

MATERIAL SAFETY DATA SHEET

FORSCH POLYMER CORPORATION
3870 NIAGARA STREET
DENVER, COLORADO 80207

IMPORTANT:BEFORE OPENING ANY FORSCH POLYMER
PACKAGES, READ WARNING LABELS AND FOLLOW ALL
PRECAUTIONS.

TELEPHONE NUMBER: (303) 322-9611 PAGE 1 OF 6

SECTION 1

PRODUCT NUMBER: 40A LIQUID BASE
PRODUCT NAME: 40A LIQUID BASE
CHEMICAL TYPE: ALIPHATIC URETHANE

EMERGENCY NUMBER: 1-800-424-9300 (Chemtrec)
DATE OF REVISION: OCTOBER 1998

HAZARD RATING (4) EXTREME (3) HIGH (2) MODERATE
(1) SLIGHT (0) INSIGNIFICANT
TOXICITY: 3 FIRE: 1 REACTIVITY: 1 SPECIAL:

SECTION 2 HAZARDOUS COMPONENTS

C.A.S. NO.	(ACGIH) PERCENT TLV	(OSHA) PEL	(ACGIH) STEL
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Vehicle: ALIPHATIC URETHANE PREPOLYMER	> 10.00	.005ppm	.010ppm
FREE DIISOCYANATE MONOMER	5124-30-1 < 10.0	.005ppm	.010ppm

SUSPECTED CANCER AGENT: YES _____ NO

SECTION 3 PHYSICAL DATA

BOILING POINT : DECOMPOSES
VAPOR DENSITY (AIR = 1) : > 1
SOLUBLE IN WATER : NEGLIGIBLE
SPECIFIC GRAVITY : 1.02 @ 20 DEG C
% VOLATILE BY VOLUME : NEGLIGIBLE
EVAPORATION RATE : -
APPEARANCE AND ODOR : CLEAR LIQUID

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 395 DEG F METHOD: TCC LEL:
EXTINGUISHING MEDIA: DRY CHEMICAL; CARBON DIOXIDE; FOAM;
WATER SPRAY FOR LARGE FIRES.

SPECIAL FIRE FIGHTING PROCEDURES: FULL EMERGENCY
EQUIPMENT WITH SELF-CONTAINED BREATHING APPARATUS
AND FULL PROTECTIVE CLOTHING SHOULD BE WORN BY FIRE
FIGHTERS. DURING A FIRE, VAPORS AND OTHER
IRRITATING, HIGHLY TOXIC GASES MAY BE GENERATED BY
THERMAL DECOMPOSITION OR COMBUSTION. (SEE SECTION
VIII). CLOSED CONTAINER MAY EXPLODE WHEN EXPOSED TO
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EXTREME HEAT OR BURST WHEN CONTAMINATED WITH
WATER (CO2 EVOLVED).

SECTION 5 HEALTH HAZARD DATA

ROUTES OF ENTRY: SKIN CONTACT, INHALATION OF VAPORS
AND MIST. EYE CONTACT
HUMAN EFFECTS AND SYMPTOMS OF OVER-EXPOSURE
ACUTE INHALATION: INHALATION OF VAPORS AND MIST AT
CONCENTRATIONS ABOVE THE TLV 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 PREEEXISTING, NONSPECIFIC
BRONCHIAL HYPERREACTIVITY CAN RESPOND TO
CONCENTRATIONS BELOW THE INTENDED TLV WITH SIMILAR
SYMPTOMS AS WELL AS AN ASTHMA ATTACK. EXPOSURE WELL
ABOVE THE INTENDED TLV MAY LEAD TO BRONCHITIS,
BRONCHIAL SPASM AND PULMONARY EDEMA (FLUID IN THE
LUNGS). THESE EFFECTS ARE USUALLY REVERSIBLE.
CHEMICAL OR HYPERSENSITIVE PNEUMONITIS, WITH FLU-LIKE
SYMPTOMS (E.G., FEVER, CHILLS) HAS ALSO BEEN REPORTED.
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. 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
ONE 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 OVER-EXPOSURE 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.
ACUTE SKIN CONTACT: PRIMARY SKIN IRRITANT, IT REACTS
WITH SKIN PROTEIN AND MOISTURE AND CAN CAUSE
IRRITATION. SYMPTOMS OF SKIN IRRITATION CAN INCLUDE:
REDNESS, SWELLING, RASH, SCALING OR BLISTERING. POTENT
SKIN SENSITIZER. EXPERIENCE INDICATES THAT DIRECT SKIN
CONTACT IS THE ROUTE OF EXPOSURE MOST LIKELY TO
CAUSE SENSITIZATION. ONCE SENSITIZED, AN INDIVIDUAL MAY
REACT EVEN TO AIRBORNE LEVELS BELOW THE TLV WITH THE
FOLLOWING SYMPTOMS; ITCHING AND TINGLING OF THE
EARLOBES AND NECK, RASH, HIVES, SWELLING OF THE ARMS
AND LEGS OR OTHER SYMPTOMS COMMON TO ALLERGIC
DERMATITIS. THESE SYMPTOMS MAY BE IMMEDIATE OR
DELAYED SEVERAL HOURS.
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
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RESULT OF CONTACT WITH VERY SMALL AMOUNTS OF LIQUID
MATERIAL OR EVEN AS A RESULT OF VAPOR-ONLY EXPOSURE.
ACUTE EYE CONTACT: LIQUID, VAPORS AND MIST OF THIS
PRODUCT ARE IRRITATING AND CAN CAUSE TEARING,
REDDENING AND SWELLING OF THE EYES POSSIBLY
ACCOMPANIED BY A STINGING SENSATION.
CHRONIC EYE CONTACT: NONE FOUND
ACUTE INGESTION: CAN RESULT IN IRRITATION AND POSSIBLE
CORROSIVE ACTION IN THE MOUTH, STOMACH TISSUE AND
DIGESTIVE TRACT.

