

1254 Chestnut Street  
Newton, MA 02464-1418  
Tel: (617) 965-5511  
Fax: (617) 965-5818

**MATERIAL SAFETY DATA SHEET**

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**SECTION 1. CHEMICAL IDENTIFICATION -----**

CHEMICAL NAME: Organic Polymer Solution  
TRADE NAME: MMA(8.5)MAA Copolymer Series Resists  
Positive Radiation Sensitive Resists  
PRODUCT #: See Table 1 – Section 9

**SECTION 2. COMPOSITION-----**

HAZARDOUS  
INGREDIENTS: Ethyl Lactate (CAS: 97-64-3); 85-98% (See Table 1 – Section 9)  
OTHER  
INGREDIENTS: Poly(methylmethacrylate/methacrylic acid) (CAS: 25086-15-1)

**SECTION 3. HAZARD DATA-----**

INFLAMMABILITY: Flammable liquid.  
SKIN CONTACT: May cause irritation.  
EYE CONTACT: Irritating to eyes.  
INHALATION: Irritating to respiratory system.  
MUTAGENICITY: Unknown  
CARCINOGENICITY: Not listed in NTP, IARC, or OSHA as a carcinogen.  
TARGET ORGANS: Eyes, Skin, Respiratory System, Nervous System.

**SECTION 4. FIRST AID MEASURES-----**

INHALATION: If inhaled, remove to fresh air. Contact physician if necessary.  
INGESTION: Administer water or milk to dilute. Contact a physician or local poison center immediately. DO NOT induce vomiting.  
SKIN CONTACT: Wash with soap and water. Flush with large quantities of water. If irritation persists call a physician.  
EYE CONTACT: Rinse immediately with water, flush for 15 min. Contact a physician immediately.

**SECTION 5. FIRE FIGHTING MEASURES-----**

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, and foam.  
SPECIAL FIRE FIGHTING  
PRECAUTIONS: Wear self-contained breathing apparatus (SCBA) and personal protective equipment to prevent contact with skin and eyes.  
UNUSUAL FIRE OR  
EXPLOSION HAZARDS: Heat will build pressure and may rupture closed containers. Keep containers cool with water spray.

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**SECTION 6. ACCIDENTAL RELEASE PROCEDURES**

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**EVACUATION**

**PROCEDURES & SAFETY:** Wear appropriate protective gear for the situation. See Personal Protection information in Section 8. Eliminate all sources of ignition. Do not breathe vapors or dust.

**CLEANUP & DISPOSAL**

**OF SPILL:** Absorb with an inert absorbent. Sweep up and place in an appropriate closed container. Use clean, non-sparking tools to collect absorbed material.

**ENVIRONMENTAL &**

**REGULATORY REPORTING:** Do not flush to drain. If required proper authorities should be notified.

**SECTION 7. STORAGE AND HANDLING PRECAUTIONS**

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**STORAGE:** Store in tightly closed container in a cool, dry, well-ventilated environment away from ignition source.

**HANDLING:** Use only under yellow light.  
Keep away from heat, sparks, and flames.  
Use only with mechanical exhaust.  
Do not contact with skin, eyes, and clothing.  
Avoid prolonged or repeated contact with skin.  
Do not breathe vapors or mist.  
Wash with soap and water after handling.  
Have safety shower and eye wash available.  
Store and transfer under a blanket of dry inert gas.

**SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

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**RESPIRATORY**

**PROTECTION:** Under normal conditions, use of air-purifying (half-mask/full-face) respirator with cartridges/canisters approved for use against organic vapors, dust, mists and fumes is recommended.

