SECTION I: PREPARATION INFORMATION

SUPPLIER/MANUFACTURER:
ASHLAND CHEMICAL
2620 Royal Windsor Drive
Mississauga
Ontario L5J-4B7

MATERIAL SAFETY DATA SHEET
DATE PREPARED: 12/19/91
PREPARED BY: Safety Department
TELEPHONE: (416) 823-1800

EMERGENCY: CALL 1 (800) ASHLAND OR 1 (800) 274-5263

SECTION II: PRODUCT INFORMATION

Code: R6129 Rev: 00

Product Name: AROPOL 8438MT-16

General/Generic Name: UNSATURATED POLYESTER RESIN

Product Use: LAMINATING RESIN

SECTION III: HAZARDOUS INGREDIENT(S)

INGREDIENT: STYRENE, MONOMER
8 W/W TLV CAS NO.
44-48 50 PPM 100-42-5

Note: * Recommended
N/E-NOT ESTABLISHED N/A-NON APPLICABLE

SECTION IV: PHYSICAL DATA

INITIAL BOIL-POINT: COMPONENT(1) 145 DEG.C. 293 DEG.F. 8 760 MMHG
VAPOUR PRESSURE: COMPONENT(1) 4.5 MMHG 20 DEG.C. 68 DEG.F.
VAPOUR DENSITY: (X) HEAVIER THAN AIR.
EVAPORATION RATE: (X) SLOWER THAN ETHER.
PHYSICAL STATE: LIQUID
ODOUR THRESHOLD: N/E FREEZING POINT: N/E DEG.C. PH: N/E
SPECIFIC GRAVITY: 1.08 @ 25 DEG.C./77 DEG.F.
% VOLATILE: 46
APPEARANCE AND ODOUR: AMBER LIQUID, STYRENE ODOUR
SECTION V: FIRE & EXPLOSION INFORMATION

FLASH POINT: (X)CLOSED CUP: (-)N/A(-)OPEN CUP 32 DEG.C. 90 DEG.F.
FLAMMABLE LIMITS: LFL: 1.1% UFL: 7.0% (-)N/E COMPONENT(1)
AUTO IGNITION TEMPERATURE: DEG.C. (-)N/E
EXTINGUISHING MEDIA: (X)FOAM (X)WATER FOG (X)DRY CHEMICAL (X)CARBON DIOXIDE
HAZARDOUS COMBUSTION PRODUCTS:
CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

FIREFIGHTING PROCEDURES:
WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS:
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGGITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

SECTION VI: TOXICOLOGICAL PROPERTIES

THRESHOLD LIMIT VALUE:
NOT ESTABLISHED FOR PRODUCT. SEE SECTION III

EFFECTS OF ACUTE OVEREXPOSURE:

EYES-
EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.

SKIN/SKIN ABSORPTION-
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.

BREATHING-
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION AND CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS.

SWALLOWING-
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
07/14/92

TOXICOLOGICAL PROPERTIES

OTHER DATA - REGULATIONS CONTROLLING THE LEVEL OF WORKER EXPOSURE TO STYRENE

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<th>TWA (PPM)</th>
<th>STEL (PPM)</th>
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<td>CANADA (FEDERAL REGULATION)</td>
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NOTE 1: FOLLOWS ACGIH GUIDELINES OF TWA-50 PPM AND STEL-100 PPM.
NOTE 2: RESPIRATORS MUST BE WORN WHERE THE LEVEL OF STYRENE IS BETWEEN 50 PPM AND 100 PPM.
NOTE 3: RESPONSIBILITY OF EMPLOYER INCLUDES THE INVENTORY LISTING OF ALL MATERIALS USED, AND ALL RELATED HEALTH HAZARDS.

OVEREXPOSURE TO STYRENE HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS: LIVER ABNORMALITIES, KIDNEY DAMAGE AND LUNG DAMAGE.

STYRENE MONOMER, LD50 (ORL-RAT) 5000 MG/KG, LC50 (INH-RAT) 2800.

ACGIH - SHORT TERM EXPOSURE LIMIT (STEL) FOR STYRENE MONOMER IS 100 PPM. THE OSHA ACCEPTABLE CEILING CONCENTRATION IS 200 PPM. THE ACCEPTABLE MAXIMUM PEAK ABOVE THE ACCEPTANCE CEILING CONCENTRATION FOR AN 8-HOUR SHIFT IS 600 PPM FOR A MAXIMUM DURATION OF 5 MINUTES IN ANY 3 HOURS. NIOSH RECOMMENDS A LIMIT OF 50 PPM, 8-HOUR TWA; 100 PPM 15 MINUTE CEILING.

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS CLASSIFIED STYRENE IN GROUP 2B (POSSIBLY CARCINOGENIC TO HUMANS). THIS CLASSIFICATION IS NOT BASED ON ANY SIGNIFICANT NEW EVIDENCE THAT STYRENE MAY BE CARCINOGENIC, BUT RATHER ON A REVISED DEFINITION FOR GROUP 2B AND CONSIDERATION OF NEW DATA ON STYRENE OXIDE. A NUMBER OF LIFETIME ANIMAL STUDIES WITH STYRENE INCLUDING THOSE CONDUCTED IN THE NCI BIOASSAY PROGRAM HAVE NOT SHOWN STYRENE TO BE CARCINOGENIC.

SECTION VII: FIRST AID MEASURES

FIRST AID:
IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS
OCCASIONALLY, GET MEDICAL ATTENTION.

IF SWALLOWED- DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

IF BREATHED- IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION.

SECTION VIII: REACTIVITY DATA

HAZARDOUS POLYMERIZATION:
CAN OCCUR - AVOID EXPOSURE TO EXCESSIVE HEAT, PEROXIDES AND POLYMERIZATION CATALYSTS.

STABILITY:

INCOMPATIBILITY:
AVOID CONTACT WITH:
STRONG ALKALIES.
STRONG MINERAL ACIDS.

HAZARDOUS DECOMPOSITION PRODUCTS:
NOT APPLICABLE

SECTION IX: PREVENTIVE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL:
ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

LARGE SPILL:
ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELLED INTO CONTAINERS.

WASTE DISPOSAL METHOD:

SMALL SPILL:
DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, PROVINCIAL AND FEDERAL REGULATIONS.
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PREVENTIVE MEASURES

LARGE SPILL:
DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, PROVINCIAL AND FEDERAL
REGULATIONS.

RESPIRATORY PROTECTION:
IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS
EXCEEDED (SEE SECTION III); A NIOSH/MSHA APPROVED AIR SUPPLIED
RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL.
OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE
PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT
SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE
IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION:
PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST)
VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES:
WEAR RESISTANT GLOVES (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER).

EYE PROTECTION:
CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE
ADvised; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY
GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT:
TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS
CLOTHING AND BOOTS.

SHIPPING INFORMATION

SHIPPING NAME: RESIN SOLUTION

UN NUMBER: 1866
CLASS: 3.3(9.2)
Packing Group: III

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMTIED. SINCE
EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR
SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE
OBSERVED.

THE INFORMATION ACCUMULATED HERETIN IS BELIEVED TO BE ACCURATE BUT IS
NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT.
RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE
INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR
CIRCUMSTANCES.