

MICRO • CHEM
SAFETY DATA SHEET

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Rev. Date: 18 December 2008

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

PRODUCT USE: Organic Solvent Solution
TRADE NAME: MIBK/IPA
 Positive Radiation Resist Developer
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: 18 December 2008

SECTION 2. HAZARDS IDENTIFICATION -----

Hazardous Classification

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



Signal Word: **DANGER!**

Hazards

Highly flammable liquid and vapour
Toxic if inhaled.
Causes serious eye irritation.
Causes skin irritation.
May cause damage to organs through prolonged or repeated contact.
May cause drowsiness and dizziness.
May cause respiratory irritation.

Precautions

Avoid breathing mist or vapors.
Use only outdoors or in well-ventilated areas.
Keep away from heat, sparks and open flame. - No smoking.
Use explosion-proof equipment.
Wear protective gloves and eye/face protection.

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Take precautionary measures against static discharge.
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.
Take off contaminated clothing and wash before re-use.
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: Isopropyl Alcohol (CAS:67-63-0); 20-80%
Synonyms: 2-propanol, Isopropanol
Methyl Isobutyl Ketone (CAS: 108-10-1); 20-80%

SECTION 4. FIRST AID MEASURES

INHALATION: If inhaled, remove to fresh air. If patient has stopped breathing, give artificial respiration. If breathing is difficult give oxygen. Contact physician immediately.
INGESTION: If swallowed, DO NOT induce vomiting. Get medical attention immediately.
SKIN CONTACT: Rinse with water for 15 minutes while removing contaminated clothing and shoes. Wash affected area with soap and water. Wash contaminated clothing before reuse.
EYE CONTACT: Rinse immediately with water, flush for 15 min. lifting eyelids frequently. Get medical attention immediately.

SECTION 5. FIRE-FIGHTING MEASURES

EXTINGUISHING

MEDIA: Water fog, dry chemical, carbon dioxide, and alcohol foam.

SPECIAL FIRE FIGHTING PRECAUTIONS:

Wear self-contained breathing apparatus (SCBA) and personal protective equipment when exposed to products of combustion.

UNUSUAL FIRE OR EXPLOSION HAZARDS:

Heat will build pressure and may rupture closed containers. Keep containers cool with water spray. Vapor may travel a considerable distance to source of ignition and flash back. This material may produce a floating fire hazard.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

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. HANDLING AND STORAGE

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

STORAGE: Store container tightly closed in well ventilated place away from direct sunlight.

HANDLING: Flammable. Keep away from heat, sparks, and flames.
Take precautions against static discharge.
Do not breathe vapors or spray mist.
Use with adequate ventilation.
Do not contact with skin, eyes, and clothing.
Avoid prolonged or repeated exposure.
Wear chemical resistant (butyl or polyvinyl alcohol) gloves.
Wash with soap and water after handling.
Have safety shower and eye wash available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL

EXPOSURE LIMITS: Isopropyl Alcohol: ACGIH TLV 200 ppm 8hr TWA. 15 min STEL 400 ppm. OSHA PEL 400 ppm(980 mg/m³) 8hr TWA.

Methyl Isobutyl Ketone: ACGIH TLV 50 ppm 8hr TWA. 15 min STEL 75ppm. Notice of Intended Change: 30 ppm 8hr TWA. OSHA PEL: 100 ppm (410 mg/m³).

RESPIRATORY

PROTECTION: Use NIOSH approved respirator when ventilation is inadequate.
VENTILATION: Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

SKIN PROTECTION: Use protective clothing that is chemical resistant to this material.
Chemical resistant gloves (butyl or Polyvinyl Alcohol).

EYE PROTECTION: Tightly fitting safety goggles are highly recommended, or Safety glasses.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear colorless liquid
ODOR: Alcoholic Ketone
BOILING POINT: 82-116 °C (179-240 °F)
SPECIFIC GRAVITY: See Table 1 below
VAPOR PRESSURE: 14.5-30 mm @ 20 °C (68 °F)
VAPOR DENSITY: 2.2-3.5 (air=1)
H₂O SOLUBILITY: 70% @ 20 °C, by wt.
% VOLATILES: See Table 1 below
EVAPORATION RATE: 1.6-2.3 (BuAc=1)
FLASH POINT: 12-16°C (53-61°F) TCC
AUTOIGNITION TEMP: 456°C (852°F)
EXPLOSION LIMITS: 1.2% lower
12% upper

Table 1

Name	Product #	Specific Gravity	Volatiles (% by wt)	VOC (g/L)
M/I 1:4	M089020	0.788	100	788
M/I 1:3	M089025	0.789	100	789
M/I 1:2	M089033	0.790	100	790
M/I 1:1	M089050	0.793	100	793
M/I 2:1	M089067	0.795	100	795
M/I 3:1	M089075	0.796	100	796
M/I 4:1	M089080	0.797	100	797

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Stable
INCOMPATIBILITY: Strong Acids, Strong Bases, Strong Oxidizing Agents, Caustics, Amines, Alkanolamines, Aldehydes, Chlorinated compounds.
HAZARDOUS POLYMERIZATION: Will not occur
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide and other organic compounds.

