPOSITION PRODUCTS DURING WELDING AND FLAME CUTTING OF SURFACES COATED WITH THIS PRODUCT.
PROTECTIVE GLOVES: MANDATORY FOR PROLONGED OR REPEATED CONTACT. USE A HEAVY-DUTY RUBBER GLOVE, SUCH AS NEOPRENE TYPE GLOVE. EYE PROTECTION: MANDATORY; USE SAFETY EYEWEAR WITH SPLASH GUARDS OR SIDE SHIELDS. OTHER PROTECTIVE EQUIPMENT: AS NEEDED-USE BODY PROTECTION, SUCH AS RUBBER APRON, ETC.

S E C T I O N IX - S P E C I A L P R E C A U T I O N S

PRECAUTIONS TO BE TAKEN IN HANDLING OR STORING: SECURE CLOSURES AND KEEP CONTAINERS UPRIGHT TO PREVENT LEAKAGE. STORE LARGE QUANTITIES ONLY IN BUILDINGS DESIGNED TO COMPLY WITH OSHA 1910.106. OTHER PRECAUTIONS: DO NOT STORE ABOVE 120 F. DO NOT TAKE INTERNALLY. BEFORE SMOKING OR EATING, WASH HANDS THOROUGHLY. DO NOT GET IN EYES OR ON SKIN. AVOID BREATHING VAPORS OR SPRAY MIST. DO NOT STORE OR USE NEAR HEAT, SPARKS OR OPEN FLAME. CONTAINERS SHOULD BE GROUNDED WHEN POURING. AVOID FREE FALL OF LIQUID IN EXCESS OF A FEW INCHES. DO NOT FLAME CUT, BRAZE, OR WELD WITHOUT NIOSH/MHSA-APPROVED MECHANICAL FILTER RESPIRATOR OR APPROPRIATE AND ADEQUATE VENTILATION. ALL ELECTRICAL EQUIPMENT AND INSTALLATIONS SHOULD BE MADE AND GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. WORKMEN ARE REQUIRED TO USE ONLY NON-FERROUS TOOLS AND WEAR NON-SPARKING SHOES IN AREAS WHERE EXPLOSION HAZARDS EXIST. IF WORKMEN ARE EXPOSED TO SPRAY APPLICATION OR ABRASIVE BLAST CLEANING, ENGINEERING AND ADMINISTRATIVE CONTROLS MUST BE USED TO MAINTAIN MY EXPOSURE LEVEL BELOW THE OSHA REQUIRED LEVEL, OR, USE A NIOSH/MHSA-APPROVED MECHANICAL FILTER RESPIRATOR FOR PROTECTION.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN. WE ACCEPT NO RESPONSIBILITY AND DISCLAIM ALL LIABILITY FOR ANY HARMFUL EFFECTS WHICH MAY BE CAUSED BY EXPOSURE TO OUR PRODUCTS. CUSTOMERS/USERS OF THIS PRODUCT MUST COMPLY WITH ALL APPLICABLE HEALTH AND SAFETY LAWS, REGULATIONS, AND ORDERS.

NOTE: SEE ATTACHMENT ONE FOR FURTHER INFORMATION.

HUMAN HEALTH DATA

ROUTE(S) OF ENTRY: INHALATION; SKIN CONTACT; EYE CONTACT.

