1. Identification

Product identifier

OrmoStamp®

Recommended use of the chemical and restrictions on use

Use of the substance/mixture

UV-curable Hybrid Polymer for optical applications.

Product Categories [PC] 30: Photosensitive agent and other photochemicals

Sector of uses [SU] 16: Manufacture of computer, electronic and optical products, electrical equipment.

Uses advised against

Do not use for private purposes (household).

Details of the supplier of the safety data sheet

Company name: micro resist technology GmbH

Street: Koepenicker Str. 325

Place: D-12555 Berlin

Telephone: +49 30 641670-100

Fax: +49 30 641670-200

e-mail: safety@microresist.de

Internet: www.microresist.de

Emergency phone number: +1 703 527 3887

Chemtrec International Emergency (24 h)

Further Information

This number is serviced during office hours.

2. Hazard(s) identification

Classification of the chemical

Hazard categories:

Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2A
Respiratory/skin sensitization: Skin Sens. 1
Reproductive toxicity: Repr. 2

Hazard Statements:

Causes skin irritation
May cause an allergic skin reaction
Causes serious eye irritation
Suspected of damaging fertility

Label elements

Signal word: Warning

Pictograms: Exclamation mark; health hazard

Hazard statements

Causes skin irritation
May cause an allergic skin reaction
Causes serious eye irritation
Suspected of damaging fertility
Precautionary statements

Wear protective gloves/protective clothing/eye protection/face protection.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Hazards not otherwise classified
No information available.

3. Composition/information on ingredients

Mixtures

Hazards not otherwise classified
No information available.

4. First-aid measures

Description of first aid measures

General information
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove contaminated, saturated clothing immediately.

After inhalation
Provide fresh air. In case of breathing difficulties administer oxygen. If victim is at risk of losing consciousness, position and transport on their side. Call a physician immediately.

After contact with skin
After contact with skin, wash immediately with plenty of water and soap.

After contact with eyes
If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion
Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect). Call a physician immediately.

Most important symptoms and effects, both acute and delayed
Irritating to eyes and skin. Prolonged or repeated contact with skin or mucous membrane result in irritation symptoms such as redness, blistering, dermatitis, etc. Conjunctival redness. May cause an allergic skin reaction.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2). Dry extinguishing powder. Foam.

Specific hazards arising from the chemical
In case of fire and/or explosion do not breathe fumes.

Special protective equipment and precautions for fire-fighters
In case of fire: Wear self-contained breathing apparatus. Wear chemical resistant suit.
6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.

Environmental precautions
Do not allow to enter into surface water or drains. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Do not rinse down with water. Collect in closed containers for disposal. Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections
Treat the recovered material as prescribed in the section on waste disposal. See protective measures under point 7 and 8.

7. Handling and storage

Precautions for safe handling

Advice on safe handling
Avoid contact with skin, eyes and clothes. Contact with the skin and inhalation of aerosols/vapors from the preparation must be avoided.

Advice on protection against fire and explosion
Take precautionary measures against static discharge. Keep away from sources of ignition. - No smoking.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep container tightly closed in a cool, well-ventilated place.
Further information concerning storage conditions: Observe technical data sheet.: Processing Guidelines

Further information on storage conditions
Protect against: heat. UV-radiation/sunlight.

8. Exposure controls/personal protection

Control parameters

Additional advice on limit values
No data available

Exposure controls

Appropriate engineering controls
If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures
Avoid contact with skin, eyes and clothes. Wash contaminated clothing prior to re-use. Protect skin by using skin protective cream. After work, wash hands and face. When using do not eat, drink or smoke.
Eye/face protection

Suitable eye protection: Tightly sealed safety glasses.

Hand protection

Tested protective gloves are to be worn: Single-use gloves.
German Industry Norms (DIN) / European Norms (EN): DIN EN 374

Wearing time with occasional contact (splashes):
Suitable material: NR (Natural rubber (Caoutchouc), Natural latex).
Thickness of glove material: 0.5 mm
penetration time (maximum wearing period): > 480 min
Recommended protective gloves brand: KCL 740 Dermatril, Manufacturer: KCL GmbH, D-36124 Eichenzell, Source of supply: www.kcl.de
The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Breakthrough times and swelling properties of the material must be taken into consideration. Before using check leak tightness / impermeability.

Skin protection

Suitable protective clothing: Lab apron.
Take off immediately all contaminated clothing.

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. Respiratory protection necessary at: aerosol or mist generation. Filtering device (full mask or mouthpiece) with filter: A

Environmental exposure controls

Do not allow uncontrolled leakage of product into the environment.

