

MICRO-CHEM
SAFETY DATA SHEET

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 Rev. Date: 13 April 2009

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

PRODUCT USE: Organic Resin Solution
 TRADE 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
 CHEMTREC USA
 EMERGENCY #: (800) 424-9300
 CHEMTREC INTL
 EMERGENCY #: (703) 527-3887
 MSDS 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
 Flammable liquids - Category 3
 Germ cell mutagenicity – Category 2
 Serious eye damage/eye irritation - Category 2A
 Skin corrosion/irritation - Category 2
 Skin Sensitizer – Category 1
 Target organ systemic toxicant single exp - Category 3



Signal Word: **WARNING!**

Hazards

Toxic to aquatic life.
 Flammable liquid and vapour
 Causes serious eye irritation.
 Causes skin irritation.
 Harmful if inhaled.
 Harmful if swallowed.
 May cause an allergic skin reaction.
 May cause drowsiness and dizziness.
 May cause respiratory irritation.
 Suspected of causing genetic defects.

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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.
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.
Take off contaminated clothing as wash before re-use.
Contaminated clothing should not be allowed out of the workplace.
Rinse mouth.
Call a POISON CENTRE or doctor/physician if you feel unwell.
If 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 Triarylsulfonium/ 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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**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.

**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

OCCUPATIONAL

EXPOSURE LIMITS: None Established

**RESPIRATORY
PROTECTION:**

When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in

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accordance with the appropriate regulatory standards and/or industrial recommendations.

VENTILATION: General area dilution/exhaust ventilation.

SKIN PROTECTION: Skin contact should be minimized through the use of gloves and suitable long-sleeved clothing.

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: Pale yellow to clear
 ODOR: Slightly sweet
 BOILING POINT: 130 °C (266 °F)
 SPECIFIC GRAVITY: see Table 1
 VAPOR PRESSURE: 8.7 mm @ 20 °C (68 °F)
 H₂O SOLUBILITY: Slightly soluble
 % VOLATILES: see Table 1
 EVAPORATION RATE: 1 (BuAc=1)
 FLASH POINT: 30 °C (86 °F) TCC
 AUTOIGNITION TEMP: 550 °C (1022 °F)
 FLAMMABILITY LIMITS: 1.3 lower (vol./vol. %)
 Unk. upper
 SbF₆ Salt (% by wt): see Table 1
 Sb (% by wt): see Table 1

Table 1

Name	Product#	Specific Gravity	Volatiles (% by wt.)	VOC (g/L)	SbF ₆ Salt (% by wt)	Sb (% by wt)
SU-8 2000.1	Y111004	1.00	94-98	960	<1.0 %	<1.0 %
SU-8 2000.2	Y111007	1.00	90-95	930	<1.0 %	<1.0 %
SU-8 2000.5	Y111014	1.07	85-90	920	<1.0 %	<1.0%
SU-8 2001	Y111022	1.100	80-85	860	1.1	<1.0%
SU-8 2002	Y111029	1.123	70-75	800	1.4	<1.0%
SU-8 2005	Y111045	1.164	50-55	640	2.2	<1.0%
SU-8 2007	Y111053	1.175	45-50	550	2.5	<1.0%
SU-8 2010	Y111058	1.187	40-45	500	2.8	<1.0%
SU-8 2015	Y111064	1.200	35-40	430	3.0	<1.0%
SU-8 2025	Y111069	1.219	30-35	380	3.3	<1.0%
SU-8 2035	Y111070	1.227	20-30	370	3.4	<1.0%
SU-8 2050	Y111072	1.233	20-30	345	3.4	<1.0%
SU-8 2075	Y111074	1.236	20-30	320	3.5	<1.0%
SU-8 2100	Y111075	1.237	20-30	310	3.6	<1.0%
SU-8 2150	Y111077	1.238	20-30	285	3.7	<1.0%

SECTION 10. STABILITY AND REACTIVITY-----

STABILITY: Stable

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INCOMPATIBILITY: Strong Oxidizing Agents, Strong Bases, Strong Acids, Strong Reducing Agents, Iron, Hydrazine
HAZARDOUS POLYMERIZATION: May occur. Avoid extreme pH.
HAZARDOUS COMBUSTION 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:
5% Acute oral toxicity
5% Acute dermal toxicity
5% 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.

Germ 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

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Toxicity to Reproduction

Component: Cyclopentanone

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: 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

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

5% Acute aquatic toxicity – fish

5% Acute aquatic toxicity – aquatic invertebrates

5% Acute aquatic toxicity - algae

Chronic aquatic toxicity

Component: Mixed Triarylsulfonium/ 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. 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 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 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 Toxicological information for epoxy resin. Updated GHS classification.