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION: HDI VAPORS OR MIST AT CONCENTRATION ABOVE THE TLV OR MGL CAN IRRITATE (BURNING SENSATION) THE MUCOUS MEMBRANES IN THE RESPIRATORY TRACT (NOSE, THROAT, LUNGS) CAUSING RUNNY NOSE, SORE THROAT, COUGHING, CHEST DISCOMFORT, SHORTNESS OF BREATH AND REDUCED LUNG FUNCTION (BREATHING OBSTRUCTION). PERSONS WITH A PREEXISTING, NONSPECIFIC BRONCHIAL HYPE-REACTIVITY CAN RESPOND TO CONCENTRATIONS BELOW THE TLV OR MGL WITH SIMILAR SYMPTOMS AS WELL AS AN ASTHMA ATTACK. EXPOSURE WELL ABOVE THE TLV OR MGL MAY LEAD TO BRONCHITIS, BRONCHIAL SPASM AND PULMONARY EDEMA (FLUID IN LUNGS). THESE EFFECTS ARE USUALLY REVERSIBLE. CHEMICAL OR HYPERSENSITIVE PNEUMONITIS, WITH FLU-LIKE SYMPTOMS (E.G., FEVER, CHILLS) HAS ALSO BEEN REPORTED. SOLVENT VAPORS MAY BE IRRITATING TO THE EYES, NOSE AND THROAT. SYMPTOMS OF IRRITATION MAY INCLUDE: REDNESS, BURNING, AND ITCHING OF THE EYES, DRYNESS OF THE THROAT AND TIGHTNESS OF THE CHEST. OTHER POSSIBLE SYMPTOMS OF OVEREXPOSURE INCLUDE: HEADACHE, NAUSEA, NARCOSIS, FATIGUE AND LOSS OF APPETITE. A CONCENTRATION OF 200 PPM BA CAN CAUSE EYE, NOSE, AND THROAT IRRITATION. AT 300 PPM THESE EFFECTS CAN BECOME SEVERE.

CHRONIC INHALATION: AS A RESULT OF PREVIOUS REPEATED OVEREXPOSURES OR A SINGLE LARGE DOSE, CERTAIN INDIVIDUALS WILL DEVELOP ISOCYANATE SENSITIZATION (CHEMICAL ASTHMA) WHICH WILL CAUSE THEM TO REACT TO A LATER EXPOSURE TO ISOCYANATE AT LEVELS WELL BELOW THE TLV OR MGL. THESE SYMPTOMS, WHICH INCLUDE: CHEST TIGHTNESS, WHEEZING, COUGH, SHORTNESS OF BREATH OR ASTHMATIC ATTACK, COULD BE IMMEDIATE OR DELAYED UP TO SEVERAL HOURS AFTER EXPOSURE. SIMILAR TO MANY NON-SPECIFIC ASTHMATIC RESPONSES, THERE ARE REPORTS THAT ONCE SENSITIZED AN INDIVIDUAL CAN EXPERIENCE THESE SYMPTOMS UPON EXPOSURE TO DUST, COLD AIR OR OTHER IRRITANTS. THIS INCREASED LUNG SENSITIVITY CAN PERSIST FOR WEEKS AND IN SEVERE CASES FOR SEVERAL YEARS. CHRONIC OVEREXPOSURE TO ISOCYANATES HAS ALSO BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING DECREASE IN LUNG FUNCTION, WHICH MAY BE PERMANENT. SENSITIZATION MAY BE EITHER TEMPORARY OR PERMANENT. CHRONIC EXPOSURE TO ORGANIC SOLVENTS HAS BEEN ASSOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE. SYMPTOMS INCLUDE: LOSS OF MEMORY, LOSS OF INTELLECTUAL ABILITY AND LOSS OF COORDINATION.

ACUTE SKIN CONTACT: ISOCYANATES REACT WITH SKIN PROTEIN AND MOISTURE AND CAN CAUSE IRRITATION. SYMPTOMS OF SKIN IRRITATION MAY BE REDDENING, SWELLING, RASH, SCALING OR BLISTERING. SOME PERSONS MAY DEVELOP SKIN SENSITIZATION FROM SKIN CONTACT. CURED MATERIAL IS DIFFICULT TO REMOVE. REPEATED OR PROLONGED SKIN CONTACT WITH SOLVENTS CAN RESULT IN DRY, DEFATTED AND CRACKED SKIN CAUSING INCREASED SUSCEPTIBILITY TO INFECTION. IN ADDITION, SKIN IRRITATION (I.E. REDNESS, SWELLING), WHICH MAY DEVELOP INTO DERMATITIS, MAY OCCUR FROM SKIN CONTACT. SOLVENT CAN PENETRATE THE SKIN AND MAY CAUSE SYSTEMIC EFFECTS SIMILAR TO THOSE IDENTIFIED UNDER ACUTE INHALATION SYMPTOMS.

