

### ALIPHATIC URETHANE TRIACRYLATE

## INTRODUCTION

EBECRYL® 4820 is an aliphatic urethane triacrylate diluted 35% in hexanediol diacrylate (HDDA). Ultraviolet light (UV) or electron beam (EB) cured coatings based on EBECRYL® 4820 exhibit good hardness, very good stain resistance and excellent weatherability.

## PERFORMANCE HIGHLIGHTS

EBECRYL® 4820 is characterized by:

- Very low color
- Moderate viscosity

UV/EB cured products containing EBECRYL® 4820 are characterized by the following performance properties:

- Surface hardness
- High stain resistance
- Excellent exterior durability

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

## FORMULATING

The viscosity of EBECRYL® 4820 can be reduced with the addition reactive diluents such as 1,6-hexanediol diacrylate (HDDA)<sup>(1)</sup>, isobornyl acrylate (IBOA)<sup>(1)</sup>, trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup> and tripropylene glycol diacrylate (TPGDA)<sup>(1)</sup>. Although viscosity reduction can be achieved with non-reactive solvents, reactive diluents are preferred because they are essentially 100 percent converted during UV/EB exposure to form a part of the coating or ink, thus reducing solvent emissions. The specific reactive diluents used will influence performance properties such as hardness and flexibility.

UV curing of coatings formulated with EBECRYL® 4820 requires the addition of standard commercial photo initiators. 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.

<sup>(1)</sup> product of allnex

## SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 4820 may be applied by various methods including direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, curtain, immersion and spin coating methods. EBECRYL® 4820 is recommended for use in:

- Exterior durable coatings
- Coatings for wood/composite flooring
- Protective coatings for plastics

## SPECIFICATIONS

Acid value, mg KOH/g	max. 3.0
Appearance	Clear liquid
Color, Apha	max. 30
NCO content, %	max. 0.10
Viscosity, 23°C, mPa.s	3200 - 4000

## TYPICAL PHYSICAL PROPERTIES

Density, g/cm <sup>3</sup> at 20°C	1.09
Flash point, °C	> 100
Functionality, theoretical	3
Hydroxyl value, mg KOH/g	< 25
Resin, % by weight	65
HDDA, % by weight	35

## PRECAUTIONS

Before using EBECRYL® 4820, 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 or acids. 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. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation.

See the SDS for the recommended storage temperature range for EBECRYL® 4820.