



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: RAYLOK® 5022 radiation curing resins
Product Description: Radiation curable acrylated resin
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 UK Ltd BD4 7TT Bradford, West Yorkshire Bowling Park Drive, GB
Telephone no.: +44 1-27473-3891

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

Europe: +31-181-295600

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)

2. HAZARDS IDENTIFICATION

HUMAN AND ENVIRONMENTAL HAZARDS

Harmful in contact with skin.

Irritating to skin.

Risk of serious damage to eyes.

May cause sensitization by skin contact.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

Component / CAS No.	% (w/w)	EC-No	Classification
Acrylated resin	75 - 85	-	Xi; R36/38
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Component / CAS No.	% (w/w)	EC-No	Classification
Dipropylene glycol diacrylate 57472-68-1	10 - 19	260-754-3	Xi; R38 R41 R43
2-Benzoyl-2-propanol 7473-98-5	2 - 5	231-272-0	Xn; R22 N; R50/53
Acrylated resin -	3 - 4.5	-	Xi; R36
2-Hydroxyethylacrylate 818-61-1	0.2 - 2.0	212-454-9	T;R24 C;R34 R43 N;R50

See Section 16 for Ingredient Risk Phrase Text

4. FIRST AID MEASURES

Ingestion:

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Skin contact:

Wash immediately with plenty of water and soap. Remove contaminated clothing and shoes without delay. Obtain medical attention. Do not reuse contaminated clothing without laundering. Destroy or thoroughly clean shoes before reuse.

Eye contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical attention immediately.

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.

Extinguishing Media to Avoid:

high pressure water jet

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:

Product may cause a slip hazard. Spilled material should be absorbed onto an inert material and scooped up. Flush spill area with water. If slipperiness remains apply more dry-sweeping compound.

Environmental Precautions:

Avoid release to the environment.

7. HANDLING AND STORAGE

Handling

Precautionary Measures: Do not get in eyes. Avoid contact with skin and clothing. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Special Handling Statements: None

Storage

Observe label precautions. Prevent unauthorised access. Keep away from sources of ignition. Keep away from oxidizing agents, from alkaline and acid materials. Containers which are opened must be carefully resealed and kept upright to prevent leakage. This material should not be stored for more than the period mentioned on the Technical Data Sheet (TDS). Store between 4°C and 40°C. Protect from direct sunlight. This might cause uncontrollable polymerization of the product with generation of heat. Storage in stainless steel, amber glass, amber polyethylene or baked phenolic lined container.

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:

Utilize a closed system process where feasible.

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

Respiratory protection:

Where exposures are below the established exposure limit, no respiratory protection is required.

Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

Eye protection:

Prevent eye and skin contact.

Provide eye wash fountain and safety shower in close proximity to points of potential exposure.

Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:

Prevent contamination of skin or clothing when removing protective equipment.

Wear impermeable gloves and suitable protective clothing.

Hand protection:

Wear suitable gloves. Consider the porosity and elasticity data of the glove manufacturer and the specific conditions in the work place.

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:	yellowish
Appearance:	clear to hazy liquid
Odor:	ester
Boiling Point:	>100 °C
Melting Point:	Not available
Vapour pressure:	<1.33 hPa @ 20 °C
Specific Gravity/Density:	1.11 g/cm ³
Vapour density:	Not available
Percent Volatile (% by wt.):	<0.5 %
Solids Content:	Not available
pH:	Not available
Saturation In Air (% By Vol.):	Not available
Evaporation rate:	Not available
Solubility In Water:	Insoluble
Acid Number (mg KOH/g):	Not applicable
Hydroxyl Value (mg KOH/g):	Not available
Volatile Organic Content (EU):	Not available
Flash point:	>100 °C Setaflash
Flammable Limits (% By Vol):	Not applicable
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):	Very highly viscous liquid

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	Avoid exposure to strong UV sources. Avoid friction with temperature increase as result. Avoid direct contact with heat sources. Avoid temperatures higher than 60°C. Protect from direct sunlight.
Polymerization:	May occur
Conditions To Avoid:	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 free radical producing initiators.
 Avoid contact with peroxides.
 Avoid contact with reactive metals.
 Contact with 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

Harmful in contact with skin.
 Irritating to skin.
 Risk of serious damage to eyes.
 May cause sensitization by skin contact.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

Oral	rat	Acute LD50	>2000 mg/kg
dermal	rabbit	Acute LD50	No data
Inhalation	rat	Acute LC50 4 hr	No data

LOCAL EFFECTS ON SKIN AND EYE

Acute Irritation	dermal	irritating
Acute Irritation	eye	Causes serious damage

ALLERGIC SENSITIZATION

Sensitization	Skin	Sensitizing
Sensitization	respiratory	No data

GENOTOXICITY

Assays for Gene Mutations

Ames Salmonella Assay	No data
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OTHER INFORMATION

The product toxicity information above has been estimated.