CHRONIC SKIN CONTACT: PROLONGED CONTACT WITH THE ISOCYANATE CAN CAUSE REDDENING, SWELLING, RASH, SCALING OR BLISTERING. IN THOSE WHO HAVE DEVELOPED A SKIN SENSITIZATION, THESE SYMPTOMS CAN DEVELOP AS A RESULT OF CONTACT WITH VERY SMALL AMOUNTS OF LIQUID MATERIAL OR EVEN AS A RESULT OF VAPOR-ONLY EXPOSURE. CHRONIC SKIN EXPOSURE TO SOLVENTS MAY CAUSE EFFECTS SIMILAR TO THOSE IDENTIFIED UNDER CHRONIC INHALATION EFFECTS.

SOLVENTS) ARE IRRITATING AND CAN CAUSE TEARING, REDDENING AND SWELLING ACCOMPANIED BY A STINGING SENSATION AND/OR A FEELING LIKE THAT OF FINE DUST IN THE EYES.

CHRONIC EYE CONTACT: MAY RESULT IN CORNEAL OPACITY (CLOUDING OF THE EYE SURFACE). PROLONGED VAPOR CONTACT MAY CAUSE CONJUNCTIVITIS.

ACUTE INGESTION: CAN RESULT IN IRRITATION AND POSSIBLE CORROSIVE ACTION IN THE MOUTH, STOMACH TISSUE AND DIGESTIVE TRACT. VOMITING MAY CAUSE ASPIRATION OF THE SOLVENT RESULTING IN CHEMICAL PNEUMONITIS.

CHRONIC INGESTION: NONE FOUND

CARCINOGENICITY

NTP . . . . . NOT LISTED
IARC . . . . . NOT LISTED
OSHA . . . . . NOT REGULATED

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: ASTHMA AND OTHER RESPIRATORY DISORDERS (BRONCHITIS, EMPHYSEMA, HYPERREACTIVITY), SKIN ALLERGIES, ECZEMA.

EXPOSURE LIMITS: NOT ESTABLISHED FOR PRODUCT AS A WHOLE. REFER TO SECTION II FOR EXPOSURE LIMITS OF HAZARDOUS CONSTITUENTS. THE MOBAY GUIDELINE LEVEL OF 0.5 MG/M3 - TWA AND 1.0 MG/M3 - STEL FOR THE HOMOPOLYMER OF HDI AND 0.02 PPM CEILING FOR HDI MONOMER ARE INTERNAL GUIDES BASED ON LIMITED DATA; THEY ARE PROVIDED AS GUIDES PENDING THE REVIEW OF THE FUTURE DATA.

EMERGENCY AND FIRST AID PROCEDURES

FIRST AID FOR EYES: FLUSH WITH CLEAN, LUKEWARM WATER (LOW PRESSURE) FOR AT LEAST 15 MINUTES, WHILE LIFTING EYELIDS. REFER INDIVIDUAL TO PHYSICIAN OR OPHTHALMOLOGIST FOR IMMEDIATE FOLLOW-UP.

FIRST AID FOR SKIN: REMOVE CONTAMINATED CLOTHING IMMEDIATELY. WASH AFFECTED AREAS THOROUGHLY WITH SOAP AND WATER. WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE REUSE. FOR SEVERE EXPOSURE, GET UNDER SAFETY SHOWER AFTER REMOVING CLOTHING, THEN GET MEDICAL ATTENTION. FOR LESSER EXPOSURES, SEEK MEDICAL ATTENTION IF IRRITATION DEVELOPS OR PERSISTS.

