SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT USE: Organic Resin Solution
LICENSED NAME: SU-8 2000 Series 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
EMERGENCY #: (800) 424-9300
EMERGENCY #: (703) 527-3887
SDS DATE: 06 November 2008
REVISION DATE: 13 April 2009

SECTION 2. HAZARDS IDENTIFICATION

Hazardous Classification
Acute hazards aquatic env – Category 2
Acute toxicity (oral) - Category 4
Acute toxicity (inhalation – gas/vapour) – Category 4
Inhalable liquids - Category 3
Mutation - Category 2
Mutagenic / Carcinogenic – Category 2
Eye irritation - Category 2
Eye sensitization – Category 1
Target organ systemic toxicant single exp - Category 3

Signal Word: WARNING!

Hazards
Toxic to aquatic life.
Noxious liquid and vapour may cause serious eye irritation.
Noxious liquid and vapour may cause skin irritation.
Noxious liquid and vapour may cause respiratory irritation.
May cause allergic contact dermatitis.
May cause drowsiness and dizziness.
Expected of causing genetic defects. 
SAFETY DATA SHEET

HEMICAL NAME: Organic Resin Solution
TRADE NAME: SU-8 2000 Series Resists
PRODUCT #: See Table 1 – Section 9

PRECAUTIONS
- Avoid release to the environment.
- Use only outdoors or in a well-ventilated area.
- Do not breathe mist or vapors.
- Do not eat, drink or smoke when using this product.
- Wash hands thoroughly after handling.
- 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.

The case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Take off contaminated clothing as wash before re-use.
Contaminated clothing should not be allowed out of the workplace.
Use mouthwash.
Call a POISON CENTRE or doctor/physician if you feel unwell.
Skin irritation or rash occurs, seek medical advice/attention.
Use extinguishing measures that are appropriate to local circumstances.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS:
- Cyclopentanone (CAS: 120-92-3); 23-96%.
- Mixed Triaryl·sulphonium/ Hexafluoroantimonate Salt; (CAS: 89452-37-9)/(CAS: 71449-78-0); 0.3-5%
- Propylene Carbonate (CAS: 108-32-7); 0.3-5%
- Epoxy Resin (CAS: 28906-96-9); 3-75%

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 15 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, alcohol foam, and universal foam.
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CHEMICAL NAME: Organic Resin Solution
TRADE NAME: SU-8 2000 Series Resists
PRODUCT #: See Table 1 – Section 9

SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Suitable for use with water. Do not use water mist.

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.

PRODUCT 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

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

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 container tightly closed in well-ventilated place.

STORAGE: Store in tightly closed container in a cool, dry, well-ventilated environment away from direct sunlight and ignition sources. Recommended container materials are polyethylene or glass.

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. Severe eye irritant. Avoid prolonged or repeated contact with skin. Do not breathe vapors or mist. Wear heavy rubber gloves. Wash with soap and water after handling. Have safety shower and eye wash available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

PPE: None Established

RESPIRATORY PROTECTION: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in
SAFETY DATA SHEET

CHEMICAL NAME: Organic Resin Solution
TRADE NAME: SU-8 2000 Series Resists
PRODUCT #: See Table 1 – Section 9

VENTILATION: accordance with the appropriate regulatory standards and/or industrial recommendations.
SKIN PROTECTION: General area dilution/exhaust ventilation.
EYE PROTECTION: Skin contact should be minimized through the use of gloves and suitable long-sleeved clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Pale yellow to clear
ODOR: Slightly sweet
SPECIFIC GRAVITY: 1.30 °C (266 °F)
VAPOR PRESSURE: see Table 1
SOLUBILITY: 8.7 mm @ 20 °C (68 °F)
VOLATILES: Slightly soluble
VAPORATION RATE: see Table 1
FREEzing POINT: 1 (BuAc-1)
AUTOIGNITION TEMP: 30 °C (86 °F) TCC
STABILITY LIMITS: 550 °C (1022 °F)
SbF₆ Salt (% by wt.): 1.3 lower (vol./vol. %)
Sb (% by wt.): Unk. upper

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<th>Product #</th>
<th>Specific Gravity</th>
<th>Volatiles (% by wt.)</th>
<th>VOC (g/L)</th>
<th>SbF₆ Salt (% by wt.)</th>
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</table>

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Stable

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INCOMPATIBILITY: Strong Oxidizing Agents, Strong Bases, Strong Acids, Strong Reducing Agents, Iron, Hydrazine
May occur. Avoid extreme pH.

HAZARDOUS POLYMERIZATION OR DECOMPOSITION PRODUCTS: Oxides of carbon.

