ELECTRONIC MATERIALS

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

MICROPOSIT(TM) STR(TM) 1075 Positive Photoresist

Revision date: 04/09/2004

Supplier

Rohm and Haas Electronic Materials LLC
455 Forest Street
Marlborough, MA 01752 United States of America

For non-emergency information contact: 508-481-7950

Emergency telephone number

Chemtrec	800-424-9300
Rohm and Haas Emergency	215-592-3000

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Ethyl lactate	97-64-3	48.0 - <= 53.0 %
Cresol novolak resin		30.0 - <= 40.0 %
Butyl Acetate	123-86-4	1.0 - <= 5.0 %
Xylene	1330-20-7	1.0 - <= 5.0 %
Diazo Photoactive Compound		1.0 - <= 10.0 %
Cresol	1319-77-3	0.1 - <= 0.2 %
Organic Siloxane Surfactant		0.0 - <= 1.0 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form	viscous liquid
Colour	red
Odour	sweet

Hazard Summary

CAUTION!
Combustible liquid and vapor. Causes irritation to eyes, nose, and respiratory tract.
Prolonged, repeated contact, inhalation, ingestion, or absorption through the skin, may cause toxic effects to internal organ systems (liver, kidney, central nervous system).

Potential Health Effects

Primary Routes of Entry: Inhalation, ingestion, eye and skin contact, absorption.

Eyes: May cause pain, transient irritation and superficial corneal effects.

Skin: Material may cause irritation.
Prolonged or repeated exposure may have the following effects:
drowsiness
defatting and drying of the skin which can lead to irritation and dermatitis
central nervous system depression
kidney damage
liver damage

Ingestion: Swallowing may have the following effects:
irritation of mouth, throat and digestive tract
headache
nausea
vomiting
Repeated doses may have the following effects:
central nervous system depression
liver damage
kidney damage

Inhalation: Inhalation may have the following effects:
irritation of nose, throat and respiratory tract
Higher concentrations may have the following effects:
systemic effects similar to those resulting from ingestion

Target Organs: Eye
Respiratory System
nervous system
Liver
Kidney
Skin

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA

4. FIRST AID MEASURES

Inhalation: Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.

Skin contact: Wash skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.

Eye contact: 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.

Ingestion: Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Induce vomiting if person is conscious. Immediate medical attention is required Never administer anything by mouth if a victim is losing conciousness, is unconcious or is convulsing.

Notes to physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point	39 - 40 °C (102.9 - 104.9 °F)
Suitable extinguishing media:	Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.

Specific hazards during fire fighting: 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.

Special protective equipment for fire-fighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: Pressure may build up in closed containers with possible liberation of combustible vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear suitable protective clothing.
Wear respiratory protection.
Eliminate all ignition sources.

Environmental precautions
Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods for cleaning up
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer into suitable containers for recovery or disposal.
Finally flush area with plenty of water.

7. HANDLING AND STORAGE

Handling
Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed.
Further information on storage conditions: Keep away from heat, sparks, flame, and other sources of ignition. Practice good personal hygiene to prevent accidental exposure.

Storage
Storage conditions: Store in original container. Keep away from heat and sources of ignition.
Storage area should be: cool dry well ventilated out of direct sunlight

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Ethyl lactate	Rohm and Haas	TWA	5 ppm
	Rohm and Haas	STEL	15 ppm

Component	Regulation	Type of listing	Value
Butyl Acetate	Rohm and Haas	TWA	150 ppm
	Rohm and Haas	STEL	200 ppm
	ACGIH	TWA	150 ppm
	ACGIH	STEL	200 ppm
	OSHA_TRANS	PEL	710 mg/m3 150 ppm

Component	Regulation	Type of listing	Value
Xylene	Rohm and Haas	TWA	50 ppm
	Rohm and Haas	STEL	75 ppm
	Rohm and Haas	Absorbed via skin	
	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
	OSHA_TRANS	PEL	435 mg/m3 100 ppm
	Z1A	TWA	435 mg/m3 100 ppm
	Z1A	STEL	655 mg/m3 150 ppm

Component	Regulation	Type of listing	Value
Cresol	ACGIH	TWA	22 mg/m3 5 ppm
	ACGIH	SKIN_DES	
	OSHA_TRANS	PEL	22 mg/m3 5 ppm
	OSHA_TRANS	SKIN_DES	

Eye protection: goggles

Hand protection: Butyl rubber gloves. Other chemical resistant gloves may be recommended by your safety professional.

Skin and body protection: Normal work wear.

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.