FIRST AID FOR INHALATION: MOVE TO AN AREA FREE FROM RISK OF FURTHER EXPOSURE. ADMINISTER OXYGEN OR ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN MEDICAL ATTENTION. ASTHMATIC-TYPE SYMPTOMS MAY DEVELOP AND MAY BE IMMEDIATE OR DELAYED UP TO SEVERAL HOURS. TREATMENT IS ESSENTIALLY SYMPTOMATIC. CONSULT PHYSICIAN.

FIRST AID FOR INGESTION: DO NOT INDUCE VOMITING. GIVE 1 TO 2 CUPS OF MILK OR WATER TO DRINK. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON. CONSULT PHYSICIAN.

NOTE TO PHYSICIAN: EYES: STAIN FOR EVIDENCE OF CORNEAL INJURY. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC/STEROID PREPARATION FREQUENTLY. WORKPLACE VAPORS COULD PRODUCE REVERSIBLE CORNEAL EPITHELIAL EDEMA IMPAIRING VISION. SKIN: THIS PRODUCT IS A KNOWN SKIN SENSITIZER. TREAT SYMPTOMATICALLY AS FOR CONTACT DERMATITIS OR THERMAL BURN. INGESTION: TREAT SYMPTOMATICALLY. THERE IS NO SPECIFIC ANTIDOTE. INDUCING VOMITING IS CONTRAINDICATED BECAUSE OF THE IRRITATING NATURE OF THE PRODUCT. INHALATION: THIS PRODUCT IS A KNOWN PULMONARY SENSITIZER. TREATMENT IS ESSENTIALLY SYMPTOMATIC. AN INDIVIDUAL HAVING A DERMAL OR PULMONARY SENSITIZATION REACTION TO THIS MATERIAL MUST BE REMOVED FROM ANY FURTHER EXPOSURE TO ANY ISOCYANATE.

EMPLOYEE PROTECTION RECOMMENDATIONS

REQUIRED WORK/HYGIENE PROCEDURES: PRECAUTIONS MUST BE TAKEN SO THAT PERSONS HANDLING THIS PRODUCT DO NOT BREATHE THE VAPORS OR HAVE IT CONTACT THE EYES OR SKIN. IN SPRAY OPERATIONS, PROTECTION MUST BE AFFORDED AGAINST EXPOSURE TO BOTH VAPOR AND SPRAY MIST.

EYE PROTECTION REQUIREMENTS: SAFETY GLASSES, SPLASH GOGGLES OR FACE SHIELD. CONTACT LENSES SHOULD NOT BE WORN.

SKIN PROTECTION REQUIREMENTS: PERMEATION RESISTANT GLOVES. COVER AS MUCH OF THE EXPOSED SKIN AREA AS POSSIBLE WITH APPROPRIATE CLOTHING. IF SKIN CREAMS ARE USED, KEEP THE AREA PROTECTED ONLY BY THE CREAM TO A MINIMUM.

RESPIRATOR REQUIREMENTS: A RESPIRATOR THAT IS RECOMMENDED OR APPROVED FOR USE IN ISOCYANATE CONTAINING ENVIRONMENTS (AIR PURIFYING OR FRESH AIR SUPPLIED) MAY BE NECESSARY. CONSIDER TYPE OF APPLICATION AND ENVIRONMENTAL CONCENTRATIONS. OBSERVE OSHA REGULATIONS FOR RESPIRATOR USE (29 CFR 1910.134).

