

SAFETY DATA SHEET

1. IDENTIFICATION

Product Name:	EBECRYL® 4680 radiation curing resins
Synonyms:	None
Product Description:	unsaturated urethane acrylate resin
Molecular Weight:	Mixture
Intended/Recommended Use:	Binder
Uses advised against:	This product should not be used in any application where unreacted liquid product is intended to come in direct contact with skin or nails. Reason: sensitizing properties.

Allnex USA Inc., 9005 Westside Parkway, Alpharetta, Georgia 30009, USA

For Product and all Non-Emergency Information call your local Allnex contact point or contact us at <http://www.allnex.com/contact>

EMERGENCY PHONE (24 hours/day) - For emergency only involving spill, leak, fire, exposure or accident call:

+1-866-928-0789 (toll free) or +1-215-207-0061 (Carechem 24 - Allnex29003-NCEC)

See Section 16 for Emergency phone numbers for other regions.

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2. HAZARDS IDENTIFICATION

GHS Classification

Skin Corrosion / Irritation Hazard Category 2
Serious Eye Damage / Eye Irritation Hazard Category 2A
Skin Sensitizer Hazard Category 1B
Aquatic Environment Acute Hazard Category 2
Aquatic Environment Chronic Hazard Category 3

LABEL ELEMENTS



Signal Word

WARNING

Hazard Statements

Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction

Toxic to aquatic life
Harmful to aquatic life with long lasting effects

Precautionary Statements

Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
IF ON SKIN: Wash with plenty of soap and water.
Specific treatment (see supplemental first aid instructions on this label).
Take off contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
If skin irritation or rash occurs: Get medical advice/attention.
Dispose of contents/container in accordance with local and national regulations.

Hazards Not Otherwise Classified (HNOC), Other Hazards

Polymerization may occur from excessive heat, contamination or exposure to direct sunlight.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS

Component / CAS No.	%	GHS Classification	Carcinogen
Hexamethylene diacrylate 13048-33-4	~ 20	Skin Irrit. 2 (H315) Eye Irrit. 2A (H319) Skin Sens. 1B (H317) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411)	-
Unsaturated Acrylate Resin -	~ 80	Skin Irrit. 2 (H315) Eye Irrit. 2A (H319)	-

The specific chemical identity and/or exact percentage of composition for one or more ingredients has been withheld as a trade secret.

Additional GHS classification or other information may be included in this section but has not been adopted by OSHA. See Section 16 for full text of H phrases.

4. FIRST AID MEASURES

First-aid Measures

Inhalation:

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

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 advice if there are persistent symptoms.

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.

Most Important Symptoms and Effects, Acute and Delayed

None known.

Immediate Medical Attention and Special Treatment

In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Notes To Physician:

No specific measures have been identified.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media:**

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

Unsuitable Extinguishing Media:

high pressure water jet.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See SDS 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.

Environmental Precautions:

Avoid release to the environment.

References to other sections:

See Sections 7, 8 and 13 for additional information.

7. HANDLING AND STORAGE**HANDLING**

Precautions: Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves and eye/face protection.

Special Handling Statements: Provide good ventilation of working area (local exhaust ventilation if necessary). Avoid excessive heat, contamination or exposure to direct sunlight to prevent polymerization.

STORAGE

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

Storage Temperature: Ambient temperature ~ 4 - 40 °C 39 - 104 °F

Reason: Safety.

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 when spraying or curing at elevated temperatures.

Respiratory Protection:

For operations where inhalation exposure can occur use an approved respirator. Recommendations are listed below. Other protective respiratory equipment may be used based on user's own risk assessment. Recommended respirators include those certified by NIOSH.

Recommended:

Full Face Mask with organic vapor cartridge, Type A filter (BP >65°C)

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

Hand Protection:

Wear protective gloves. Recommendations are listed below. Other protective materials may be used based on user's own risk assessment. 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, color, flexibility etc.) is noticed.

Gloves for short term exposure/splash protection - non exhaustive list:

Laminated multilayer gloves, break through time: > 60 min

Nitrile rubber (NBR), thickness: > 0.56 mm, break through time: < 60 min

The chemical resistance depends on the type of product and amount of product on the glove. Therefore gloves need to be changed when in contact with chemicals.

Not suitable gloves - non exhaustive list:

Latex gloves

Due to many conditions (e.g. temperature, abrasion) the practical usage of a chemical protective glove in practice may be much shorter than the permeation time determined through testing.

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.