Engineering 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Form	viscous liquid
Colour	red
Odour	sweet
pH	neutral
Boiling point/range	ca.120 °C (248 °F)
Flash point	39 - 40 °C (102.9 - 104.9 °F)
Component: **Ethyl lactate**	
Vapour pressure	1.7 mmHg at 20 °C
Component: **n-Butyl acetate**	
Vapour pressure	15.0 mmHg at 25 °C
Relative vapour density	Heavier than air.
Water solubility	slightly soluble
Relative density	1.02
Evaporation rate	Slower than ether
VOC's	578.27 g/l

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Hazardous reactions	Stable under normal conditions.
Conditions to avoid	High temperatures Static discharge
Materials to avoid	Oxidizing agents bases acids
Hazardous decomposition products	Carbon monoxide, carbon dioxide,
polymerization	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Component: **Ethyl lactate**	
Acute oral toxicity	LD50 rat >2,000 mg/kg
Component: **n-Butyl acetate**	

Acute oral toxicity	LD50 rat 13,100 mg/kg
Component: **Xylene**	
Acute oral toxicity	LD50 rat 4,300 mg/kg
Component: **Cresol**	
Acute oral toxicity	LD50 rat 2,737 mg/kg
Component: **Organic Siloxane Surfactant**	
Acute oral toxicity	LD50 rat > 5,000 mg/kg
Component: **Ethyl lactate**	
Acute inhalation toxicity	LC50 rat >5,400 mg/m3
Component: **n-Butyl acetate**	
Acute inhalation toxicity	LC50 rat 4 h 760 mg/m3
Component: **Xylene**	
Acute inhalation toxicity	LC50 rat 4 h 29.09 mg/l
Component: **Cresol**	
Acute inhalation toxicity	LC50 rat 8 h 35.38 mg/l
Component: **Ethyl lactate**	
Acute dermal toxicity	LD50 rat >5,000 mg/kg
Component: **Xylene**	
Acute dermal toxicity	LD50 rabbit >4,300 mg/kg
Component: **Cresol**	
Acute dermal toxicity	LD50 rabbit > 5,000 mg/kg
Component: **Organic Siloxane Surfactant**	
Acute dermal toxicity	LD50 rat > 2,000 mg/kg
Component: **Ethyl lactate**	
Skin irritation	A single application to rabbit skin produced mild irritation.
Component: **Xylene**	
Skin irritation	rabbit Moderate irritation.
Component: **Organic Siloxane Surfactant**	
Skin irritation	A single application to rabbit skin produced mild irritation.
Component: **Ethyl lactate**	
Eye irritation	Single application to the rabbit eye produced conjunctival irritation.
Component: **Xylene**	
Eye irritation	rabbit moderate to severe.
Component: **Organic Siloxane Surfactant**	
Eye irritation	Single application to the rabbit eye produced no signs of ocular irritation.

Component: **Ethyl lactate**
Toxicity to reproduction
Studies in laboratory animals have shown no teratogenic effects in the following species:
Component: **Xylene**

Subchronic toxicity	Animal studies indicate prolonged inhalation exposures may cause the following: brain damage

Component: **Xylene**
Toxicity to reproduction
In laboratory studies, birth defects, increased fetal lethality and delayed fetal development have been observed in offspring of female animals exposed during pregnancy.
Component: **Cresol**
Toxicity to reproduction
Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Ethyl lactate

Ecotoxicity effects	
Toxicity to aquatic invertebrates	EC50 Daphnia magna 48 h 683 mg/l

n-Butyl acetate

Ecotoxicity effects	
Toxicity to fish	LC50 Bluegill sunfish (Lepomis macrochirus) 96 h 100 mg/l
Toxicity to fish	LC50 Fathead minnow (Pimephales promelas) 96 h 18 mg/l
Toxicity to algae	EC50 Algae (Scenedesmus subspicatus) 72 h 675 mg/l
Toxicity to aquatic invertebrates	LC50 Daphnia magna 96 h 44 - 205 mg/l

Xylene

Ecotoxicity effects	
Toxicity to fish	LC50 Rainbow trout (Oncorhynchus mykiss) 96 h 13.5 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna 150 mg/l

13. DISPOSAL CONSIDERATIONS

Environmental precautions: Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Disposal
Dispose in accordance with all local, state (provincial), and federal regulations. Incineration is the recommended method of disposal for containers. Under RCRA, it is the responsibility of the product's user to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
Do not remove label until container is thoroughly cleaned. Empty containers may contain hazardous residues. This material and its container must be disposed of in a safe way.

14. TRANSPORT INFORMATION

DOT

Not regulated per 49CFR 173.150(f)(2)

IMO/IMDG

Proper shipping name	RESIN SOLUTION
UN-No	UN 1866
Class	3
Packing group	III

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations

15. REGULATORY INFORMATION

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Immediate, delayed, flammability hazard

SARA TITLE III: Section 313 Information (40CFR372)
This product contains a chemical which is listed in Section 313 at or above de minimis concentrations.
SARA Title III Components: Xylene 1330-20-7

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D):
U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
This product does not contain any substances subject to Section 12(b) export notification.

US. Toxic Substances Control Act (TSCA) All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

California (Proposition 65)
This product contains a component or components known to the state of California to cause cancer and/or reproductive harm.
Components: Toluene 108-88-3

16. OTHER INFORMATION

Hazard Rating

	Health	Fire	Reactivity
NFPA	2	2	0

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
BAc	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
|	Bar denotes a revision from prior MSDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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