NOTE ON ODOR WARNING PROPERTIES: PURE ISOCYANATE MATERIALS HAVE ODOR THRESHOLDS THAT ARE HIGHER THAN THE TLV, PEL OR MGL. THUS, IF A VAPOR/PARTICULATE AIR-PURIFYING RESPIRATORY HAS EXCEEDED ITS SERVICE LIFE, BREAK-THROUGH OF THE FILTER CAN RESULT IN EXPOSURE OVER THE ALLOWABLE LIMIT WITHOUT THE WEARER BEING ABLE TO SMELL THE ISOCYANATE. HOWEVER, WHEN A POLYURETHANE COATING SYSTEM CONTAINS ORGANIC SOLVENTS, THE WEARER OF A VAPOR PARTICULATE RESPIRATOR WILL BE WARNED OF FILTER BREAKTHROUGH BY THE ODOR OF SOLVENTS BEFORE BEING EXPOSED TO ISOCYANATES BECAUSE:

1) ORGANIC SOLVENTS HAVE LOW ODOR THRESHOLDS, AND
2) TESTING HAS DEMONSTRATED THAT SOLVENTS BREAK THROUGH FILTERS BEFORE ISOCYANATES DO.

SPRAY APPLICATION: GOOD INDUSTRIAL HYGIENE PRACTICE DICTATES THAT WHEN ISOCYANATE BASED COATINGS ARE SPRAY APPLIED, SOME FORM OF RESPIRATORY PROTECTION SHOULD BE WORN. DURING THE SPRAY APPLICATION OF ORGANIC SOLVENT CONTAINING COATINGS SYSTEMS, THE USE OF A POSITIVE PRESSURE SUPPLIED AIR RESPIRATOR IS MANDATORY WHEN:

- THE AIRBORNE ISOCYANATE CONCENTRATIONS ARE NOT KNOWN, OR
- THE AIRBORNE HDI MONOMER CONCENTRATIONS EXCEED 0.05 PPM (10 TIMES THE TLV) OR THE POLYISOCYANATE (POLYMERIC, OLIGOMERIC) CONCENTRATIONS EXCEED 5 MG/M3 AVERAGED OVER 8 HOURS OR 10 MG/M3 AVERAGED OVER 15 MINUTES (10 TIMES THE MGL) OR
- SPRAYING IS PERFORMED IN A CONFINED SPACE OR IN AN AREA WITH LIMITED VENTILATION.

A PROPERLY FITTED AIR-PURIFYING (COMBINATION ORGANIC VAPOR AND PARTICULATE) RESPIRATOR, PROVEN BY TEST TO BE EFFECTIVE IN ISOCYANATE-CONTAINING SPRAY PAINT ENVIRONMENTS, WILL PROVIDE ADEQUATE PROTECTION WHEN:

- THE AIRBORNE HDI MONOMER CONCENTRATIONS ARE KNOWN TO BE BELOW 0.05 PPM (10 TIMES THE TLV), AND
- THE POLYISOCYANATE (POLYMERIC, OLIGOMERIC) CONCENTRATIONS ARE KNOWN TO BE BELOW 5 MG/M3 AVERAGED OVER 8 HOURS OR 10 MG/M3 AVERAGED OVER 15 MINUTES (10 TIMES THE MGL).

NON-SPRAY OPERATIONS: EVEN DURING NON-SPRAY OPERATIONS SUCH AS MIXING, BATCH MAKING, BRUSH OR ROLLER APPLICATION, ETC., DEPENDING ON THE CONDITIONS (FOR EXAMPLE, HEATING OF MATERIAL OR APPLICATION TO A HOT SUBSTRATE), IT IS

-- ISOCYANATE VAPORS. THEREFORE, WHEN THE COATINGS SYSTEM CONTAINS SOLVENTS AND WILL BE APPLIED IN A NON-SPRAY MANNER, A POSITIVE PRESSURE SUPPLIED AIR RESPIRATOR MUST BE WORN WHEN:

- THE AIRBORNE CONCENTRATIONS ARE UNKNOWN; OR
- THE AIRBORNE HDI MONOMER CONCENTRATIONS EXCEED 0.05 PPM (10 TIMES THE TLV), OR
- THE AIRBORNE CONCENTRATIONS OF THE POLYISOCYANATE (POLYMERIC, OLIGOMERIC) EXCEED 5 MG/M3 AVERAGED OVER 8 HOURS OR 10 MG/M3 AVERAGED OVER 15 MINUTES (10 TIMES THE EGL), OR
- OPERATIONS ARE PERFORMED IN A CONFINED SPACE OR IN AN AREA WITH LIMITED VENTILATION.

