Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

MEGAPOSIT™ SPR™ 700-1.2 POSITIVE PHOTORESIST

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Supplier

ROHM AND HAAS ELECTRONIC MATERIALS LLC
A Subsidiary of The Dow Chemical Company
455 FOREST STREET
MARLBOROUGH, MA 01752 United States

For non-emergency information contact: 215-592-3000

Emergency telephone number
1 800 424 9300

Local emergency telephone number
989-636-4400

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Aromatic resin		20.0 - 30.0 %
Diazo Photoactive Compound		1.0 - 10.0 %
Anisole	100-66-3	7.0 - 12.0 %
Cresol	1319-77-3	1.0 %
Ethyl lactate	97-64-3	55.0 - 65.0 %
2-Methyl Butyl Acetate	624-41-9	1.0 - 5.0 %
n-amyl acetate	628-63-7	1.0 - 5.0 %
Organic Siloxane Surfactant		< 1.0 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form liquid

Colour	red
Odour	ester-like

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 adverse effects to internal organ systems.

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:
central nervous system depression
drowsiness
defatting of skin leading to irritation and dermatitis

Ingestion: Swallowing may have the following effects:
irritation of mouth, throat and digestive tract
Repeated doses may have the following effects:
central nervous system depression
drowsiness

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
Skin
nervous system

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. FIREFIGHTING MEASURES

Flash point	43 - 45 °C (109.9 - 114.1 °F)
Lower explosion limit	no data available
Upper explosion limit	no data available

Suitable extinguishing media: Use water spray, foam, dry chemical or carbon dioxide.
Keep containers and surroundings cool with water spray.

Specific hazards during firefighting: 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 firefighters: 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.

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

Further information on storage conditions: Keep away from heat, sparks, flame, and other sources of ignition. Practice good personal hygiene to prevent accidental exposure.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Anisole	Rohm and Haas	TWA	5 ppm
Anisole	Rohm and Haas	STEL	10 ppm
Cresol	OSHA P1	TWA	22 mg/m3 5 ppm
Cresol	OSHA P0	TWA	22 mg/m3 5 ppm
Cresol	ACGIH	TWA Inhalable fraction and vapor	20 mg/m3
Ethyl lactate	Rohm and Haas	TWA	5 ppm
Ethyl lactate	Rohm and Haas	STEL	15 ppm
2-Methyl Butyl Acetate	Rohm and Haas	TWA	50 ppm
2-Methyl Butyl Acetate	Rohm and Haas	STEL	100 ppm
2-Methyl Butyl Acetate	ACGIH	TWA	50 ppm
2-Methyl Butyl Acetate	ACGIH	STEL	100 ppm
n-amyl acetate	Rohm and Haas	TWA	50 ppm
n-amyl acetate	Rohm and Haas	STEL	100 ppm
n-amyl acetate	OSHA P1	TWA	525 mg/m3 100 ppm
n-amyl acetate	OSHA P0	TWA	525 mg/m3 100 ppm
n-amyl acetate	NIOSH REL	TWA	525 mg/m3 100 ppm

Exposure controls

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.

Individual protection measures

Eye/face protection: Goggles

Skin protection

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

Other 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	red
Odour	ester-like
pH	ca.7
Boiling point/boiling range	150 °C (302 °F)
Flash point	43 - 45 °C (109.9 - 114.1 °F)
Evaporation rate	Slower than ether
Lower explosion limit	no data available
Upper explosion limit	no data available

Component: **Anisole**

Vapour pressure	9.7 mmHg at 42 °C (108 °F)

Component: **Ethyl lactate**

Vapour pressure	1.7 mmHg at 20 °C (68 °F)

Relative vapour density	Heavier than air.
Relative density	1.07
Water solubility	insoluble
VOC's	796.71 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, phenols, oxides of sulfur, nitrogen oxides (NOx),
polymerisation	Will not occur.

11. TOXICOLOGICAL INFORMATION

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

Component: **Anisole**
Acute oral toxicity LD50 rat 3,700 mg/kg

Component: **Cresol**
Acute oral toxicity LD50 rat 1,454 mg/kg

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

Component: **2-Methyl Butyl Acetate**
Acute oral toxicity LD50 rat 12,306 mg/kg

Component: **n-amyl acetate**
Acute oral toxicity LD50 rat > 1,600 mg/kg

Component: **Organic Siloxane Surfactant**
Acute oral toxicity LD50 rat > 5,000 mg/kg

