



SAFETY DATA SHEET

Safety Data Sheet according to regulation (EC) No 1907/2006 and amendments

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name: EBECRYL® 452 radiation curing resins
Product Description: Mixture of acrylated resin and monomers
Intended/Recommended Use: Coatings & Inks

Company: Cytec Industries Inc., Five Garret Mountain Plaza, West Paterson, New Jersey 07424, USA. For Product Information call 1-800/652-6013. Outside the USA and Canada call +1-973/357-3193 or your local Cytec contact point. E-mail: custinfo@cytec.com

Local Contact Information: Cytec Industries Inc. Adenbury Way LL 139UZ Wrexham (UK) +44/1/97.866.5200

EMERGENCY PHONE - For emergency involving spill, leak, fire, exposure or accident call:

Europe: +44 208 762 8322

USA: +1-703-527-3887 or 1-800-424-9300 (CHEMTREC)

Canada: 1-905-356-8310

Latin America:

Chile - 56-2-247-3600 (CITUC QUIMICO)

Outside Chile - +52-376-737-4122 (Cytec Atequiza Mexico).

Asia Pacific Region:

Australia - +61-3-9663-2130 or 1800-033-111 (within Australia only)

New Guinea - 61-3-9663-2130

New Zealand - 0800-734-607 (within New Zealand only)

Taiwan - 886-7-3743713 (Mandarin only)

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2. HAZARDS IDENTIFICATION

HUMAN AND ENVIRONMENTAL HAZARDS

May cause sensitization by skin contact.

Irritating to eyes and skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

| Component / CAS No. | % (w/w) | EC-No | Classification |
|---------------------|---------|-------|----------------|
| Acrylated resin | 50 - 70 | - | Xi;R36/38 |
| - | | | |

| Component / CAS No. | % (w/w) | EC-No | Classification |
|--|---------|-----------|---------------------------------------|
| Trimethylolpropane triacrylate 15625-89-5 | 15 - 30 | 239-701-3 | Xi;R36/38 R43 |
| Polyol acrylate - | 15 - 30 | - | Xi; R36 |
| Acrylic acid 79-10-7 | 0.3 | 201-177-9 | R10 Xn;R20/21/22 C;R35 N;R50 |

See Section 16 for Ingredient Risk Phrase Text

4. FIRST AID MEASURES

Ingestion:

Material is not expected to be harmful by ingestion. No specific first aid measures are required.

Skin contact:

Remove contaminated clothing and shoes without delay. Wash immediately with plenty of water. Do not reuse contaminated clothing without laundering. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.

Eye contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical advice if there are persistent symptoms.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use water spray or fog, carbon dioxide or dry chemical.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

Keep containers cool by spraying with water if exposed to fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods for cleaning up:

Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

7. HANDLING AND STORAGE

Handling

Precautionary Measures: Avoid contact with eyes, skin and clothing. Use with adequate ventilation. Keep container closed. Wash thoroughly after handling.

Special Handling Statements: Provide good ventilation of working area (local exhaust ventilation if necessary).

Storage

Store in a cool, dry, well ventilated place and keep container tightly closed. Keep away from heat sources and direct sunlight.

Storage Temperature: Store at 4 - 40 °C

Reason: Integrity.

Specific Use Guidelines: See the Guidelines for Printers on the Safe Use of Energy Curing Printing Inks and Varnishes, from CEPE. See the Joint BG/HSE/CNAMTS/ISPESL Protocol on improved conditions of use of UV-printing technology in the printing industry in Germany, UK, France, Italy and other interested Member States of the European Union; document from Radtech Europe; (BG:Germany- Berufsgenossenschaften); (HSE: UK- Health and Safety Executive); (CNAMTS: France- Caisse National d'Assurance Maladie des Travailleurs Salariés); (ISPESL: Italy- Istituto Superiore per la Prevenzione e la Sicurezza del Lavoro).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures:

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.

Respiratory protection:

For operations where inhalation exposure can occur, use an approved respirator recommended by an industrial hygienist after an evaluation of the operation. Where inhalation exposure can not occur, no respiratory protection is required. A full facepiece respirator also provides eye and face protection.