AT LEAST AN AIR PURIFYING (ORGANIC VAPOR) RESPIRATOR IS REQUIRED WHEN:

- THE AIRBORNE CONCENTRATIONS OF THE HDI MONOMER EXCEED THE TLV OF 0.005 PPM BUT ARE BELOW 0.05 PPM (10 TIMES THE TLV), OR
- THE AIRBORNE CONCENTRATIONS OF THE POLYISOCYANATE (POLYMERIC, OLIGOMERIC) EXCEED THE EGL OF 0.5 MG/M3 AVERAGED OVER 8 HOURS, OR 1.0 MG/M3 AVERAGED OVER 8 HOURS, OR 1.0 MG/M3 AVERAGED OVER 15 MINUTES BUT ARE BELOW 10 MG/M3 (10 TIMES THE EGL).

VENTILATION REQUIREMENTS: EXHAUST VENTILATION SUFFICIENT TO KEEP THE AIRBORNE CONCENTRATIONS OF HDI AND POLYISOCYANATE BELOW THEIR RESPECTIVE TLV AND EGL MUST BE UTILIZED. EXHAUST AIR MAY NEED TO BE CLEANED BY SCRUBBER OR FILTERS TO REDUCE ENVIRONMENTAL CONTAMINATION.

MONITORING: REFER TO PATTY'S INDUSTRIAL HYGIENE AND TOXICOLOGY-VOLUME I (3RD EDITION) CHAPTER 17 AND VOLUME III (1ST EDITION) CHAPTER 3-FOR GUIDANCE CONCERNING APPROPRIATE AIR SAMPLING STRATEGY TO DETERMINE AIRBORNE CONCENTRATIONS.

MEDICAL SURVEILLANCE: MEDICAL SUPERVISION OF ALL EMPLOYEES WHO HANDLE OR COME IN CONTACT WITH THIS PRODUCT IS RECOMMENDED. THIS SHOULD INCLUDE PREEMPLOYMENT AND PERIODIC MEDICAL EXAMINATIONS WITH RESPIRATORY FUNCTION TESTS (FEV, FVC AS A MINIMUM). PERSONS WITH ASTHMA-TYPE CONDITIONS, CHRONIC BRONCHITIS, OTHER CHRONIC RESPIRATORY DISEASES OR RECURRENT SKIN ECZEMA OR SENSITIZATION SHOULD BE EXCLUDED FROM WORKING WITH ISOCYANATES. ONCE A PERSON IS DIAGNOSED AS SENSITIZED TO AN ISOCYANATE, NO FURTHER EXPOSURE CAN BE PERMITTED.

ADDITIONAL PROTECTIVE MEASURES: SAFETY SHOWERS AND EYEWASH STATIONS SHOULD BE AVAILABLE. EDUCATE AND TRAIN EMPLOYEES IN SAFE USE OF PRODUCT. FOLLOW ALL LABEL INSTRUCTIONS. FOR ADDITIONAL INFORMATION, CONTACT MOBAY CORPORATION, MOBAY ROAD, PITTSBURGH, PA 15205-9741 ON THEIR "HEALTH AND SAFETY INFORMATION FOR HEXAMETHYLENE DIISOCYANATE BASED POLYISOCYANATES".

A N I M A L T O X I C I T Y D A T A

TOXICITY DATA FOR: HDI HOMOPOLYMER MATERIALS EXCEPT WHERE INDICATED.

ACUTE TOXICITY

ORAL LD50: ESTIMATED TO BE GREATER THAN 10000 MG/KG (RATS). (BASED ON THE RESULTS OF ACTUAL TESTS CONDUCTED USING SPECIFIC HDI-HOMOPOLYMER PRODUCTS.)