9. Physical and chemical properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>colourless</td>
</tr>
<tr>
<td>Odor:</td>
<td>characteristic</td>
</tr>
</tbody>
</table>

- pH-Value: No data available

<table>
<thead>
<tr>
<th>Changes in the physical state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point: No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range: No data available</td>
</tr>
<tr>
<td>Sublimation point: No data available</td>
</tr>
<tr>
<td>Softening point: No data available</td>
</tr>
<tr>
<td>Pour point: No data available</td>
</tr>
<tr>
<td>Flash point: &gt;100 °C</td>
</tr>
</tbody>
</table>

- Flammability
  - Solid: No data available
  - Gas: No data available

- Explosive properties: No data available

Lower explosion limits: No data available
Upper explosion limits: No data available
Ignition temperature: No data available

**Auto-ignition temperature**
- Solid: No data available
- Gas: No data available

Decomposition temperature: No data available

**Oxidizing properties**
No data available

Vapor pressure: No data available
Density (at 25 °C): 1.14 g/cm³
Bulk density: No data available
Water solubility: No data available

**Solubility in other solvents**
No data available
Partition coefficient: No data available

Viscosity / dynamic:
(at 25 °C) 300-700 mPa·s
Viscosity / kinematic:
(at 40 °C) No data available
Flow time:
(at 40 °C) No data available
Vapour density: No data available
Evaporation rate: No data available
Solvent separation test: No data available
Solvent content: No data available

**Other information**
Solid content: No data available

10. Stability and reactivity

**Reactivity**
No data available

**Chemical stability**
Stability: Stable
No data available

**Possibility of hazardous reactions**
Hazardous reactions: May occur
No data available

**Conditions to avoid**
UV-radiation/sunlight, heat. Remove all sources of ignition. Take precautionary measures against static discharge.

**Incompatible materials**

**Hazardous decomposition products**
Carbon monoxide. Carbon dioxide.
Safety Data Sheet

OrmoStamp®

according to 29 CFR 1910.1200(g)

Print date: 10.12.2015

OrmoStamp®

Safety Data Sheet

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Further information

Observe technical data sheet: Processing Guidelines

11. Toxicological information

Information on toxicological effects

Route(s) of Entry

- Inhalation, ingestion, skin contact, eye contact

Acute toxicity

- Acute toxicity, oral LD50: >2000 mg/kg species: Rat (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)
- Acute toxicity, dermal LD50: >2000 mg/kg species: Rabbit (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)
- Acute toxicity, oral LD50: >2000 mg/kg species: Rat (Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Components</th>
<th>Exposure routes</th>
<th>Method</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>15625-89-5</td>
<td>2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate</td>
<td>oral</td>
<td>LD50</td>
<td>3680 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>&gt;2000 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td>75980-60-8</td>
<td>Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide</td>
<td>oral</td>
<td>LD50</td>
<td>&gt;2000 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity

- Causes skin irritation. Causes serious eye irritation.

Sensitizing effects

- May cause sensitization by skin contact.

Specific target organ toxicity (STOT) - single exposure

- No data available

Severe effects after repeated or prolonged exposure

- No data available

Carcinogenic/mutagenic/toxic effects for reproduction

- Suspected of damaging fertility.
  - Carcinogenicity (NTP): Ingredient (name): none
  - Carcinogenicity (IARC): Ingredient (name): none
  - Carcinogenicity (OSHA): Ingredient (name): none

Aspiration hazard

- No data available

12. Ecological information

Ecotoxicity

- Acute fish toxicity LC50: 1,47 mg/L 96h (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)
- Acute Daphnia toxicity EC50: 19,9 mg/L 48h (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)

Persistence and degradability

- No data available

Bioaccumulative potential
Distribution coefficient (n-octanol / water) (log P O/W): 0.67 (2,2-bis(acryloyloxymethyl)butyl acrylate, trimethylolpropane triacrylate)

**Mobility in soil**
No data available

**Other adverse effects**
No data available

**Further information**
Do not allow uncontrolled leakage of product into the environment.

### 13. Disposal considerations

**Waste treatment methods**

**Advice on disposal**
Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Contains: Fluorinated hydrocarbons.

**Contaminated packaging**
Dispose of waste according to applicable legislation.

### 14. Transport information

**US DOT 49 CFR 172.101**
No a hazardous material with respect to these transport regulations.

**Marine transport (IMDG)**

**UN number:**
No dangerous good in sense of this transport regulation.

**UN proper shipping name:**
No dangerous good in sense of this transport regulation.

**Transport hazard class(es):**
No dangerous good in sense of this transport regulation.

**Packing group:**
No dangerous good in sense of this transport regulation.

**Air transport (ICAO)**

**UN number:**
No dangerous good in sense of this transport regulation.

**UN proper shipping name:**
No dangerous good in sense of this transport regulation.

**Transport hazard class(es):**
No dangerous good in sense of this transport regulation.

**Packing group:**
No dangerous good in sense of this transport regulation.

**Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: no

**Special precautions for user**
No data available

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
not applicable

### 15. Regulatory information

**U.S. Regulations**

**National Inventory TSCA**
TSCA Inventory Status: Listed

**National regulatory information**
SARA Section 311/312 Hazards:
1,1,1-Trihydroxymethylpropyltriacylat (vgl. Trimethylolpropioni acrylicat) (15625-89-5): Immediate (acute) health hazard
State Regulations
Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)
This product contains no chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other information

Hazardous Materials Information Label (HMIS)

Health: 2
Flammability: 1
Physical Hazard: 1
Personal Protection: B

NFPA Hazard Ratings

Health: 2
Flammability: 1
Reactivity: 1
Unique Hazard: /

Revision date: 07.12.2015
Revision No:

Other data

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor’s safety data sheet.)