**VENTILATION:** Local or general mechanical ventilation is required.

**SKIN PROTECTION:** Chemical resistant gloves are recommended.

**EYE PROTECTION:** Safety goggles are recommended.

**SECTION 9. PHYSICAL AND CHEMICAL DATA**

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**APPEARANCE:** Clear, colorless liquid  
**ODOR:** Mild, pleasant  
**BOILING POINT:** 153 °C (308 °F)  
**SPECIFIC GRAVITY:** See Table 1 below  
**VAPOR PRESSURE:** 2.7 mm @ 20 °C (68 °F)  
**VAPOR DENSITY:** 4.1 (air=1)

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H<sub>2</sub>O SOLUBILITY: See Table 1 below  
% VOLATILES: See Table 1 below  
EVAPORATION RATE: <1 (BuAc=1)  
FLASH POINT: 61 °C (141 °F) CC  
EXPLOSION LIMITS: 1.5% lower  
11.4% upper  
AUTO IGNITION TEMP: 400 °C (752 °F)

**Table 1**

Name	Product#	Specific Gravity	Volatiles (% by wt.)	H2O Solubility (% by wt)	VOC (g/L)
8.5EL2	M310002	1.030	98	98	1015
8.5EL3	M310003	1.032	97	97	1005
8.5EL4	M310004	1.035	96	96	995
8.5EL5	M310005	1.038	95	95	985
8.5EL6	M310006	1.04	94	94	980
8.5EL7	M310007	1.043	93	93	975
8.5EL8	M310008	1.045	92	92	965
8.5EL9	M310009	1.047	91	91	955
8.5EL10	M310010	1.048	90	90	945
8.5EL11	M310011	1.051	89	89	935
8.5EL12	M310012	1.052	88	88	925
8.5eEL12.5	M310512	1.053	87.5	87.5	920
8.5EL13	M310013	1.055	87	87	920
8.5EL14	M310014	1.057	86	86	910
8.5EL15	M310015	1.058	85	85	900

**SECTION 10. REACTIVITY DATA**

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STABILITY: Stable  
INCOMPATIBILITY: Oxidizing agents, Bases, Acids  
HAZARDOUS POLYMERIZATION: Will not occur  
HAZARDOUS COMBUSTION OR  
DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide

**SECTION 11. TOXICITY HAZARDS**

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**ACUTE EFFECTS:**

As Ethyl Lactate:

ORAL: LD50 (mouse): 2500 mg/kg

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DERMAL: LD50 (rabbit): 5000 mg/kg  
INHALATION: LC50 (rat, 8hr): >5400 mg/m<sup>3</sup>

**SECTION 12. ECOLOGICAL DATA**

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No data available at this time.

**SECTION 13. DISPOSAL CONSIDERATIONS**

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Comply with applicable local, state or international regulations regarding the proper disposal of this material and/or containers.

**SECTION 14. TRANSPORTATION INFORMATION**

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HAZARD CLASSIFICATION: Flammable Liquid  
SHIPPING NAME: Resin Solution  
UN NUMBER: UN 1866  
PACKING GROUP III

**SECTION 15. REGULATORY INFORMATION**

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**EUROPEAN INFORMATION**

**EINECS LISTED**

EC Nos: Ethyl Lactate 202-598-0

**RISK & SAFETY PHRASES**

R10 Flammable  
R37 Irritating to respiratory system.  
R41 Risk of serious damage to eyes.  
S24 Avoid contact with skin.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S39 Wear eye/face protection.

**INDICATIONS OF DANGER**

Xi Irritant

**US AND INTERNATIONAL INFORMATION**

HAZARDOUS LISTINGS: All ingredients appear on the TSCA Inventory of Chemical Substances, EINECS, Canadian DSL and the Japan ENCS Listing.

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SARA Title III: This product IS NOT subject to SARA Title III, Section 313 Reporting Requirements.

Calif. SCAQMD Rule 443.1 VOC's: See Table 1 – Section 9

SECTION 16. ADDITIONAL PRECAUTIONS AND COMMENTS

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National Fire Protection Association Hazard Ratings – NFPA:

- 2 Health Hazard Rating
- 2 Flammability Rating
- 0 Reactivity Rating

To the best of our knowledge, the above information is believed to be accurate but does not claim to be all-inclusive and is intended to be used only as a guide. The supplier makes no warranty of any kind, expressed or implied, concerning the use of this product and shall not be held liable for any damage resulting from handling or from contact with the above product. User assumes all risks incident to its use.

MSDS Revision Information:

A) Changed NFPA code from 2 3 0 to 2 2 0.