DERMAL LD50: ESTIMATED TO BE GREATER THAN 5000 MG/KG (RABBITS). (BASED ON THE RESULTS OF ACTUAL TESTS CONDUCTED USING SPECIFIC HDI-HOMOPOLYMER PRODUCTS.)

INHALATION LC50: LOWER RESPIRATORY (PULMONARY) IRRITANT. LC50 VALUES RANGE FROM 137-1150 MG/M3 WERE OBTAINED IN RATS EXPOSED TO AEROSOLS. (4H EXP.)

CAPABLE OF INDUCING CORNEAL INJURY (RABBIT);
MAXIMUM PRIMARY IRRITATION SCORE: 54.6/110 FOR 24 HOUR EXPOSURE.
SKIN EFFECTS: MODERATE IRRITANT; PRIMARY DERMAL IRRITATION SCORE: 3.4/8.0 (RABBIT)
SENSITIZATION: PULMONARY AND DERMAL SENSITIZER IN ANIMALS AND HUMANS. EVIDENCE EXISTS THAT CROSS-SENSITIZATION BETWEEN HDI AND OTHER ISOCYANATES, PARTICULARLY HYDROGENATED MDI AND TDI, CAN OCCUR.

SUBCHRONIC TOXICITY: RATS EXPOSED TO A HDI HOMOPOLYMER (ISOCYANURATE TYPE, SPECIFICALLY USED IN THIS PRODUCT)), AT 4.3, 14.7 AND 89.8 MG/M3 FOR THREE WEEKS (6 HRS/DAY, 5 DAYS/WK) EXHIBITED RESPIRATORY DISTRESS AND INFLAMMATION OF THE NASAL PASSAGES AT 14.7 MG/M3 AND ABOVE. AT THE 89.8 MG/M3 LEVEL, INFLAMMATORY LESIONS AT MANY SITES OF THE LUNGS WERE ALSO OBSERVED. THE NO OBSERVABLE EFFECT LEVEL (NOEL) WAS 4.3 MG/M3. RATS WERE ALSO EXPOSED TO AN HDI HOMOPOLYMER (ISOCYANURATE TYPE, SPECIFICALLY USED IN THIS PRODUCT), FOR 13 WEEKS (6 HRS/DAY, 5 DAYS/WK) AT AEROSOL CONCENTRATIONS OF 0.5, 3.3 AND AND 26.4 MG/M3. BODY WEIGHT GAIN OF MALE RATS OF THE 26.4 MG/M3 GROUP WERE SLIGHTLY REDUCED TOWARD THE END OF THE STUDY. THE LUNG WEIGHT TO BODY WEIGHT RATIO WAS SIGNIFICANTLY INCREASED IN THE MALE AND FEMALE RATS OF THE 26.4 MG/M3 GROUP. HISTOPATHOLOGIC DIAGNOSIS OF THESE ANIMALS REVEALED INFLAMMATORY CHANGES AND FORMATION OF FIBROUS TISSUE AT THE POINT OF INJURY IN THE RESPIRATORY TRACT. IN ADDITION, THE LUNG FUNCTION TESTS AT THE END OF THE STUDY PROVIDED EVIDENCE OF A CHRONIC OBSTRUCTIVE LUNG DISORDER IN RATS OF THE 26.4 MG/M3 GROUP. THE NO OBSERVABLE EFFECT LEVEL (NOEL) IN THIS STUDY IS CONSIDERED TO BE 3.3 MG/M3.

