MICRO • CHEM

SAFETY DATA SHEET

Rev. Date: 06 November 2008

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

PRODUCT USE:	Organic Polymer Solution
TRADE NAME:	495 PMMA Series Resists in Anisole Positive Radiation Sensitive Resists
PRODUCT #:	See Table 1 - Section 9
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

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

Hazardous Classification
Aquatic hazards aquatic env – Category 3
Acute toxicity (inhalation – gas/vapour) – Category 3
Flammable liquids - Category 3
Serious eye damage/eye irritation - Category 2B
Skin corrosion/irritation - Category 3
Target organ systemic toxicant single exp - Category 3

Signal Word: **DANGER!**

Hazards
Flammable liquid and vapour.
Toxic if inhaled.
Causes eye irritation.
Causes mild skin irritation.
Harmful to aquatic life.
May cause drowsiness and dizziness.
May cause respiratory irritation.

Precautions
Avoid release to the environment.
Use only outdoors or in a well-ventilated area.
Do not breathe mist or vapors.
Keep away from heat, sparks and open flame. - No smoking.
Use explosion-proof equipment.
Wear protective gloves and eye/face protection.
Take precautionary measures against static discharge.

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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.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
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 ----------

INGREDIENTS: Anisole (CAS: 100-66-3); 84-99% (See Table 1 – Section 9)
Poly(methylmethacrylate) (CAS: 9011-14-7); 1-16%

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

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----------

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide
SPECIAL FIRE FIGHTING PRECAUTIONS: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Remove all ignition sources if it can be done safely.
UNUSUAL FIRE OR EXPLOSION HAZARDS: Product will burn under fire conditions. Containers may explode (due to build-up of pressure) when exposed to extreme heat. Vapors may travel a considerable distance to a source of ignition and flash back along vapor trail.

SECTION 6. ACCIDENTAL RELEASE MEASURES----- ----------

EVACUATION PROCEDURES & SAFETY: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

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CLEANUP & DISPOSAL OF SPILL: Absorb with an inert absorbent. Sweep up and place in an appropriate closed container (see Section 7). Clean up residual material by washing area with water. Collect washings for disposal.

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

SECTION 7. HANDLING AND STORAGE

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 sources.

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

OCCUPATIONAL EXPOSURE LIMITS: Anisole: 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: PVC protective gloves are highly 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

APPEARANCE: Clear to straw colored liquid
ODOR: Strong
BOILING POINT: 154 ºC (309 ºF)
SPECIFIC GRAVITY: See Table 1 below

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VAPOR PRESSURE: 13 mm @ 42 ºC (108 ºF)
VAPOR DENSITY: 3.7 (air=1)
H_2O SOLUBILITY: Slightly soluble.
% VOLATILES: See Table 1 below
EVAPORATION RATE: 0.1 (BuAc=1)
FLASH POINT: 44 ºC (111 ºF) CC
AUTOIGNITION TEMP: 475 ºC (887 ºF)
EXPLOSION LIMITS: unk. Lower, unk. Upper

Table 1

Name	Product #	Specific Gravity	Volatiles (% by wt.)	VOC (g/L)
495A1	M130001	0.995	99	985
495A2	M130002	0.997	98	975
495A3	M130003	0.999	97	970
495A4	M130004	1.001	96	960
495A4.5	M130504	1.002	95.5	957
495A5	M130005	1.003	95	955
495A5.5	M130505	1.004	94.5	950
495A6	M130006	1.005	94	945
495A7	M130007	1.007	93	935
495A7.5	M130507	1.008	92.5	930
495A8	M130008	1.009	92	930
495A8.5	M130508	1.010	91.5	925
495A9	M130009	1.011	91	920
495A10	M130010	1.013	90	910
495A11	M130011	1.014	89	900
495A15	M130015	1.018	85	865
495A15.5	M130515	1.019	84.5	860

SECTION 10. STABILITY AND REACTIVITY----------

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

SECTION 11. TOXICOLOGICAL INFORMATION----------

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

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

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Acute Toxicity

Acute Oral Toxicity
Component: Anisole
LD50 rat 3700 mg/kg

Acute Dermal Toxicity
Component: Anisole
LD50 rabbit >5000 mg/kg

Acute Inhalation Toxicity
Component: Anisole
LC50 rat 5 mg/l

Specific Concentration Limits
The values listed below represent the percentages of ingredients of unknown toxicity:
16% Acute oral toxicity
16% Acute dermal toxicity
16% Acute inhalation toxicity

Skin corrosion/irritation
Component: Anisole
Acute Skin Irritation: Mildly irritating

Serious eye damage/eye irritation
Component: Anisole
Acute Eye Irritation: Causes eye irritation

Respiratory or Skin Sensitisation
Component: Anisole
Skin sensitization - Did not induce skin sensitization in guinea pigs.

Carcinogenicity
Component: Anisole
Studies in laboratory animals indicate that this substance is not carcinogenic.

Germ Cell Mutagenicity
Component: Anisole
No evidence of genotoxicity in standard bacterial and mammalian test systems in vitro.

Specific Target Organ Systemic Toxicity (single exposure)
Component: Anisole
Central Nervous system

Specific Target Organ Systemic Toxicity (repeated exposure)
Component:Anisole
Central Nervous System

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Toxicity to Reproduction
Component: Anisole
No adverse effects to reproduction or adverse developmental effects known.

Aspiration Hazards
No data found.

SECTION 12. ECOLOGICAL INFORMATION----------

Acute aquatic toxicity

Acute toxicity to fish
Component: Anisole
48 hr LC50 Cyprinus carpio 120 mg/L

Acute toxicity to aquatic invertebrates
Component: Anisole
24 hr EC50 Daphnia magna: 40 mg/L

Acute toxicity to algae
Component: Anisole
96 hr EC50 Green Algae 162 mg/l

Specific concentration limits
The values listed below represent the percentages of ingredients of unknown toxicity.
16% Acute aquatic toxicity – fish
16% Acute aquatic toxicity – aquatic invertebrates
16% 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

Persistance/Degradability
Component: Anisole
Inherently biodegradable

Bioaccumulation
Component: Anisole
Not expected to bioaccumulate

Mobility
Component: Anisole
No data found

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SECTION 13. DISPOSAL CONSIDERATIONS

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.

SECTION 14. TRANSPORTATION INFORMATION

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

SECTION 15. REGULATORY INFORMATION

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

National Fire Protection Association Hazard Ratings – NFPA:

1 Health Hazard Rating
2 Flammability Rating
0 Reactivity Rating

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For additional information contact: **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: NEW