

# EBECRYL® 4396

## Isocyanate Functional Aliphatic Urethane Acrylate

### INTRODUCTION

EBECRYL 4396 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.

### SUGGESTED APPLICATIONS

Formulations with EBECRYL 4396 can be used for;

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

EBECRYL 4396 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 4396 can be reduced using standard reactive diluents such as dipropylene glycol diacrylate (DPGDA)<sup>(1)</sup>, 1,6-hexanediol diacrylate (HDDA)<sup>(1)</sup>, isobornyl acrylate (IBOA)<sup>(1)</sup>, and trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup>, 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 4396 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 4396 may be applied by spraying, curtain or roller coated at ≤ 100g/m<sup>2</sup> 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 4396 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.

### SPECIFICATIONS

	VALUE
Colour, Pt-Co scale <sup>(2)</sup> , max.	150
NCO content, %	7.0-8.0
Viscosity, 23°C, cP/mPa·s	12000-20000

### TYPICAL PHYSICAL PROPERTIES

Density, g/ml at 20°C	1.10
Flash point, °C	>100
Functionality, acrylate groups	1
Functionality, NCO groups	2.2

### STORAGE AND HANDLING

Before using EBECRYL 4396, consult the Safety Data Sheet for additional information on safety and handling procedures, and recommended personal protective equipment.

The recommended storage temperature range for EBECRYL 4396 is 4°C to 40°C (39°F to 104°F). Care should be taken not to expose the product to high temperature conditions, direct sunlight, ignition sources, oxidizing agents, alkalis, acids or water. Prevent inadvertent contact with peroxides and other radical initiators and contact with copper, copper alloys, carbon steel, iron and rust. 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.

### PRECAUTIONS

Avoid contact with eyes and skin. Direct contact with this material may cause slight skin irritation. Repeated skin contact may result in sensitization and cause an allergic skin reaction. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation.

(1) Product of Allnex

(2) Also referred to as APHA/Hazen colour

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