SECTION 11. TOXICOLOGICAL INFORMATION

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

Symptoms of Exposure: Causes severe eye irritation. Causes skin irritation. Toxic if inhaled. May cause upper respiratory tract irritation, central nervous system depression, shortness of breath, drowsiness and confusion. Prolonged, repeated exposure to high concentrations can cause adverse effects to liver and kidney.

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Acute Toxicity

Acute Oral Toxicity

Component: Isopropyl Alcohol
LD50 rat 4,054 mg/kg
Component: Methyl Isobutyl Ketone
LD50 rat 2,080 mg/kg

Acute Dermal Toxicity

Component: Isopropyl Alcohol
LD50 rabbit 12,800 mg/kg
Component: Methyl Isobutyl Ketone
LD50 rabbit 16,000 mg/kg

Acute Inhalation Toxicity

Component: Isopropyl Alcohol
LC50 rat 72.6 mg/l
Component: Methyl Isobutyl Ketone
LC50 rat 8.2 mg/l

Specific Concentration Limits

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

0% Acute oral toxicity
0% Acute dermal toxicity
0% Acute inhalation toxicity

Skin corrosion/irritation

Component: Isopropyl Alcohol
Acute Skin Irritation: this substance is a mild skin irritant
Component: Methyl Isobutyl Ketone
Acute Skin Irritation: this substance is moderately irritating to the skin.

Serious eye damage/eye irritation

Component: Isopropyl Alcohol
Acute Eye Irritation: Cause eye irritation.
Component: Methyl Isobutyl Ketone
Acute Eye Irritation: Cause eye irritation

Respiratory or Skin Sensitisation

Component: Isopropyl Alcohol
Skin sensitization - Does not induce skin sensitization in guinea pig Buehler test
Component: Methyl Isobutyl Ketone
Skin sensitization - Did not cause sensitization in guinea pig maximization test.

Carcinogenicity

Component: Isopropyl Alcohol
Studies in laboratory animals indicate that this substance is not carcinogenic.

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Germ Cell Mutagenicity

Component: Isopropyl Alcohol
Ames Test – Negative with and without metabolic activation.
Component: Methyl Isobutyl Ketone
Ames Test – Negative with and without metabolic activation.

Specific Target Organ Systemic Toxicity (single exposure)

Component: Isopropyl Alcohol
Central Nervous System
Component: Methyl Isobutyl Ketone
Central Nervous System

Specific Target Organ Systemic Toxicity (repeated exposure)

Component: Isopropyl Alcohol
Central Nervous System, Liver
Component: Methyl Isobutyl Ketone
Central Nervous System, Liver, Kidney

Toxicity to Reproduction

Component: Isopropyl Alcohol
This substance is not expected to cause adverse reproductive effects at dose levels that are not also toxic to the parent.
Component: Methyl Isobutyl Ketone
This substance is not expected to cause adverse reproductive effects at dose levels that are not also toxic to the parent.

Aspiration Hazards

No data found.

SECTION 12. ECOLOGICAL INFORMATION

Acute aquatic toxicity**Acute toxicity to fish**

Component: Isopropyl Alcohol
96-h LC50 (Pimephales promelas): 9,640 mg/L
Component: Methyl Isobutyl ketone
96-h LC50 (Pimephales promelas): 505mg/L

Acute toxicity to aquatic invertebrates

Component: Isopropyl Alcohol
48-h EC50 Daphnia magna: 13,299mg/L
Component: Methyl Isobutyl Ketone
48-h EC50 Daphnia magna: 170mg/L

Acute toxicity to algae

Component: Isopropyl Alcohol
96-h EC50 Algae: 1,000 mg/L

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Component: Methyl Isobutyl ketone
96-h EC50 Daphnia magna: 400mg/L

Specific concentration limits

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

0% Acute aquatic toxicity – fish

0% 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: Isopropyl Alcohol and Methyl Isobutyl Ketone
This material is readily biodegradable.

Bioaccumulation

Component: Isopropyl Alcohol and Methyl Isobutyl Ketone
Not expected to bioaccumulate in aquatic organisms.

Mobility

Component: Isopropyl Alcohol and Methyl Isobutyl Ketone
Rapid dissipation in soil expected.

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. Dispose of contents/container in accordance with local regulations.

SECTION 14. TRANSPORTATION INFORMATION

HAZARD CLASSIFICATION: Flammable Liquid
SHIPPING NAME: Flammable Liquid, NOS (Isopropanol, Methyl Isobutyl Ketone)
UN NUMBER: UN 1993
PACKING GROUP: II

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SECTION 15. REGULATORY INFORMATION

US AND INTERNATIONAL INFORMATION

Chemical Inventories: TSCA (US) – Listed.
EINECS/ELINCS – Listed.
China – Listed.
Japan – Listed.
DSL/NDSL (Canada) – Listed.
AICS (Australia) – Listed.
Korea – Listed.
Philippines - Listed

SARA Title III: This product contains a substance subject to SARA Title III, Section 313 Reporting Requirements: Methyl Isobutyl Ketone, Isopropanol

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: NEW