CHRONIC INGESTION: NONE FOUND
CARCINOGENICITY: THIS PRODUCT IS NOT LISTED BY NTP,
IARC, OR REGULATED AS A CARCINOGEN BY OSHA.
MEDICAL CONDITIONS
AGGRAVATED BY EXPOSURE: SKIN ALLERGIES, ASTHMA AND
ANY OTHER RESPIRATORY DISORDERS (BRONCHITIS,
EMPHYSEMA, HYPERREACTIVITY), ECZEMA.
EXPOSURE LIMITS: ACGIH TLV: 0.005 PPM TWA; OSHA PEL:
0.01 PPM CEILING

SECTION 6 FIRST AID PROCEDURES

EYE CONTACT: 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.
SKIN CONTACT: REMOVE CONTAMINATED CLOTHING
IMMEDIATELY. WASH SKIN PROMPTLY AND THOROUGHLY WITH
SOAP AND WATER. AFTER WASHING, COVER AFFECTED SKIN
WITH POLYETHYLENE GLYCOL (300 - 500 mol wt) AND WASH
AGAIN IMMEDIATELY WITH SOAP AND WATER TO THOROUGHLY
REMOVE PROPYETHYLENE GLYCOL AND RESIDUAL
ISOCYANATE. REPEAT IF NECESSARY.
WASH CONTAMINATED CLOTHING THOROUGHLY BEFORE
REUSE. FOR SEVERE EXPOSURES, GET UNDER SAFETY
SHOWER AFTER REMOVING CLOTHING. SEEK MEDICAL
ATTENTION IF IRRITATION OR ALLERGIC DERMATITIS
SYMPTOMS DEVELOP, OR IF GROSS EXPOSURE OCCURS.
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.
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 COMPOUND IS A POTENT SKIN SENSITIZER.
TREAT SYMPTOMATICALLY AS FOR CONTACT DERMATITIS OR
THERMAL BURN. INGESTION: TREAT SYMPTOMATICALLY.
THERE IS NO SPECIFIC ANTIDOTE. INDUCING VOMITING IS
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CONTRAINDICATED BECAUSE OF THE IRRITATING NATURE OF
THE COMPOUND. INHALATION: TREATMENT IS ESSENTIALLY
SYMPTOMATIC. AN INDIVIDUAL HAVING A DERMAL OR
PULMONARY SENSITIZATION REACTION TO THIS
MATERIAL SHOULD BE REMOVED FROM EXPOSURE ANY
ISOCYANATE.

SECTION 7 REACTIVITY DATA

STABILITY: STABLE
HAZARDOUS POLYMERIZATION: MAY OCCUR; CONTACT WITH
MOISTURE OR OTHER MATERIALS WHICH REACT WITH
ISOCYANATES MAY CAUSE POLYMERIZATION.
INCOMPATIBILITIES: WATER, AMINES, STRONG BASES,
ALCOHOLS, METAL COMPOUNDS AND SURFACE ACTIVE
MATERIALS.
INSTABILITY CONDITIONS: MOISTURE, HIGH HEAT

DECOMPOSITION PRODUCTS: BY HIGH HEAT AND FIRE:
CARBON DIOXIDE, CARBON MONOXIDE, OXIDES OF NITROGEN,
TRACES OF HCN.