Biological Exposure Limit(s)

No values have been established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	yellowish
Appearance:	liquid
Odor:	slight
Boiling Point:	> 100 °C 212 °F Not available
Melting Point:	Not available
Vapor Pressure:	~ 7 hPa @ 20 °C EG A4
Specific Gravity/Density:	~ 1.11 g/cm ³ DIN 51757 @ 20 °C
Vapor Density:	Not available
Percent Volatile (% by wt.):	Not available
pH:	Not available
Saturation In Air (% By Vol.):	Not available
Evaporation Rate:	Not available
Solubility In Water:	@ 15 °C immiscible
Volatile Organic Content:	Not available
Flash Point:	Non Flammable (polymerized at 190 °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
Odor Threshold:	Not available
Viscosity (Kinematic):	Not applicable
Viscosity (Dynamic):	~ 29000 mPa.s @ 23 °C DIN EN ISO 3219
Explosive Properties:	Not available
Oxidizing Properties:	Not available

10. STABILITY AND REACTIVITY

Reactivity:	No information available
Stability:	Stable.
Conditions To Avoid:	Avoid direct exposure to sunlight. Avoid temperatures above 60°C (140°F). Avoid friction with temperature increase as result. Avoid exposure to strong UV sources. Avoid direct contact with heat sources.
Polymerization:	May occur
Conditions To Avoid:	Uncontrolled polymerization may cause rapid evolution of heat and increase in pressure that could result in violent rupture of sealed storage vessels or containers. Hazardous polymerization can occur when exposed to direct sunlight. Hazardous exothermic polymerization can occur when heated. Avoid contact with bases or amines. Avoid contact with strong oxidizing agents. Avoid contact with free radical initiators.
Materials To Avoid:	Avoid contact with peroxides. Copper, copper alloys, carbon steel, iron and rust. Avoid free radical producing initiators. Contact with alkalis. They give an exothermic reaction with the product. Unintentional contact with them should be avoided. Avoid contact with active metals.

Hazardous Decomposition Products: No hazardous decomposition products if stored and handled as prescribed.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Skin, Eyes, Oral.

Acute toxicity - oral: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Acute toxicity - dermal: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Acute toxicity - inhalation: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin corrosion / irritation: Causes skin irritation

Serious eye damage / eye irritation: Causes serious eye irritation

Respiratory sensitization: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin sensitization: May cause an allergic skin reaction

Carcinogenicity: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Germ cell mutagenicity: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Reproductive toxicity: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Specific target organ toxicity (STOT) - single exposure: Not Classified. - Based on available data and/or professional judgment, the classification criteria are not met.

Specific target organ toxicity (STOT) - repeated exposure: Not Classified. - Based on available data and/or professional judgment, the classification criteria are not met.

Aspiration hazard: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

oral	rat	Acute LD50	> 2000 mg/kg
dermal	rabbit	Acute LD50	> 2000 mg/kg (estimated)
inhalation	rat	Acute LC50 4 hr	> 5 mg/l (Dust/Mist) estimated

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.

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.

11. TOXICOLOGICAL INFORMATION**HAZARDOUS INGREDIENT TOXICITY DATA**

Hexamethylene diacrylate, CAS 13048-33-4, has oral (rat) and dermal (rabbit) LD50 values of >5000 mg/kg and 3600 mg/kg, respectively. This material causes moderate skin and eye irritation. Repeated skin contact may cause allergic skin reaction. No evidence of point mutations in the Salmonella bacterial test was observed. Structurally similar acrylate and methacrylate substances showed no evidence of point mutation in the in vitro hprt mutation assay and no evidence of a mutagenic effect was seen when tested in whole animal chromosomal aberration and/or micronucleus assays. In contrast this substance as well as the entire acrylate/methacrylate chemical class produced a consistently positive response when tested in the mouse lymphoma assay and/or other in vitro mammalian cell assays designed to detect clastogenicity. However, the biological relevance of this in vitro response is questioned as these results could not be confirmed in tests on whole mammalian systems. This substance has been shown to cause fetotoxic effects during animal testing only in the presence of maternal toxicity.

Based on toxicological studies of a similar substance: The unsaturated acrylate resin has an acute oral LD50 (rat) of > 2000 mg/kg. Direct contact causes moderate eye and skin irritation (rabbits).



WARNING: Reproductive Harm – www.P65Warnings.ca.gov

12. ECOLOGICAL INFORMATION**TOXICITY, PERSISTENCE AND DEGRADABILITY, BIOACCUMULATIVE POTENTIAL, MOBILITY IN SOIL, OTHER ADVERSE EFFECTS**

Overall Environmental Toxicity: Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

The ecological assessment for this material is based on an evaluation of its components.

The ecological properties of this material have not been fully investigated.

