SHIPLEY

MATERIAL SAFETY DATA SHEET
MICROPOSIT SJR 5440 PHOTO RESIST

41010 2.00 US Current 18.04.1997

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code	41010
Trade Name	MICROPOSIT SJR 5440 PHOTO RESIST
Manufacturer/Supplier	Shipley Company
Address	455 Forest St. Marlborough, Massachusetts 01752
Phone Number	(508) 481-7950
Emergency Phone Number	(508) 481-7950
Chemtrec #	(800) 424-9300
MSDS first issued	10 October 1996
MSDS data revised	18 April 1997
Prepared By:	Tammy Blakeslee, C.I.H.
Local Sales Company	Shipley Company, 455 Forest Street, Marlboro, MA 01752 (508-481-7950)

2. COMPOSITION/INFORMATION ON THE INGREDIENTS

Components in Product

Component Name	CAS# / Codes	Concentration
1. Propylene glycol monomethyl ether acetate	108-65-6	65.00 - 66.00
2. Cresol Novolak Resin		30.00 - 40.00
3. Dye Compound		0.01 - 1.00
4. cresol	1319-77-3	0.30 - 0.40
5. Diazo Photoactive Compound		1.00 - 10.00
6. Organic Siloxane	67762-85-0	0.01 - 1.00

3. HAZARD IDENTIFICATION

Main Hazards	- Irritant - Combustible - Nervous System - Skin - Eye - Kidney - Liver
Routes of Entry	Inhalation, ingestion, eye and skin contact, absorption.
Carcinogenic Status	Not considered carcinogenic by NTP, IARC and OSHA
Target Organs	- Nervous System - Skin - Eye - Liver - Kidney
Health Effects - Eyes	Liquid or vapor may cause pain, transient irritation and superficial corneal effects.
Health Effects - Skin	Material may cause slight irritation on prolonged or repeated contact. Repeated and/or prolonged contact may lead to: - drowsiness - liver damage - kidney damage
Health Effects - Ingestion	A large dose may have the following effects: - drowsiness - liver damage - kidney damage
Health Effects - Inhalation	Exposure to vapor at high concentrations may have the following effects: - irritation of nose, throat and respiratory tract - liver damage -

3. HAZARD IDENTIFICATION (continued)

kidney damage

4. FIRST AID MEASURES

First Aid - Eyes	Immediately flush the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.
First Aid - Skin	Wash skin with water. Obtain medical attention if blistering occurs or redness persists.
First Aid - Ingestion	Wash out mouth with water. Obtain medical attention.
First Aid - Inhalation	Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.
Advice to Physicians	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media	Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.
Special Fire-Fighting Procedures	This product may give rise to hazardous vapors in a fire. Vapors can travel a considerable distance to a source of ignition and result in flashback.
Unusual Fire & Explosion Hazards	Pressure may build up in closed containers with possible liberation of combustible vapors.
Protective Equipment for Fire-Fighting	Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures	Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal. Finally flush area with plenty of water.
Personal Precautions	Wear appropriate protective clothing. Wear respiratory protection. Eliminate all sources of ignition.
Environmental Precautions	Prevent the material from entering drains or water courses.

7. HANDLING AND STORAGE

Handling	Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.

7. HANDLING AND STORAGE (continued)

Storage	Store in original containers. Store away from sources of heat or ignition. Storage area should be: - cool - dry - well ventilated - out of direct sunlight

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Standards 1. **Propylene glycol monomethyl ether acetate**	An exposure limit of 30ppm 8h TWA is recommended. An exposure limit of 90ppm 10 min TWA is recommended.
Engineering Control Measures	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
Respiratory Protection	Respiratory protection if there is a risk of exposure to high vapor concentrations. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
Hand Protection	Butyl rubber gloves.
Eye Protection	Chemical goggles.
Body Protection	Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Viscous liquid
Color	Red
Odor	Sweet
VOC (g/l)	672.07
Specific Gravity	1.02
pH	Neutral
Boiling Range/Point (°C/F)	145.8/295
Flash Point (PMCC) (°C/F)	43-46 / 110-114
Explosion Limits (%)	Lower limit 1.5 at 20 °C. Upper limit 7.0 at 20 C..
Solubility in Water	Insoluble.
Vapor Density (Air = 1)	Heavier than air.
Evaporation Rate	Slower than ether
Vapor Pressure	Propylene Glycol Monomethyl Ether Acetate: 3.7 mmHg at 20 °C.