SECTION 8 SPILL OR LEAK PROCEDURES

EVACUATE NONESSENTIAL PERSONNEL. REMOVE ALL
SOURCES OF IGNITION AND VENTILATE THE AREA. DIKE OR
IMPOUND SPILLED MATERIAL AND CONTROL FURTHER
SPILLAGE IF FEASIBLE. NOTIFY APPROPRIATE AUTHORITIES IF
NECESSARY. COVER THE SPILL WITH SAWDUST, VERMICULITE,
FULLER'S EARTH OR OTHER ABSORBENT MATERIAL. POUR
DECONTAMINATION SOLUTION OVER SPILL AREA AND ALLOW
TO REACT FOR AT LEAST 10 MINUTES. COLLECT MATERIAL IN
OPEN CONTAINERS AND ADD FURTHER AMOUNTS OF
DECONTAMINATION SOLUTION. REMOVE CONTAINERS TO A
SAFE PLACE, COVER LOOSELY, AND ALLOW TO STAND FOR 24
TO 48 HOURS. WASH DOWN SPILL AREA WITH
DECONTAMINATION SOLUTIONS.

NEUTRALIZATION CHEMICALS: FOR TOOLS AND EQUIPMENT IN
WELL VENTILATED AREAS: ISOPROPYL ALCOHOL, 20%;
CONCENTRATED AMMONIA SOLUTION, 10%; HOUSEHOLD-TYPE
DETERGENT, 2-5%; WATER, BALANCE. FOR CLOTHING, TOOLS,
AND EQUIPMENT IN POORLY VENTILATED AREAS: SPARTAN
WRD-160 RINSABLE-DEGREASER (SPARTAN CHEMICAL CO.,
TOLEDO, OH 43607) FOLLOWED BY THE SAME QUANTITY OF
50/50 MONOETHANOL AMINE-WATER SOLUTION.
WASTE DISPOSAL METHOD: WASTE MUST BE DISPOSED OF IN
ACCORDANCE WITH FEDERAL, STATE, AND LOCAL
ENVIRONMENTAL CONTROL REGULATIONS. INCINERATION IS
THE PREFERRED METHOD. EMPTY CONTAINERS MUST BE
HANDLED WITH CARE DUE TO PRODUCT RESIDUE.

SECTION 9 SPECIAL PRECAUTIONS & STORAGE DATA

STORAGE TEMPERATURE (MIN./MAX.) : 68 F(20 C)/122 F(50 C)
SHELF LIFE: 6 MONTHS @ 77 DEG F (25 C)
SPECIAL SENSITIVITY: IF CONTAINER IS EXPOSED TO HIGH
HEAT, IT CAN BE PRESSURIZED AND POSSIBLY RUPTURE
EXPLOSIVELY. REACTS SLOWLY WITH WATER TO FORM CO2
GAS. THIS GAS CAN CAUSE SEALED CONTAINER TO EXPAND
AND POSSIBLY RUPTURE EXPLOSIVELY.
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HANDLING/STORAGE PRECAUTIONS: STORE IN TIGHTLY
CLOSED CONTAINERS TO PREVENT MOISTURE
CONTAMINATION. DO NOT RESEAL CONTAINER IF
CONTAMINATION IS SUSPECTED. AT MAXIMUM STORAGE
TEMPERATURES NOTED, MATERIAL MAY SLOWLY POLYMERIZE
WITHOUT HAZARD. IDEAL STORAGE TEMPERATURE RANGE IS
68-81 DEG F (20 - 27 C). AVOID CONTACT WITH SKIN AND EYES.
EMPLOYEE EDUCATION AND TRAINING IN THE SAFE USE AND
HANDLING OF THIS COMPOUND ARE REQUIRED UNDER THE
OSHA HAZARD COMMUNICATION STANDARD.

SECTION 10 SPECIAL PRECAUTIONS

DOT STORAGE CATEGORY: SHOULD BE STORED AT ROOM
TEMPERATURE AWAY FROM HEAT, SPARKS AND
OPEN FLAMES. AVOID PROLONG OR REPEATED CONTACT
WITH SKIN.
OTHER PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN.
MATERIAL SHOULD BE TIGHTLY CLOSED TO PREVENT
CONTAMINATION, FOREIGN MATERIALS AND MOISTURE.

