

**MICRO • CHEM**  
**SAFETY DATA SHEET**

PAGE 1 of 7  
Rev. Date: 18 December 2008

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION** -----

PRODUCT USE: Organic Polymer Solution  
TRADE NAME: MMA(17.5)MAA Copolymer Series Resists  
Positive Radiation Sensitive Resists  
PRODUCT #: See Table 1 – Section  
SUPPLIER: MicroChem Corporation  
90 Oak Street, PO Box 426  
Newton, MA 02464-0002  
TELEPHONE: (617) 965-5511  
FAX: (617) 965-5818  
CHEMTREC USA  
EMERGENCY #: (800) 424-9300  
CHEMTREC INTL  
EMERGENCY #: (703) 527-3887  
MSDS DATE: 06 November 2008  
REVISION DATE: 18 December 2008

**SECTION 2. HAZARDS IDENTIFICATION** -----

**Hazardous Classification**

Acute toxicity (inhalation – gas/vapour) – Category 3  
Acute toxicity (oral) – Category 4  
Flammable liquids - Category 4  
Serious eye damage/eye irritation - Category 2A  
Skin corrosion/irritation - Category 3  
Target organ systemic toxicant single exp - Category 3



Signal Word: **DANGER!**

**Hazards**

Combustible liquid.  
Toxic if inhaled.  
Causes serious eye irritation.  
Causes mild skin irritation.  
Harmful if swallowed.  
May cause drowsiness and dizziness.  
May cause respiratory irritation.

**Precautions**

Use only outdoors or in a well-ventilated area.  
Keep away from flames and hot surfaces.  
Do not breathe mist or vapors.  
Do not eat, drink or smoke when using this product.  
Wash hands thoroughly after handling.  
Wear protective gloves and eye/face protection.

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If skin irritation occurs, get medical advice/attention.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
Rinse mouth.  
Call a POISON CENTRE or doctor/physician if you feel unwell.  
Use extinguishing measures that are appropriate to local circumstances

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

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INGREDIENTS: Ethyl Lactate (CAS:97-64-3); 86-98%; (See Table 1-Section 9)  
Poly(methylmethacrylate/methacrylic acid) (CAS: 25086-15-1);  
2-14%

### SECTION 4. FIRST AID MEASURES

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INHALATION: If respiratory irritation or distress occurs remove victim to fresh air and seek medical attention.  
INGESTION: Do not induce vomiting unless instructed to do so by a physician. Wash out mouth with water and keep at rest. Seek immediate medical attention.  
SKIN CONTACT: In case of contact, immediately wash with plenty of soap and water for at least 5 minutes. Seek medical attention. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.  
EYE CONTACT: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek medical attention.

### SECTION 5. FIRE-FIGHTING MEASURES

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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.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

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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.

**SAFETY DATA SHEET**PAGE 3 of 7  
Rev. Date: 18 December 2008

PRODUCT USE: Organic Polymer Solution  
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ENVIRONMENTAL &  
REGULATORY REPORTING: Do not flush to drain. If required proper authorities should be notified.

**SECTION 7. HANDLING AND STORAGE**

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PRECAUTIONS: Store locked up. Store container tightly closed in well-ventilated place.

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/PERSONAL PROTECTION**

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OCCUPATIONAL  
EXPOSURE LIMITS: Ethyl lactate: None Established

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: General area dilution/exhaust ventilation.

SKIN PROTECTION: Chemical resistant gloves are recommended.

EYE PROTECTION: Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

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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)

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)

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**Table 1**

Name	Product#	Specific Gravity	Volatiles (% by wt.)	H2O Solubility (% by wt)	VOC (g/L)
17.5EL2	M410002	1.031	98	98	1015
17.5EL3	M410003	1.032	97	97	1005
17.5EL4	M410004	1.033	96	96	994
17.5EL5	M410005	1.036	95	95	985
17.5EL6	M410006	1.038	94	94	975
17.5EL7	M410007	1.040	93	93	965
17.5EL8	M410008	1.043	92	92	960
17.5EL9	M410009	1.047	91	91	955
17.5EL10	M410010	1.048	90	90	945
17.5EL11	M410011	1.050	89	89	935
17.5EL12	M410012	1.051	88	88	925
17.5EL13	M410013	1.053	87	87	920
17.5EL14	M410014	1.057	86	86	910