Eye protection:

Wear eye/face protection such as chemical splash proof goggles or face shield. Eyewash equipment and safety shower should be provided in areas of potential exposure.

Skin Protection:

Avoid skin contact.
Wear impermeable gloves and suitable protective clothing.

Hand protection:

Nitrile rubber gloves. Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred. Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.

Additional advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

Exposure limit(s)

No values have been established.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---------------------------------|
| Colour: | yellow to brown |
| Appearance: | liquid resin |
| Odor: | ester-like |
| Boiling Point: | >100 °C |
| Melting Point: | Not applicable |
| Vapour pressure: | 0.013 Pa @ 20 °C |
| Specific Gravity/Density: | 1 - 1.2 g/cm ³ |
| Vapour density: | Not available |
| Percent Volatile (% by wt.): | 0.1 - 0.3 |
| Solids Content: | >99.9% |
| pH: | Not applicable |
| Saturation In Air (% By Vol.): | Not applicable |
| Evaporation rate: | Not applicable |
| Solubility In Water: | negligible |
| Acid Number (mg KOH/g): | Not applicable |
| Hydroxyl Value (mg KOH/g): | Not applicable |
| Volatile Organic Content (EU): | Not available |
| Flash point: | >100 °C Cleveland Open Cup |
| Flammable Limits (% By Vol): | Not available |
| Autoignition temperature: | Not available |
| Decomposition temperature: | Not available |
| Partition coefficient (n-octanol/water): | Not available |
| Fat Solubility (Solvent-Oil): | Not available |
| Viscosity (Kinematic): | Not available |
| Viscosity (Dynamic): | Low viscous liquid |

10. STABILITY AND REACTIVITY

| | |
|--|--|
| Stability: | Stable |
| Conditions To Avoid: | Avoid direct contact with heat sources. Avoid direct exposure to sunlight. Avoid exposure to strong UV sources. Avoid friction with temperature increase as result. Loss of polymerization inhibitor. Loss of dissolved air. Avoid temperatures higher than 60°C. |
| Polymerization: | May occur |
| Conditions To Avoid: | Avoid contact with free radical initiators. Avoid contact with strong oxidizing agents. Avoid contact with bases or amines. Hazardous polymerization can occur when exposed to direct sunlight. Hazardous exothermic polymerization can occur when heated. Uncontrolled polymerization may cause rapid evolution of heat and increase in pressure that could result in violent rupture of sealed storage vessels or containers |
| Materials to avoid: | Avoid contact with active metals. Avoid free radical producing initiators. Avoid contact with peroxides. Avoid contact with reactive metals. Avoid contact with strong alkalis. They give an exothermic reaction with the product. Unintentional contact with them should be avoided. |
| Hazardous Decomposition Products: | oxides of carbon hydrocarbons smoke soot |

11. TOXICOLOGICAL INFORMATION

Potential health effects

May cause sensitization by skin contact.
Irritating to eyes and skin.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

| | | | |
|------------|--------|-----------------|-------------|
| Oral | rat | Acute LD50 | >2000 mg/kg |
| dermal | rabbit | Acute LD50 | >2000 mg/kg |
| Inhalation | rat | Acute LC50 4 hr | >20 mg/l |

LOCAL EFFECTS ON SKIN AND EYE

| | | |
|------------------|--------|------------|
| Acute Irritation | dermal | irritating |
| Acute Irritation | eye | irritating |

ALLERGIC SENSITIZATION

| | | |
|---------------|-------------|-------------|
| Sensitization | Skin | Sensitizing |
| Sensitization | respiratory | No data |

GENOTOXICITY

Assays for Gene Mutations

| | |
|-----------------------|---------|
| Ames Salmonella Assay | No data |
|-----------------------|---------|

OTHER INFORMATION

The product toxicity information above has been estimated.

The toxicological properties of this material have not been fully determined.

When the preparation test data are not available, the preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly. See sections 3 and 15 for details.

