

MATERIAL SAFETY DATA SHEET

MSDS DATE:07/27/07

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: M-BOND 610 ADHESIVE
SYNONYMS: N/A
PRODUCT CODES: 50410-30

MANUFACTURER: ELECTRON MICROSCOPY SCIENCES
DIVISION: 1560 INDUSTRY ROAD/P.O. BOX 550
ADDRESS: HATFIELD, PA 19440

EMERGENCY PHONE: 215-412-8400
CHEMTREC PHONE: 800-424 -4300

FAX PHONE: 215-412-8450

CHEMICAL NAME: N/A
CHEMICAL FAMILY: N/A

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT:
TETRAHYDROFURAN
EPOXY NOVOLAC
METHYL ETHYL KETONE

<u>CAS NO.</u>	<u>% WT</u>	<u>% VOL</u>	<u>SARA 313 REPORTABLE</u>
109-99-9	58.0-64.4	N/A	
28064-14-4	26.7-30.3	N/A	
78-93-3	5.3-8.9	N/A	

	<u>ppm</u>	<u>mg/m3</u>
OSHA PEL-TWA:	200	
OSHA PEL STEL :	250	
OSHA PEL CEILING:	200	

ACGIH TLV-TWA:	200
ACGIH TLV STEL:	300
ACGIH TLV CEILING:	300

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

ROUTES OF ENTRY: INHALATION, SKIN, INGESTION

POTENTIAL HEALTH EFFECTS

EYES: MAY CAUSE SEVERE IRRITATION OR BURNS. MAY CAUSE PAIN ON CONTACT. VAPORS MAY IRRITATE EYES.

SKIN: MAY CAUSE SEVERE IRRITATION OR BURNS. ABSORPTION INTO THE SKIN MAY CAUSE DERMATITIS. REPEATED CONTACT MAY CAUSE DRYING OR FLAKING OF SKIN. MAY RARELY CAUSE AN ALLERGIC REACTION.

INGESTION: MAY CAUSE HEADACHE, NAUSEA, VOMITING, DIZZINESS, GASTROINTESTINAL IRRITATION

INHALATION: EXCESSIVE EXPOSURE TO SOLVENTS MAY CAUSE RESPIRATORY IRRITATION AND CENTRAL NERVOUS SYSTEM DEPRESSION. SIGNS AND SYMPTOMS OF CENTRAL NERVOUS SYSTEM DEPRESSION, IN ORDER OF INCREASING EXPOSURE, ARE HEADACHE, DIZZINESS, DROWSINESS, AND INCOORDINATION. SIGNS AND SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE NAUSEA AND/OR VOMITING.

ACUTE HEALTH HAZARDS: N/A

CHRONIC HEALTH HAZARDS: CHRONIC OVER-EXPOSURE MAY RESULT IN KIDNEY AND/OR LIVER DAMAGE

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: SKIN DISORDERS, RESPIRATORY SYSTEM DISEASE.

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CARCINOGENICITY

OSHA: N/A

ACGIH: N/A

NTP: N/A

IARC: N/A

OTHER: N/A

SECTION 4: FIRST AID MEASURES

EYES: FLUSH WITH WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. IF IRRITATION OCCURS, SEEK MEDICAL ATTENTION

SKIN:FLUSH SKIN WITH WATER WHILE REMOVING CONTAMINATED CLOTHING. WASH AFFECTED AREA WITH SOAP AND WATER. LAUNDRER CONTAMINATED CLOTHING BEFORE REUSE.

INGESTION: CALL A PHYSICIAN, IF SWALLOWED, DO NOT INDUCE VOMITING UNLESS DIRECTED TO DO SO BY A PHYSICIAN. IF CONSCIOUS GIVE LARGE AMOUNTS OF WATER.

INHALATION: IF INHALED, MOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: N/A

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, UPPER: 11.8
(% BY VOLUME) **LOWER:** 1.8

FLASH POINT:

F: 6 DEG

C: -14 DEG

METHOD USED: PMCC

AUTOIGNITION TEMPERATURE:

F: 610 DEG

C: 320 DEG

NFPA HAZARD CLASSIFICATION

HEALTH: N/A

FLAMMABILITY: N/A

REACTIVITY: N/A

OTHER: N/A

HMS HAZARD CLASSIFICATION

HEALTH: N/A

FLAMMABILITY: N/A

REACTIVITY: N/A

PROTECTION: N/A

EXTINGUISHING MEDIA: ALCOHOL FOAM, DRY CHEMICAL, CARBON DIOXIDE, WATER MAY BE INEFFECTIVE

SPECIAL FIRE FIGHTING PROCEDURES: FIREFIGHTERS SHOULD WEAR PROPER PROTECTIV EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE AND EXPLOSION HAZARDS: VAPORS MAY FLOW ALONG SURFACES TO DISTANT IGNITION SOURCE AND FLASH BACK CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE. CONTACT WITH STRONG OXIDIZERS MAY CAUSE FIRE. MAY FORM EXPLOSIVE PEROXIDES, ESPECIALLY WHEN HEATED.