RESULTS OF PBT AND vPvB ASSESSMENT

Not determined

HAZARDOUS INGREDIENT TOXICITY DATA

Component / CAS No.	Toxicity to Fish
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Hexamethylene diacrylate (13048-33-4)	LC50 = 4.6 - 10 mg/L - Leuciscus idus (96hrs) LC50 = 0.38 mg/L - Oryzias latipes (96hrs) NOEC = 0.072 mg/L - Oryzias latipes (39d)
Unsaturated Acrylate Resin (-)	Not available

Component / CAS No.	Toxicity to Water Flea
Hexamethylene diacrylate (13048-33-4)	EC 50 = 2.6 mg/L - Daphnia magna (48hrs) EC50 = 2.7 mg/L - Daphnia magna (48hrs) NOEC = 0.14 mg/L - Daphnia magna (21d)
Unsaturated Acrylate Resin (-)	Not available

Component / CAS No.	Toxicity to Algae
Hexamethylene diacrylate (13048-33-4)	EC 50 = 1.5 mg/L - Desmodesmus subspicatus (72hrs) NOEC = 0.5 mg/L - Desmodesmus subspicatus (72hrs) EC50 = 2.33 mg/L - Selenastrum capricornutum (72hrs) NOEC = 0.9 mg/L - Selenastrum capricornutum (72hrs)
Unsaturated Acrylate Resin (-)	Not available

Component / CAS No.	Partition coefficient
Hexamethylene diacrylate (13048-33-4)	Log Kow = 2.81
Unsaturated Acrylate Resin (-)	Not available

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA "listed hazardous waste" or has any of the four RCRA "hazardous waste characteristics." Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA "listed hazardous waste"; information contained in Section 15 of this SDS is not intended to indicate if the product is a "listed hazardous waste." RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this SDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 3 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

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

US DOT

Dangerous Goods? Not applicable/Not regulated

TRANSPORT CANADA

Dangerous Goods? Not applicable/Not regulated

ICAO / IATA

Dangerous Goods? Not applicable/Not regulated

IMO

Dangerous Goods? Not applicable/Not regulated

SPECIAL PRECAUTIONS FOR USER

Protect against external heat sources above +40°C/104°F.

15. REGULATORY INFORMATION**Inventory Information**

United States (USA): All components of this product are designated as “Active” on the TSCA Inventory or are not required to be listed.

Canada: One or more components of this product are NOT included on the Canadian Domestic Substances List (DSL). These components are included on the Canadian Non-Domestic Substances List (NDSL).

European Economic Area (including EU): When purchased from an Allnex legal entity based in the EEA (EU or Norway), this product is compliant with the registration of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt and/or registered.

Australia: One or more components of this product have been assessed by NICNAS. This product can ONLY be imported into Australia by Allnex or other specific entities.

New Zealand: This product is approved or exempt under the Hazardous Substances and New Organisms (HSNO) Act.

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 included on the Japanese (ENCS and ISHL) inventories or are not required to be listed on the Japanese inventories.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

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

Taiwan: All components of this product are included in the Taiwan chemical substance inventory or are not required to be listed on the Taiwan chemical substance inventory (TCSI).

Switzerland: All components of this product are exempt from the new substance notification requirements for Switzerland (SR 813.11 art. 24-26).

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

This product does not contain any components regulated under these sections of the EPA

PRODUCT HAZARD CATEGORY UNDER SECTIONS 311 AND 312 OF EPCRA

Physical Hazards

Not applicable

Health Hazards

Skin Corrosion or Irritation

Respiratory or Skin Sensitization

Serious eye damage or eye irritation

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 1 - Materials that must be preheated before ignition can occur.

Instability: 1 - Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures.

Reasons For Issue: Revised Section 2
Revised Section 3
Revised Section 12

Date Prepared: 08/06/2019

Date of last significant revision: 08/06/2019

Component - Hazard Statements

Hexamethylene diacrylate

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H319 - Causes serious eye irritation.

H400 - Very toxic to aquatic life.

H411 - Toxic to aquatic life with long lasting effects.

Unsaturated Acrylate Resin

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

Emergency phone numbers for other regions

Asia Pacific

Australia: +61 1800 022 037 (Allnex Australia)

China (PRC): +86(0)25 8547 7110 (Jiangsu registration center) / +86(0)532 8388 9090 (NRCC)

India: 000 800 100 7479 (toll free) or +65 3158 1198 (Carechem 24)

Indonesia: 007 803 011 0293 (Carechem 24)

Japan: +81 345 789 341 (Carechem 24)

Korea: +82 2 3479 8401 (Carechem 24)

Malaysia: +60 3 6207 4347 (Carechem 24)

New Zealand: +64 0800 803 002 (Allnex New Zealand)

Philippines: +63 2 231 2149 (Carechem 24)

Taiwan: +886 2 8793 3212 (Carechem 24)

Vietnam: +84 8 4458 2388 (Carechem 24)

All Others: +65 3158 1074 (Carechem 24)

Europe

+44 (0) 1235 239 670 (Carechem 24)

Middle East, Africa

+44 (0) 1235 239 671 (Carechem 24)

Latin America

Brazil: +55-800-707-7022 (toll free) or +55-11-98149-0850 (Suatrans 24)

Chile: +56 2 2582 9336 (Carechem 24)

Mexico and all others: +52-555-004-8763 (Carechem 24)

Prepared By: Product Stewardship & Regulatory Affairs Department, <http://www.allnex.com/contact>

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