Prolonged or repeated contact with skin or mucous membrane may result in irritation symptoms such as redness, blistering, dermatitis, etc.

The inhalation of airborne droplets or aerosols may cause irritation of the respiratory tract.

Contact with skin may cause a cross-allergic reaction in persons already sensitized to acrylates.

HAZARDOUS INGREDIENT TOXICITY DATA

ACUTE TOXICITY DATA

Trimethylolpropane triacrylate

Oral rat Acute LD50 (Actual) 5190 uL/kg

dermal rabbit Acute LD50 (Actual) 5000 mg/kg

Polyol acrylate

oral (gavage) rat Acute LD50 (Actual) > 2000 mg/kg

dermal rabbit Acute LD50 (Actual) > 2000 mg/kg

LOCAL EFFECTS ON SKIN AND EYE

Trimethylolpropane triacrylate

Acute Eye Irritation irritating

Acute Dermal Irritation irritating

Acrylated resin

Acute Eye Irritation irritating

Acute Dermal Irritation irritating

Polyol acrylate

Acute Eye Irritation irritating
Acute Dermal Irritation Not irritating

ALLERGIC SENSITIZATION

Trimethylolpropane triacrylate
Skin Sensitization Sensitizing

GENOTOXICITY**Assays for Gene Mutations**

Polyol acrylate
Ames Salmonella Assay Negative
Mouse lymphoma cell forward mutation Positive

12. ECOLOGICAL INFORMATION

The ecological properties of this material have not been fully investigated. An assessment has been initiated to determine possible environmental effects.

13. DISPOSAL CONSIDERATIONS

The Company encourages the recycle, recovery and reuse of materials, where permitted. If disposal is necessary, The Company recommends that organic materials, especially when classified as hazardous waste, be disposed of by thermal treatment or incineration at approved facilities. All local and national regulations should be followed.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

ADR/RID

Proper Shipping Name: Not applicable/Not regulated

IMO

Proper shipping name: Not applicable/Not regulated

ICAO / IATA

Proper shipping name: Not applicable/Not regulated

Packing Instructions/Maximum Net Quantity Per Package:

Passenger Aircraft: -

Cargo Aircraft: -

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol(s): Xi - Irritant

Risk Phrases:

R43 - May cause sensitization by skin contact.

R36/38 - Irritating to eyes and skin.

Safety Phrases:

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 - After contact with skin, wash immediately with plenty of soap and water.

S36/37 - Wear suitable protective clothing and gloves.

HAZARDOUS INGREDIENTS

Component / CAS No.

15625-89-5 Trimethylolpropane triacrylate

- Acrylated resin

- Polyol acrylate

Water Endangering Class (Germany): 2 according to VwVwS, 17.05.1999

INVENTORY INFORMATION

European Union (EU):

All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

United States (USA):

All components of this product are NOT included on the Toxic Substance Control Act (TSCA) Inventory. The chemical, physical, and toxicological properties of this material have not been fully investigated. Its handling or use may be hazardous, and it must be used under the supervision of technically qualified individuals. Materials not included on the TSCA Inventory may only be used for research and development (R&D) purposes or in other TSCA exempt activities.

Canada:

This product contains components not on the Domestic Substances List.

Australia: One or more components of this product have NOT yet been included in the Australian Inventory of Chemical Substances (AICS) or assessed by NICNAS.

China: All components of this product are NOT included on the Chinese inventory.

Japan: All components of this product are NOT included on the Japanese (ENCS) inventory.

Korea: All components of this product are NOT included on the Korean (ECL) inventory.

Philippines: All components of this product are NOT included on the Philippine (PICCS) inventory.

16. OTHER INFORMATION

Reasons for Issue: Revised Section 3

Component Risk Phrases

Acrylated resin

R36/38 - Irritating to eyes and skin.

Trimethylolpropane triacrylate

R43 - May cause sensitization by skin contact.

R36/38 - Irritating to eyes and skin.

Polyol acrylate

R36 - Irritating to eyes.

Acrylic acid

R10 - Flammable.

R35 - Causes severe burns.

R50 - Very toxic to aquatic organisms.

R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed.

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