OTHER TOXICITY DATA: MICE WERE EXPOSED TO A LIQUID AEROSOL OF AN HDI HOMO-POLYMER (ISOCYANURATE TYPE, SPECIFICALLY USED IN THIS PRODUCT). MIXED WITH ACETONE FOR THREE HOURS. THE IRRITATION POTENTIAL EXPRESSED AS THE RD50 (THE CONCENTRATION WHICH IS PREDICTED TO REDUCE THE RESPIRATORY RATE 50%) WAS 20.8 MG/M3 (95% CONFIDENCE INTERVAL = 18.3 TO 23.9 MG/M3). PULMONARY (LUNG) IRRITATION WAS OBSERVED FIRST, FOLLOWED BY SENSORY (EYE, NOSE, AND THROAT) IRRITATION.

XICITY DATA FOR: BA
CUTE TOXICITY
ORAL LD50: 14,000 MG/KG (RAT)
INHALATION LC50: 2000 PPM (RAT)
EYE EFFECTS: SEVERE IRRITANT, 20 MG (RABBIT)
SKIN EFFECTS: MODERATE IRRITANT, 500 MG/24H (RABBIT)

XICITY DATA FOR: AR100
UTE TOXICITY
ORAL LD50: ESTIMATED TO BE GREATER THAN 5000 MG/KG (RAT) BY EXXON.
DERMAL LD50: ESTIMATED TO BE GREATER THAN 2000 MG/KG (RABBIT) BY EXXON.

XICITY DATA FOR: SAME MATERIAL IN DIFFERENT SOLVENT
YE TOXICITY
RAL LD50: GREATER THAN 5000 MG/KG (RAT)
HALATION LC50: 430-450 MG/M3 (AS AEROSOL), 4H EXPOSURE (RAT)
E EFFECTS: SLIGHT IRRITATION FOR A SHORT TIME (RABBIT)
IN EFFECTS: NON-IRRITANT, 24H (RABBIT)

FEDERAL REGULATORY INFORMATION

OSHA STATUS: THIS PRODUCT IS HAZARDOUS UNDER THE CRITERIA OF THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200.

TSCA STATUS: ON TSCA INVENTORY

CERCLA REPORTABLE QUANTITY: BUTYL ACETATE: 5000 LBS.

SARA TITLE III:
SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: NONE
SECTION 311/312
HAZARD CATEGORIES: IMMEDIATE HEALTH HAZARD; DELAYED HEALTH HAZARD; REACTIVE HAZARD; FIRE HAZARD
SECTION 313 TOXIC CHEMICALS: NONE

RCRA STATUS: WHEN DISCARDED IN ITS PURCHASED FORM, THIS PRODUCT MEETS THE CRITERIA OF IGNITABILITY, AND SHOULD BE MANAGED AS A HAZARDOUS WASTE (EPA HAZARDOUS WASTE NUMBER D001). (40 CFR 261.20-24)

OTHER REGULATORY INFORMATION

THE FOLLOWING CHEMICALS ARE SPECIFICALLY LISTED BY INDIVIDUAL STATES; OTHER PRODUCT SPECIFIC HEALTH AND SAFETY DATA IN OTHER SECTIONS OF THE MSDS MAY ALSO BE APPLICABLE FOR STATE REQUIREMENTS. FOR DETAILS ON YOUR REGULATORY REQUIREMENTS YOU SHOULD CONTACT THE APPROPRIATE AGENCY IN YOUR STATE.

COMPONENT NAME /CAS NUMBER	STATE CODE
HOMOPOLYMER OF HDI 28182-81-2	PA3, NJ4
AROMATIC 100 (SOLVENT NAPHTHA) (AR100) 64742-95-6	PA3, NJ4
N-BUTYL ACETATE (BA) 123-86-4	PA1, MA, NJ1

MA = MASSACHUSETTS HAZARDOUS SUBSTANCE LIST
NJ1 = NEW JERSEY HAZARDOUS SUBSTANCE LIST
NJ4 = NEW JERSEY OTHER - INCLUDED IN 5 PREDOMINANT INGREDIENTS > 1%
PA1 = PENNSYLVANIA HAZARDOUS SUBSTANCE LIST
PA3 = PENNSYLVANIA NON-HAZARDOUS PRESENT AT 3% OR GREATER

TO