

## 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® 5021 radiation curing resins  
**Product Description:** Aromatic urethane acrylate 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

Irritating to skin.

Risk of serious damage to eyes.

May cause sensitization by skin contact.

Harmful 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
Bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide 145052-34-2	< 0.30	EEC No. 412-010-6; EEC No. 423-340-5	R43 N;R50-53

Component / CAS No.	% (w/w)	EC-No	Classification
Acrylated resin -	85 - 90	-	Xi; R36/38
oxybis(methyl-2,1-ethanediyl) diacrylate 57472-68-1	10 - 15	260-754-3	Xi; R38 R41 R43

See Section 16 for Ingredient Risk Phrase Text

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## 4. FIRST AID MEASURES

### Ingestion:

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

### 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.

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## 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.

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## 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.

### 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. 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

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

**Storage Temperature:** Store at 4 - 40 °C

**Reason:** Integrity.

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## 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 when spraying or curing at elevated temperatures.

### 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.

A full facepiece respirator also provides eye and face protection.

Cutting, grinding or sanding of parts fabricated after curing may create respirable dust particles. Respiratory protection appropriate for this dust may be required. Refer to components listed above for potential hazardous components in the dust.

### 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.

Barrier creams may be used in conjunction with the gloves to provide additional skin protection.

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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	clear liquid
<b>Odor:</b>	ester
<b>Boiling Point:</b>	>100 °C
<b>Melting Point:</b>	Not available
<b>Vapour pressure:</b>	<1.33 hPa @ 20 °C
<b>Specific Gravity/Density:</b>	>1 g/cm <sup>3</sup>
<b>Vapour density:</b>	Not available
<b>Percent Volatile (% by wt.):</b>	< 0.5
<b>Solids Content:</b>	Not available
<b>pH:</b>	Not available
<b>Saturation In Air (% By Vol.):</b>	Not available
<b>Evaporation rate:</b>	Not available
<b>Solubility In Water:</b>	Not available
<b>Acid Number (mg KOH/g):</b>	Not applicable
<b>Hydroxyl Value (mg KOH/g):</b>	Not available
<b>Volatile Organic Content (EU):</b>	Not available
<b>Flash point:</b>	> 100 °C      Setaflash
<b>Flammable Limits (% By Vol):</b>	Not applicable
<b>Autoignition temperature:</b>	Not available
<b>Decomposition temperature:</b>	Not available
<b>Partition coefficient (n-octanol/water):</b>	Not available
<b>Fat Solubility (Solvent-Oil):</b>	Not available
<b>Viscosity (Kinematic):</b>	Not available
<b>Viscosity (Dynamic):</b>	Not available

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## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable
<b>Conditions To Avoid:</b>	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.
<b>Polymerization:</b>	May occur
<b>Conditions To Avoid:</b>	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
<b>Materials to avoid:</b>	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.
<b>Hazardous Decomposition Products:</b>	oxides of carbon nitrogen oxides (NO <sub>x</sub> ) hydrocarbons smoke soot

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## 11. TOXICOLOGICAL INFORMATION

### Potential health effects

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	>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	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.

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

oxybis(methyl-2,1-ethanediyl) diacrylate			
oral (gavage)	rat	Acute LD50 (Actual)	4600 mg/kg
dermal	rabbit	Acute LD50 (Actual)	> 2000 mg/kg

#### LOCAL EFFECTS ON SKIN AND EYE

oxybis(methyl-2,1-ethanediyl) diacrylate		
Acute Eye Irritation	Causes serious damage	
Acute Dermal Irritation	irritating	

#### Acrylated resin

Acute Eye Irritation	rabbit	irritating
Acute Dermal Irritation	rabbit	irritating

#### ALLERGIC SENSITIZATION

oxybis(methyl-2,1-ethanediyl) diacrylate	
Skin Sensitization	Sensitizing

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## 12. ECOLOGICAL INFORMATION

Harmful 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.

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## 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.

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## 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: -

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## 15. REGULATORY INFORMATION

### Labelling according to EC Directives

**Symbol(s):** Xi - Irritant

### Risk Phrases:

R38 - Irritating to skin.

R41 - Risk of serious damage to eyes.

R43 - May cause sensitization by skin contact.

R52/53 - Harmful 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 oxybis(methyl-2,1-ethanediyl) diacrylate

- Acrylated resin

**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 included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

### Canada:

This product contains components not on the Domestic Substances List.

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

**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.

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## 16. OTHER INFORMATION

**Reasons for Issue:** New Product

### Component Risk Phrases

Bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide

R43 - May cause sensitization by skin contact.

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

Acrylated resin

R36/38 - Irritating to eyes and skin.

oxybis(methyl-2,1-ethanediyl) diacrylate

R38 - Irritating to skin.

R41 - Risk of serious damage to eyes.

R43 - May cause sensitization by skin contact.

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