HAZARDOUS DECOMPOSITION PRODUCTS: N/A

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:

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KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA. WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. SHUT OFF IGNITION SOURCES; NO FLARES, SMOKING OR FLAMES IN AREA. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. KEEP OUT OF STORM DRAINS, SURFACE WATERS AND SOIL. USE CONTAINER FOR LATER DISPOSAL. FLUSH AREA WITH WATER.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: KEEP CONTAINERS TIGHTLY CLOSED. STORE IN A COOL, DRY, WELL-VENTILATED, FLAMMABLE LIQUID STORAGE AREA. TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES. KEEP AWAY FROM OPEN FLAMES AND SPARK PRODUCING EQUIPMENT. KEEP PRODUCT OUT OF LIGHT.

OTHER PRECAUTIONS: KEEP CONTAINERS TIGHTLY SEALED WHEN NOT IN USE. BOND TO GROUND CONTAINERS WHEN TRANSFERRING LIQUID. USE CAUTION WHEN OPENING CAP. AVOID PROLONGED EXPOSURE TO VAPORS AND SKIN CONTACT. AVOID BREATHING VAPORS

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

VENTILATION: USE ONLY WITH ADEQUATE VENTILATION

LOCAL EXHAUST: KEEP BELOW TLV

MECHANICAL: KEEP BELOW TLV

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 1000 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE IS RECOMMENDED ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS RECOMMENDED.

EYE PROTECTION: CHEMICAL SPLASH GOGGLES RECOMMENDED

SKIN PROTECTION: USE GLOVES IMPERVIOUS TO THIS MATERIAL WHEN PROLONGED OR FREQUENTLY REPEATED CONTACT COULD OCCUR. NEOPRENE GLOVES RECOMMENDED

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: IMPERVIOUS OVER-CLOTHING AS NEEDED TO PREVENT SKIN CONTACT. SAFETY SHOWER AND EYE WASH STATION IN LOCAL AREA.

WORK HYGIENIC PRACTICES: WASH THOROUGHLY AFTER HANDLING. WASH CLOTHING BEFORE REUSE.

EXPOSURE GUIDELINES: N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: COLORLESS

ODOR: ETHER-LIKE ODOR

PHYSICAL STATE: LIQUID

pH AS SUPPLIED: N/A

pH (Other): N/A

BOILING POINT:

F: 150 DEG

C: 66 DEG

MELTING POINT: N/A

F: N/A

C: N/A

FREEZING POINT: N/A

F: N/A

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C: N/A
VAPOR PRESSURE (mmHg): 129

@

F: 68 DEG

C: 20 DEG

VAPOR DENSITY (AIR = 1): 2.4

@

F: N/A

C: N/A

@

F: N/A

C: N/A

EVAPORATION RATE:

BASIS (=1): 8.0

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (con't)

SOLUBILITY IN WATER: APPRECIABLE (MORE THAN 50%)

PERCENT SOLIDS BY WEIGHT: N/A

PERCENT VOLATILE: N/A
BY WT/ BY VOL @

F: N/A

C: N/A

VOLATILE ORGANIC COMPOUNDS (VOC): N/A

WITH WATER: N/A LBS/GAL
WITHOUT WATER: N/A LBS/GAL

MOLECULAR WEIGHT: N/A

VISCOSITY: N/A

@

F: N/A

C: N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY: STABLE

CONDITIONS TO AVOID (STABILITY): HEAT, FLAME, OTHER SOURCES OF IGNITION, LIGHT AND AIR. AVOID SUBJECTING RESIN TO TEMPERATURES ABOVE 90 DEG F/32 DEG C DUE TO THE PRESENCE OF VOLATILE METHYL ETHYL KETONE

