

# EBECRYL® 4680

## Aliphatic Urethane Acrylate

### INTRODUCTION

EBECRYL 4680 is an aliphatic urethane acrylate diluted 20% by weight with 1,6-hexanediol diacrylate (HDDA)<sup>(1)</sup>. EBECRYL 4680 exhibits good reactivity and produces hard, tough coatings.

### PERFORMANCE HIGHLIGHTS

UV/EB cured coatings based on EBECRYL 4680 are characterized by the following performance properties:

- Very good mechanical properties
- High abrasion resistance
- Good chemical resistance
- Low yellowing

The actual properties of UV/EB energy cured products also depend on the selection of other formulation components such as reactive diluents, additives and photoinitiators.

### SUGGESTED APPLICATIONS

EBECRYL 4680 is designed for use in the formulation of UV/EB energy curable coatings for application by roller coating, spraying and curtain coating on wood, cork, furniture, paper, parquet plastics and film.

### FORMULATING

Coatings can be adjusted to appropriate viscosity for the application with additional HDDA or the addition of other standard reactive diluents such as dipropylene glycol diacrylate (DPGDA)<sup>(1)</sup>, isobornyl acrylate (IBOA)<sup>(1)</sup>, and trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup> or solvents such as butyl acetate.

EBECRYL 4680 is compatible with most acrylate monomers and oligomers. Because of the many potential combinations with reactive diluents and solvents, compatibility must be tested in each individual case.

UV curing of coatings formulated with EBECRYL 4680 requires the addition of standard commercial photoinitiators. Typical levels are 4-6%, though this may vary to meet the reactivity requirements of the application. In the case of EB curing, a low oxygen atmosphere must be ensured to avoid surface inhibition.

Lower gloss coatings can be produced using standard matting agents. Care should be taken with respect to sedimentation which may cause the coating to gel prematurely.

(1) Product of Allnex

(2) Also referred to as APHA/Hazen colour

### SPECIFICATIONS

	VALUE
Colour, Pt-Co scale <sup>(2)</sup> , max.	150
Viscosity, 23°C, cP/mPa·s	25000-33000

### TYPICAL PHYSICAL PROPERTIES

Acid value, mg KOH/g	1
Density, g/ml at 20°C	1.11
Flash point, °C	>100
Functionality	3.8
Hydroxyl content, %	0.5

### TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	2900 (20)
Elongation at break, %	2

### STORAGE AND HANDLING

Before using EBECRYL 4680, 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 4680 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 or acids. 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. 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 skin irritation and serious eye 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.

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