1. PRODUCT AND COMPANY IDENTIFICATION

MEGAPOSIT™ SPR™ 700-1.2 POSITIVE PHOTORESIST

Revision Date: 10/10/2011

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

®™*Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

2. COMPOSITION/INFORMATION ON INGREDIENTS

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

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance
Form liquid
MEGAPOSIT™ SPR™ 700-1.2 POSITIVE PHOTORESIST

Colour: red
Odour: ester-like

<table>
<thead>
<tr>
<th>Hazard Summary</th>
<th>CAUTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

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 consciousness, is unconscious 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.

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

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**
  - LC50 rat 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 rabbit > 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 subcapitata 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

<table>
<thead>
<tr>
<th>NFPA Hazard Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

Legend

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td>BAc</td>
<td>Butyl acetate</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit (STEL):</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
</tr>
</tbody>
</table>

| | 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.

Version: 1.1
Print Date: 02/19/2014