**SECTION 10. STABILITY AND REACTIVITY**

STABILITY: Stable  
 INCOMPATIBILITY: Oxidizing Agents, Acids, Bases  
 HAZARDOUS COMBUSTION OR  
 DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide

**SECTION 11. TOXICOLOGICAL INFORMATION**

**Routes of Entry:** Inhalation, ingestion, eye and skin contact

**Symptoms of Exposure:** Causes serious eye irritation. Causes mild skin irritation. May cause upper respiratory tract irritation, central nervous system depression, shortness of breath, drowsiness and confusion.

**Acute Toxicity****Acute Oral Toxicity**

Component: Ethyl lactate  
 LD50 rat >2000 mg/kg

**Acute Dermal Toxicity**

Component: Ethyl lactate  
 LD50 rabbit >5000 mg/kg

**Acute Inhalation Toxicity**

Component: Ethyl lactate  
 LC50 rat 5.4 mg/l

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**Specific Concentration Limits**

The values listed below represent the percentages of ingredients of unknown toxicity:

14% Acute oral toxicity  
14% Acute dermal toxicity  
14% Acute inhalation toxicity

**Skin corrosion/irritation**

Component: Ethyl lactate  
Acute Skin Irritation: Mildly irritating

**Serious eye damage/eye irritation**

Component: Ethyl lactate  
Acute Eye Irritation: Causes serious eye irritation

**Respiratory or Skin Sensitisation**

Component: Ethyl lactate  
Skin sensitization - Did not induce skin sensitization in guinea pigs.

**Carcinogenicity**

Component: Ethyl lactate  
Studies in laboratory animals indicate that this substance is not carcinogenic.

**Germ Cell Mutagenicity**

Component: Ethyl lactate  
No evidence of genotoxicity in standard bacterial and mammalian test systems in vitro.

**Specific Target Organ Systemic Toxicity (single exposure)**

Component: Ethyl lactate  
Central Nervous system

**Specific Target Organ Systemic Toxicity (repeated exposure)**

Component: Ethyl lactate  
Central Nervous System

**Toxicity to Reproduction**

Component: Ethyl lactate  
No adverse effects to reproduction or adverse developmental effects known.

**Aspiration Hazards**

No data found.

**SECTION 12. ECOLOGICAL INFORMATION**

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**Acute aquatic toxicity****Acute toxicity to fish**

Component: Ethyl lactate  
No relevant studies identified

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**Acute toxicity to aquatic invertebrates**

Component: Ethyl lactate  
48hr EC50 Daphnia magna: 683mg/L

**Acute toxicity to algae**

Component: Ethyl lactate  
No relevant studies identified

**Specific concentration limits**

The values listed below represent the percentages of ingredients of unknown toxicity.

0% Acute aquatic toxicity – fish

14 Acute aquatic toxicity – aquatic invertebrates

0% Acute aquatic toxicity - algae

**Chronic aquatic toxicity****Chronic toxicity to fish**

No data found

**Chronic toxicity to aquatic invertebrates**

No data found

**Chronic toxicity to algae**

No data found

**Persistence/Degradability**

Component: Ethyl Lactate  
Inherently biodegradable

**Bioaccumulation**

Component: Ethyl Lactate  
Not expected to bioaccumulate

**Mobility**

Component: Ethyl Lactate  
No data found

**SECTION 13. DISPOSAL CONSIDERATIONS**

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**Precautions**

CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied. Dispose of contents/container in accordance with local regulation.

**Disposal**

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

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#### 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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##### US AND INTERNATIONAL INFORMATION

Chemical Inventories: TSCA (US) – Components are listed or comply with TSCA regulations.  
EINECS/ELINCS/NLP (EU) – Components are listed or exempt.  
China – Components are listed.  
Japan – Components are listed.  
DSL/NDSL (Canada) – Components are listed.  
AICS (Australia) – Components are listed.  
Korea - Components are listed  
Philippines – Components are listed.

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. OTHER INFORMATION

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National Fire Protection Association Hazard Ratings – NFPA:

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

For additional information contact: [productsafety@microchem.com](mailto:productsafety@microchem.com)

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: Revised GHS precaution phrases.