INCOMPATIBILITY (MATERIAL TO AVOID): ACIDS, STRONG OXIDIZING AGENTS, STRONG BASES, STRONG REDUCING AGENTS

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE, EXPLOSIVE PEROXIDES, PHENOLICS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR BY ITSELF, BUT MASSES OF MORE THAN ONE POUND OF PRODUCT PLUS AN ALIPHATIC AMINE WILL CAUSE IRREVERSIBLE POLYMERIZATION WITH CONSIDERABLE HEAT BUILDUP

CONDITIONS TO AVOID (POLYMERIZATION): N/A

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

TETRAHYDROFURAN

OSHA PEL: 200 PPM (TWA)

ACGIH TLV: 200 PPM

OTHER: 250 OOM (STEL)

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LD₅₀ IPR (RAT) 2900 MG/KG

LC₅₀ INHAL (RAT) 78 G/M³

EPOXY NOVOLAC

OTHER: LD₅₀ SKIN (RABBIT) > 2000 MG/KG

LD₅₀ ORAL (RAT) > 4000 MG/KG

METHYL ETHYL KETONE

OSHA PEL: 200 PPM(TWA)

ACGIH TLV: 200 PPM

OTHER: 300 PPM (STEL)

LD₅₀ ORAL (RAT) 2737 MG/KG

LD₅₀ IPR (MOUSE) 616 MG/KG

LD₅₀ SKIN (RABBIT) 13 G/KG

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: N/A

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: COMPLY WITH FEDERAL, STATE, LOCAL REGULATIONS. DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. ALL DISPOSAL METHODS MUST BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL ENVIRONMENTAL REGULATIONS. REGULATIONS MAY VARY IN DIFFERENT LOCATIONS. WASTE CHARACTERIZATIONS AND COMPLIANCE WITH APPLICABLE LAWS ARE THE RESPONSIBILITY OF THE WASTE GENERATOR

RCRA HAZARD CLASS: N/A

SECTION 13: DISPOSAL CONSIDERATIONS (con't)

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: FLAMMABLE LIQUIDS, N.O.S. (TETRAHYDROFURAN/ETHYL METHYL KETONE) (METHYL ETHYL KETONE)

HAZARD CLASS: 3

ID NUMBER: 1993

PACKING GROUP: II

LABEL STATEMENT: FLAMMABLE LIQUID

WATER TRANSPORTATION

PROPER SHIPPING NAME:

HAZARD CLASS:

SAME

ID NUMBER:

PACKING GROUP:

LABEL STATEMENTS:

AIR TRANSPORTATION

PROPER SHIPPING NAME:

HAZARD CLASS:

SAME

ID NUMBER:

PACKING GROUP:

LABEL STATEMENTS:

OTHER AGENCIES: N/A

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

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TSCA (TOXIC SUBSTANCE CONTROL ACT): ALL COMPONENTS OF THIS PRODUCT ARE LISTED IN THE TOXIC SUBSTANCE CONTROL ACT CHEMICAL SUBSTANCE INVENTORY (TSCA).

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): N/A

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): CONTAINS A TOXIC CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 TITLE III OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372

311/312 HAZARD CATEGORIES: N/A

313 REPORTABLE INGREDIENTS: METHYL ETHYL KETONE

STATE REGULATIONS: N/A

INTERNATIONAL REGULATIONS: N/A

SECTION 16: OTHER INFORMATION

OTHER INFORMATION: N/A

PREPARATION INFORMATION: N/A

DISCLAIMER: IN COMPLIANCE WITH THE OSHA HAZARD COMMUNICATION STANDARD, 29 C.F.R. 1910. 1200, WE ARE PROVIDING YOU WITH A MSDS FOR THE HAZARDOUS MATERIAL YOU ARE PURCHASING.

IT IS YOUR RESPONSIBILITY TO EDUCATE YOUR EMPLOYEES ON THE SAFE USE OF THE HAZARDOUS MATERIAL.

ELECTRON MICROSCOPY SCIENCES MAKES NO PRESENTATION AS TO THE ACCURACY OF THE INFORMATION IN THE MSDS. THE INFORMATION IS BELIEVED TO BE CORRECT; HOWEVER, YOU (THE CUSTOMER), SHOULD PERFORM YOUR OWN INVESTIGATION AND INDEPENDENT VERIFICATION. IF YOU RESELL THE PRODUCT, YOU ARE RESPONSIBLE TO FORWARD THE INFORMATION IN THE MSDS TO YOUR CUSTOMER.