

EBECRYL® 4397

Isocyanate Functional Aliphatic Urethane Acrylate

August 2017



INTRODUCTION

EBECRYL 4397 is an undiluted isocyanate aliphatic functional urethane acrylate designed for use in UV/EB coatings and in two component dual cure systems for coatings on wood, plastic and metal. EBECRYL 4397 exhibits greater flexibility in comparison to other isocyanate functional urethane acrylates such as EBECRYL 4150⁽¹⁾.

SUGGESTED APPLICATIONS

Formulations with EBECRYL 4397 can be used for;

- UV/EB curable, two component polyurethane coatings
- One component adhesion primer

EBECRYL 4397 can be combined with hydroxyl functional resins to formulate coatings which cure by dual processes; UV/EB induced polymerization and NCO/OH reaction.

The product is also used in straight UV/EB curing coatings to improve the adhesion on substrates such as plastic, metal and exotic woods.

FORMULATING

The viscosity of EBECRYL 4397 can be reduced using standard reactive diluents such as dipropylene glycol diacrylate (DPGDA)⁽¹⁾, 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, and trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and non-reactive solvents. Suitable solvents are esters, ketones and aromatic hydrocarbons. Non-reactive solvents must be evaporated prior to curing. Only pure grade solvents should be used (max 0.05% water). EBECRYL 4397 should not be thinned below a non-volatile content of 40%. Prolonged storage of a solution with lower binder content may result in turbidity, sedimentation or even gelling.

Reactive diluents and solvents containing reactive groups such as hydroxyl or amine groups strongly influence pot life and storage stability.

Coatings containing EBECRYL 4397 may be applied by spraying, curtain or roller coated at ≤ 100g/m² coat weight. After an adequate flash-off time of solvents (if any), the coatings are UV/EB cured. This creates a tack free and dust-dry surface. Following UV/EB curing, any post-reaction of NCO/OH groups takes place at room temperature or is forced by heat. This results in good adhesion and good mechanical and chemical resistance of the coating.

EBECRYL 4397 has good compatibility with esters, ketones and aromatic hydrocarbons such as ethyl acetate, butyl acetate, methoxypropyl acetate, acetone, methyl ethyl ketone, methyl isobutyl ketone, xylene and mixtures thereof.

Because of the many possible combinations with thinners and solvents, the compatibility and storage stability should be tested in each individual case.

TYPICAL PHYSICAL PROPERTIES

	VALUE
Color, Pt-Co scale ⁽²⁾ , max.	<150
Density, g/ml at 20°C	1.10
Flash point, °C	>100
Functionality, acrylate groups	1
Functionality, NCO groups	3
NCO content, %	6.7
Viscosity, 25°C, cP/mPa·s	11000

PRECAUTIONS

Before using EBECRYL 4397, see the Safety Data Sheet (SDS) for information on the identified hazards of the material and the recommended personal protective equipment and procedures.

STORAGE AND HANDLING

Care should be taken not to expose the product to high temperature conditions, direct sunlight, ignition sources, oxidizing agents, alkalis, acids or water. This might cause uncontrollable polymerization of the product with the generation of heat. Storage and handling should be in stainless steel, amber glass, amber polyethylene or baked phenolic lined containers. Procedures that remove or displace oxygen from the material should be avoided. Do not store this material under an oxygen free atmosphere. The product is sensitive to moisture. Skin formation may occur in opened containers. Dry air is recommended to displace material removed from the container. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation.

See the SDS for the recommended storage temperature range for EBECRYL 4397.

Please refer to the allnex Guide to Safety and Handling of Acrylate Oligomers and Monomers for additional information on the safe handling of acrylates.

(1) Product of allnex

(2) Also referred to as APHA/Hazen color

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