



Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

UV™ 113-0.4 (10mPa.s) POSITIVE DUV PHOTORESIST

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Supplier Rohm and Haas Electronic Materials LLC
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For non-emergency information contact: 508-481-7950

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Local emergency telephone number 989-636-4400

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS-No. | Concentration |
|--------------------------|---------|---------------|
| Ethyl lactate | 97-64-3 | 80.0 - 90.0 % |
| Aromatic Acrylic Polymer | | 10.0 - 20.0 % |
| Surfactant | | < 1.0 % |
| Aromatic Sulfur Compound | | < 1.0 % |

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form liquid

Colour amber

Odour Sweet odor

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:

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. FIRE-FIGHTING MEASURES

Flash point 48 °C (119.8 °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 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 |

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 | liquid |
| Colour | amber |
| Odour | Sweet odor |
| pH | ca.7 |
| Boiling point/range | 153 °C (308.8 °F) |
| Flash point | 48 °C (119.8 °F) |
| Lower explosion limit | No data available |
| Upper explosion limit | No data available |

Component: Ethyl lactate

| | |
|-------------------------|-----------------------------|
| Vapour pressure | 1.7 mmHg at 20 °C |
| Relative vapour density | Heavier than air. |
| Water solubility | partly soluble |
| Relative density | 1.04 |
| Evaporation rate | Slower than ether |
| VOC's | 830 - 940 g/cm ³ |

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 polymerization | Carbon monoxide, carbon dioxide, oxides of sulfur, nitrogen oxides (NOx), hydrogen iodide, hydrogen fluoride, Acrylics, 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: Aromatic Acrylic Polymer

Acute oral toxicity LD50 rat > 5,000 mg/kg

Component: Aromatic Sulfur Compound

Acute oral toxicity LD50 rat > 5,000 mg/kg

Component: Ethyl lactate

Acute inhalation toxicity LC50 rat >5,400 mg/m³

Component: Ethyl lactate

Acute dermal toxicity LD50 rat >5,000 mg/kg

Component: Aromatic Acrylic Polymer

Acute dermal toxicity LD50 rat > 5,500 mg/kg

Component: Aromatic Sulfur Compound

Acute dermal toxicity LD50 rat > 2,000 mg/kg

Component: Ethyl lactate

Skin irritation A single application to rabbit skin produced mild irritation.

Component: Aromatic Acrylic Polymer

Skin irritation A single application to rabbit skin produced no irritation.

Component: Ethyl lactate

Eye irritation Single application to the rabbit eye produced conjunctival irritation.

Component: Aromatic Acrylic Polymer

Eye irritation Single application to the rabbit eye produced mild irritation.

Component: Ethyl lactate

Toxicity to reproduction

Studies in laboratory animals have shown no teratogenic effects in the following species:

Component: Aromatic Sulfur Compound

Mutagenicity

No mutagenic activity was observed in bacterial cells.

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 |

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): Fire Hazard
Immediate (acute) Health 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.

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 does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

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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