SECTION 11. TOXICOLOGICAL INFORMATION

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

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

Acute Toxicity

Acute Oral Toxicity
Component: Cyclopentanone
LD50 rat 1180 mg/kg
Component: Propylene Carbonate
LD50 rat 20,700 mg/kg
Component: Epoxy Resin
LD50 rat: >2,000 mg/kg

Acute Dermal Toxicity
Component: Cyclopentanone
LD50 rabbit >5000 mg/kg
Component: Propylene Carbonate
LD50 Rabbit > 20,000 mg/kg
Component: Epoxy Resin
LD50 Rabbit >2,000 mg/kg

Acute Inhalation Toxicity
Component: Cyclopentanone
LC50 rat 19.5 mg/l
Component: Propylene Carbonate
No data found
Component: Epoxy Resin
LC50 Rat >5.0 mg/l

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

Skin corrosion/irritation
Component: Cyclopentanone
Acute Skin Irritation: skin irritation, 500mg, rabbit. Mildly irritating

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Component: Propylene Carbonate
Acute Skin Irritation: Moderate skin irritant

Component: Mixed Triarylsulfonium/ Hexafluoroantimonate Salt
Acute Skin Irritation: Slight skin irritation

Component: Epoxy Resin
Acute Skin Irritation: Skin irritant

Serious eye damage/eye irritation
Component: Cyclopentanone
Acute Eye Irritation: eye irritation, 100mg, rabbit. Severely irritating.

Component: Propylene Carbonate
Acute Eye Irritation: Moderate eye irritation

Component: Mixed Triarylsulfonium/ Hexafluoroantimonate Salt
Acute Eye Irritation: Eye Irritant

Component: Epoxy Resin
Acute Eye Irritation: Eye Irritant

Respiratory or Skin Sensitisation
Component: Cyclopentanone
Skin sensitization – guinea pig – not a sensitizer
Skin sensitization – human – not a sensitizer

Component: Propylene Carbonate
Skin sensitization - Did not induce skin sensitization in human patch tests.

Component: Mixed Triarylsulfonium/ Hexafluoroantimonate Salt
Skin sensitization: May cause skin sensitization

Component: Epoxy Resin
Skin sensitization: May cause skin sensitization

Carcinogenicity
Component: Cyclopentanone
Not considered carcinogenic by NTP, IARC, ACGIH or OSHA.

Genetic Cell Mutagenicity
Component: Cyclopentanone
Ames Test – negative with and without metabolic activation

Component: Mixed Triarylsulfonium/ Hexafluoroantimonate Salt
Ames Test - This material was mutagenic in the Ames bacterial assay. It is inactive, however, in the in vivo mouse micronucleus test.

Component: Epoxy Resin
Ames Test – This material was mutagenic in the Ames bacterial assay.

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

Specific Target Organ Systemic Toxicity (repeated exposure)
Component: Cyclopentanone
Central Nervous System
SAFETY DATA SHEET

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

Respiration Hazards
No data found.

SECTION 12. ECOLOGICAL INFORMATION

Acute aquatic toxicity
Acute toxicity to fish
Component: Cyclopentanone
- 48 hr LC50 Leuciscus idus melanotus: 2950 mg/L
Component: Propylene Carbonate
- 96-h LC50 (Cyprinus Carpi): >1000 mg/L
Component: Epoxy Resin
- LC50 >100 mg/L (estimated)

Acute toxicity to aquatic invertebrates
Component: Cyclopentanone
- 24 hr EC50 Daphnia magna: 1435 mg/L
Component: Propylene Carbonate
- 48 hr EC50 Daphnia magna: >500 mg/L
Component: Epoxy Resin
- LC50 >100 mg/L (estimated)

Acute toxicity to algae
Component: Cyclopentanone
- 72 hr EC50 Scenedesmus subspicatus >100 mg/l
Component: Propylene Carbonate
- 72 hr EC50 green algae >500 mg/l
Component: Epoxy Resin
- LC50 >100 mg/L (estimated)

Specific concentration limits
All values listed below represent the percentages of ingredients of unknown toxicity.
- Acute aquatic toxicity – fish
- Acute aquatic toxicity – aquatic invertebrates
- Acute aquatic toxicity - algae

Chronic aquatic toxicity
Component: Mixed Triaryl sulphonium/ Hexafluoroantimonate Salt-Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Avoid release to the environment.
- Chronic toxicity to fish
  No data found
- Chronic toxicity to aquatic invertebrates
  No data found

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Chronic toxicity to algae
No data found

Persistence/Degradability
Component: Cyclopentanone
Inherently biodegradable
Component: Epoxy Resin
Expected to not be readily biodegradable

Bioaccumulation
Component: Cyclopentanone
Not expected to bioaccumulate
Component: Epoxy Resin
Has the potential to bioaccumulate

Mobility
Component: Cyclopentanone
No data found

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.
Reseal contents/container in accordance with local regulation.

Carefully comply with applicable local, state or international regulations regarding the proper disposal of waste 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

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 or comply with inventory requirements.
Japan – Components are listed or comply with inventory requirements.
DSL/NDSL (Canada) – Components are listed.
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AICS (Australia) – Components are listed or comply with inventory requirements.
Korea - Components are listed or comply with inventory requirements.

SARA Title III:

This product contains a chemical subject to SARA Title III, Section 313 Reporting Requirements:
Mixed Triarylsulfonium/ Hexafluoroantimonate Salt; (CAS: 89452-37-9)/(CAS: 71449-78-0)

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

SECTION 16. OTHER INFORMATION

National Fire Protection Association Hazard Ratings – NFPA:

2 Health Hazard Rating
3 Flammability Rating
0 Reactivity Rating

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. The user 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.

SDS Revision Information: REVISED Toxicological information for epoxy resin. Updated SDS classification.