Component: **Cresol**
Acute inhalation toxicity LC50 rat 8 Hour 35.38 mg/l
Component: **Ethyl lactate**
Acute inhalation toxicity LC50 rat 4 Hour 5,400 mg/m3
Component: **2-Methyl Butyl Acetate**
Acute inhalation toxicity LC50 rat 4 Hour >5.2 mg/l
Component: **n-amyl acetate**
Acute inhalation toxicity 16,000 mg/m3
Component: **Cresol**
Acute dermal toxicity LD50 rabbit 2,000 mg/kg

Component: **Ethyl lactate**
Acute dermal toxicity LD50 rat > 5,000 mg/kg

Component: **2-Methyl Butyl Acetate**
Acute dermal toxicity LD50 rabbit 8,359 mg/kg

Component: **n-amyl acetate**
Acute dermal toxicity LD50 rabbit > 17,500 mg/kg

Component: **Organic Siloxane Surfactant**
Acute dermal toxicity LD50 rat > 2,000 mg/kg

Component: **Cresol**
Skin irritation rabbit Corrosive

Component: **Ethyl lactate**
Skin irritation A single application to rabbit skin produced mild irritation.

Component: **2-Methyl Butyl Acetate**
Skin irritation rabbit Moderate irritation.

Component: **Organic Siloxane Surfactant**
Skin irritation A single application to rabbit skin produced mild irritation.

Component: **Cresol**
Eye irritation rabbit Corrosive

Component: **Ethyl lactate**
Eye irritation Single application to the rabbit eye produced conjunctival irritation.

Component: **2-Methyl Butyl Acetate**
Eye irritation rabbit Moderate eye irritation

Component: **Organic Siloxane Surfactant**
Eye irritation Single application to the rabbit eye produced no signs of ocular irritation.

Component: **Cresol**
Teratogenicity
Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.
Component: **Cresol**
Mutagenicity
Not mutagenic in Ames Test. In vitro tests showed mutagenic effects
Component: **Ethyl lactate**
Reproductive toxicity
No adverse reproductive effects were observed in experimental animals.
Component: **n-amyl acetate**
Subchronic toxicity Inhalation rat
NOEL: 1,200 mg/kg
none

Component: **n-amyl acetate**
Reproductive toxicity
Exposure of pregnant rabbits to vapor at 1500 ppm resulted in maternal toxicity. The following effects were observed: decreased body weight. No adverse reproductive effects were observed in experimental animals.

12. ECOLOGICAL INFORMATION

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

Anisole
Ecotoxicity effects
Toxicity to algae Growth rate EC50 Pseudokirchneriella subcapitata (green algae) 96 Hour
162 mg/l

Cresol

Ecotoxicity effects

Toxicity to fish	LC50 Zebra fish (Danio/Brachydanio rerio) 96 Hour Method Not Specified 9 mg/l
Toxicity to fish	LC50 Bluegill sunfish (Lepomis macrochirus) 96 Hour Method Not Specified 10 mg/l
Toxicity to fish	LC50 Pimephales promelas (fathead minnow) 96 Hour Method Not Specified 12.8 mg/l
Toxicity to bacteria	EC0 Pseudomonas putida 0.5 Hour 250 mg/l
Toxicity to aquatic invertebrates	LC50 Daphnia 48 Hour Method Not Specified 33 - 100 mg/l

Ethyl lactate

Elimination information (persistence and degradability)

Biodegradability	OECD Test Guideline 302 75 %

Ecotoxicity effects

Toxicity to fish	LC50 Zebra fish (Danio/Brachydanio rerio) 96 Hour OECD Test Guideline 203 or Equivalent 320 mg/l
Toxicity to algae	ErC50 Pseudokirchneriella subcapitata (green algae) 70 Hour OECD Test Guideline 201 or Equivalent 2,200 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 or Equivalent 683 mg/l

2-Methyl Butyl Acetate

Ecotoxicity effects

Toxicity to fish	LC50 Fathead minnow (Pimephales promelas) 96 Hour Method Not Specified 69 mg/l
Toxicity to algae	EC50 Pseudokirchneriella subcapita 96 Hour >466 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna 48 Hour OECD Test Guideline 202 or Equivalent 40.9 mg/l

n-amyl acetate
Ecotoxicity effects

Toxicity to fish	LC50 Mosquito fish (Gambusia affinis) 96 Hour 65 mg/l
Toxicity to algae	EC50 Algae 24 Hour 550 mg/l
Toxicity to aquatic invertebrates	EC50 Daphnia magna 24 Hour 210 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)

Classification for SEA transport (IMO-IMDG):

Proper shipping name	RESIN SOLUTION
UN number	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

Workplace Classification
OSHA: Combustible
Irritant

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

SARA TITLE III: Section 313 Information (40CFR372)
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

United States TSCA Inventory (US.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 does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

NFPA Hazard Rating

Health	Fire	Reactivity
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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