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.

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

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

HAZARDOUS INGREDIENT TOXICITY DATA

ACUTE TOXICITY DATA

2-Benzoyl-2-propanol

Oral rat Acute LD50 (Actual) 1376 mg/kg

dermal rat Acute LD50 (Actual) 6930 mg/kg

Dipropylene glycol diacrylate

oral (gavage) rat Acute LD50 (Actual) 4600 mg/kg
dermal rabbit Acute LD50 (Actual) > 2000 mg/kg

2-Hydroxyethylacrylate

oral (gavage) rat Acute LD50 (Actual) 540 mg/kg
dermal rabbit Acute LD50 (Actual) 50 mg/kg
Inhalation rat Acute LC50 (4 hr) 500 ppm

LOCAL EFFECTS ON SKIN AND EYE

Acrylated resin

Acute Eye Irritation irritating

2-Benzoyl-2-propanol

Acute Eye Irritation Not irritating

Acute Dermal Irritation Not irritating

Dipropylene glycol diacrylate

Acute Eye Irritation Causes serious damage

Acute Dermal Irritation irritating

Acrylated resin

Acute Eye Irritation rabbit irritating

Acute Dermal Irritation rabbit irritating

2-Hydroxyethylacrylate

Acute Dermal Irritation corrosive

Acute Eye Irritation Causes serious damage

ALLERGIC SENSITIZATION

2-Benzoyl-2-propanol

Sensitization Skin Not sensitizing

Dipropylene glycol diacrylate

Skin Sensitization Sensitizing

2-Hydroxyethylacrylate

Skin Sensitization dermal Sensitizing

12. ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
The ecological assessment for this material is based on an evaluation of its components.

13. DISPOSAL CONSIDERATIONS

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: Environmentally hazardous substance, liquid, n.o.s.
Class: 9
UN Number: UN3082
Packing Group: III
Transport Label Required: Miscellaneous
Technical Name (N.O.S.): AROMATIC KETONES

IMO

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Hazard Class: 9
UN Number: UN3082
Packing group: III
Transport Label Required: Miscellaneous
Technical Name (N.O.S.): AROMATIC KETONES

ICAO / IATA

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Hazard Class: 9
Packing group: III
UN Number: UN3082
Transport Label Required: Miscellaneous
Packing Instructions/Maximum Net Quantity Per Package:
Passenger Aircraft: 914; 450 L
Cargo Aircraft: 914; 450 L
Technical Name (N.O.S.): AROMATIC KETONES

15. REGULATORY INFORMATION

Labelling according to EC Directives

Symbol(s): Xn - Harmful
N - Dangerous for the environment

Risk Phrases:

R21 - Harmful in contact with skin.
R38 - Irritating to skin.
R41 - Risk of serious damage to eyes.
R43 - May cause sensitization by skin contact.
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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.
S61 - Avoid release to the environment.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

HAZARDOUS INGREDIENTS

Component / CAS No.

57472-68-1 Dipropylene glycol diacrylate
- Acrylated resin
818-61-1 2-Hydroxyethylacrylate

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: All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed 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: New Product

Component Risk Phrases

Acrylated resin

R36/38 - Irritating to eyes and skin.

Dipropylene glycol diacrylate

R38 - Irritating to skin.

R41 - Risk of serious damage to eyes.

R43 - May cause sensitization by skin contact.

2-Benzoyl-2-propanol

R22 - Harmful if swallowed.

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Acrylated resin

R36 - Irritating to eyes.

2-Hydroxyethylacrylate

R24 - Toxic in contact with skin.

R34 - Causes burns.

R43 - May cause sensitization by skin contact.

R50 - Very toxic to aquatic organisms.

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