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.

10. STABILITY AND REACTIVITY (continued)

Conditions to Avoid	- High temperatures - Static discharge
Incompatibilities	- Oxidizing agents
Hazardous Polymerization	Will not occur.
Hazardous Decomposition Products	Combustion will generate: - carbon monoxide - Carbon Dioxide - phenols - toxic fluorine compounds - aldehydes - oxides of nitrogen - acrid smoke and irritating fumes

11. TOXICOLOGICAL INFORMATION

Acute Data	Propylene Glycol Monomethyl Ether Acetate: Oral LD50 (rat) mg/kg. Dermal LD50 (rabbit) 5000mg/kg.
Chronic/Subchronic Data	No adverse effects are expected.
Genotoxicity	It was not mutagenic when tested in bacterial or mammalian systems.
Reproductive/Developmental Toxicity	Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.
Additional Data	None known.

12. ECOLOGICAL INFORMATION

Mobility	Propylene Glycol Monomethyl Ether Acetate: Koc is 0 - 50.
Persistence/Degradability	The product is partially or slowly biodegradable. BOD20 greater than 40%
Bio-accumulation	No data.
Ecotoxicity	The product is rated as practically non-toxic to aquatic species. Tests on the following species gave a LC50 of 161mg/litre: - fathead minnows Tests on the following species gave a LC50 of 408mg/litre: - daphnia

13. DISPOSAL CONSIDERATIONS

Product Disposal	Incineration is the recommended method of disposal. Dispose of in accordance with all applicable local and national regulations.
Container Disposal	Labels should not be removed from containers until they have been cleaned. Empty containers may contain hazardous residues. Dispose of containers with care.

13. DISPOSAL CONSIDERATIONS (continued)

14. TRANSPORT INFORMATION

DOT Ground:	Not Regulated per 49 CFR 173.150(f)(2)
UN Proper Shipping Name	Flammable liquid, n.o.s.
UN Class	(3) Flammable Liquid
UN Number	UN1993
UN Packaging Group	III
N.O.S. 1:	Propylene Glycol Monomethyl Ether Acetate
N.O.S. 2:	
Subsidiary Risks	None.
ADR/RID Substance Identification Number	CLASS 3 - 31(c)
RQ	Cresol (100#)
Marine Pollutant	No.

15. REGULATORY INFORMATION

TSCA Listed	Yes
TSCA Exemptions	
WHMIS Classification	D.2.B B.3
MA Right To Know Law	All components have been checked for inclusion on the Massachusetts Substance List (MSL). Those components present at the de minimus concentration have been identified in the hazardous ingredients section of the MSDS.
California Proposition 65	This product contains the following chemicals that have been found by the State of California to cause cancer, birth defects or other reproductive harm: - Toluene
SARA TITLE III-Section 311/312 Categorization (40 CFR 370)	Immediate, delayed, flammability hazard
SARA TITLE III-Section 313 (40 CFR 372)	This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Rating- FIRE	2
NFPA Rating- HEALTH	2
NFPA Rating- REACTIVITY	0
NFPA Rating- SPECIAL	None.
Revisions Highlighted	Data not available.
Abbreviations	CAS#: Chemical Abstract Services Number ACGIH: American Conference of Governmental Industrial Hygienists OSHA: Occupational Safety and Health Administration

16. OTHER INFORMATION (continued)

TLV:	Threshold Limit Value
PEL:	Permissible Exposure Limit
STEL:	Short Term Exposure Limit
NTP:	National Toxicology Program
IARC:	International Agency for Research on Cancer
R:	Risk
S:	Safety
LD50:	Lethal Dose 50%
LC50:	Lethal Concentration 50%
BOD:	Biological Oxygen Demand
Koc:	Soil Organic Carbon Partition Coefficient.

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