SECTION 11 EMPLOYEE PROTECTION RECOMMENDATIONS

REQUIRED WORK/HYGIENE PROCEDURES: PRECAUTIONS
MUST BE TAKEN SO THAT PERSONS HANDLING PRODUCT
AVOID SKIN AND EYE CONTACT AND DO NOT BREATHE THE
VAPORS.

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

SKIN PROTECTION REQUIREMENTS: CHEMICAL 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. WHEN THERE IS POTENTIAL FOR A MAJOR SPLASH
DIRECTLY ONTO THE SKIN, SUCH AS WHEN BREAKING INTO
LINES, A FULL ACID SUIT IS REQUIRED. WHEN THE APPLICATION
MAY RESULT IN AIRBORNE VAPOR OR MIST, A FULL,
PERMEATION RESISTANT, PROTECTIVE SUIT INCLUDING HEAD
COVERING AND FACE SHIELD, GLOVES, AND OVERSHOES IS
REQUIRED.

RESPIRATORY/VENTILATION REQUIREMENT: EXHAUST
VENTILATION SUFFICIENT TO KEEP THE AIRBORNE
CONCENTRATION BELOW THE TLV MUST BE UTILIZED.
EXHAUST AIR MAY NEED TO BE CLEANED BY SCRUBBERS OR
FILTERS TO REDUCE ENVIRONMENTAL CONTAMINATION. IN
ADDITION A RESPIRATOR MAY BE NECESSARY. THE USE OF A
POSITIVE PRESSURE SUPPLIED AIR RESPIRATOR IS
MANDATORY WHEN: AIRBORNE ISOCYANATE
CONCENTRATIONS ARE NOT KNOWN OR EXCEED 0.005 ppm;
OPERATIONS ARE PERFORMED IN A CONFINED SPACE OR AREA
WITH LIMITED VENTILATION; MATERIAL IS HEATED. AN AIR-
PURIFYING RESPIRATOR IS NOT RECOMMENDED DUE TO THE
POOR WARNING PROPERTIES, (e.g., ODOR OR IRRITATION). BY
THE TIME THE WORKER WOULD DETECT LEAKAGE OF THE
FACE SEAL OR BREAKTHROUGH OF THE FILTER CARTRIDGE,
HIS EXPOSURE COULD BE WELL ABOVE THE TLV. CONSIDER
THE TYPE OF APPLICATION, AIRBORNE
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ISOCYANATE CONCENTRATIONS AND MATERIALS BEING USED
CONCURRENTLY WHEN DETERMINING RESPIRATOR USE AND
SELECTION. OBSERVE OSHA REGULATIONS FOR RESPIRATOR
USE (29 CFR 1910.134). REFER TO PATTY'S INDUSTRIAL
HYGIENE AND TOXICOLOGY-VOLUME 1 (3rd EDITION) CHAPTER 1
AND VOLUME III (1st EDITION) CHAPTER
3 - FOR GUIDANCE CONCERNING APPROPRIATE AIR SAMPLING
STRATEGY TO DETERMINE AIRBORNE CONCENTRATIONS.
FORSCH DOES NOT RECOMMEND THIS PRODUCT OR
PRODUCTS CONTAINING RESIDUAL MONOMER FOR SPRAY
APPLICATION.
MEDICAL SURVEILLANCE: MEDICAL SUPERVISION OF ALL
EMPLOYEES WHO 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
ASTHMATIC-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 PRODUCTS. FOLLOW ALL
LABEL INSTRUCTIONS.

DISCLAIMER

=====INFORMATION PRESENTED HEREIN HAS BEEN COMPILED FROM
INFORMATION PROVIDED TO US BY OUR SUPPLIERS AND
OTHER SOURCES CONSIDERED TO BE DEPENDABLE AND IS
ACCURATE AND RELIABLE TO THE BEST OF OUR KNOWLEDGE
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RECOMMENDING ANY PRACTICE OR USE OF ANY PRODUCT IN
VIOLATION OF ANY PATENT OR IN VIOLATION OF ANY LAW OR
REGULATION. IT IS THE USER'S RESPONSIBILITY TO
DETERMINE AND TO ADOPT SUCH SAFETY PRECAUTIONS AS
MAY BE NECESSARY. WE MAKE NO WARRANTY AS TO THE
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