

# EBECRYL<sup>®</sup> 3300

## Modified Epoxy Acrylate

### INTRODUCTION

EBECRYL 3300 is a modified epoxy acrylate oligomer that exhibits high reactivity and provides a good balance of hardness and flexibility in UV/EB cured coatings. Combined with suitable adhesion promoters<sup>(1)</sup>, EBECRYL 3300 offers outstanding adhesion on metal substrates while maintaining the chemical and corrosion resistance typical of epoxy acrylates. It is recommended in both clear and pigmented coatings. EBECRYL 3300 is supplied diluted 35% by weight with the reactive diluent DPGDA<sup>(2)</sup> (dipropylene glycol diacrylate).

### PERFORMANCE HIGHLIGHTS

EBECRYL 3300 is characterized by:

- Low viscosity
- High reactivity
- Light color

UV/EB cured products based on EBECRYL 3300 are characterized by the following performance properties:

- Good adhesion, including metal substrates
- Chemical resistance
- Balanced hardness and flexibility
- Corrosion resistance

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

For UV curing, a suitable photoinitiator (e.g. ADDITOL<sup>®</sup> HDMAP<sup>(2)</sup>) must be added. The specific photoinitiator type and quantity is dependant upon line speed, number and power of UV lamps, the thickness of the coating and the use of any pigments.

### SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 3300 may be applied by direct or reverse roll, curtain, vacuum and spray coating methods. EBECRYL 3300 is recommended for use in:

- Clear or pigmented coatings for metal substrates
- Clear coatings requiring flexibility with hardness for paper, paperboard, wood, chipboard and rigid plastics

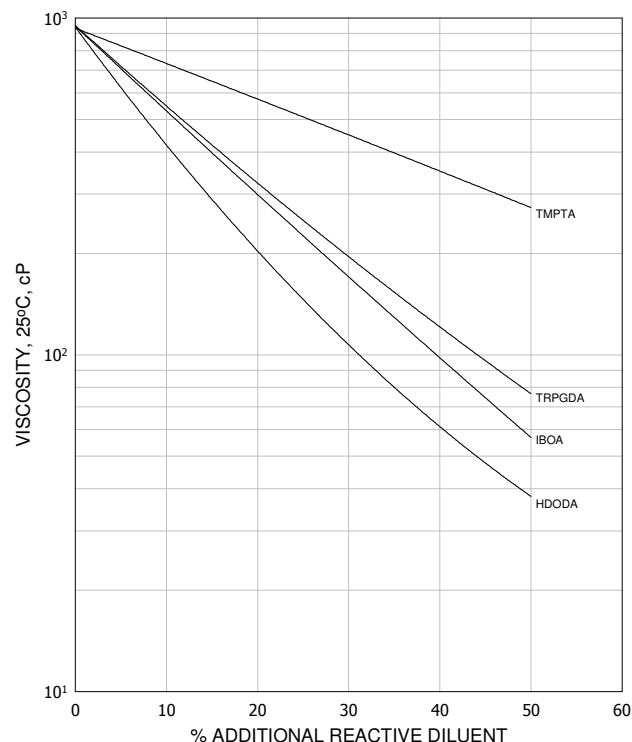
### TYPICAL PHYSICAL PROPERTIES

Acid value, mg KOH/g	<1.5
Color, Gardner scale	<3
Density, g/ml at 20°C	1.12
Functionality, theoretical	2
Oligomer, % by weight	65
Reactive diluent, % by weight	35
Viscosity at 25°C, cP	~1100

### TYPICAL CURED PROPERTIES<sup>(3)</sup>

Tensile strength, psi	9135
Elongation at break, %	5
Young's modulus, psi	297000
Glass transition temperature, °C	130

**Graph I**  
**EBECRYL 3300**  
**Viscosity Reduction with Reactive Diluents**



(1) EBECRYL 168, EBECRYL 170 and EBECRYL 171; products of Cytec Industries

(2) Product of Cytec Industries

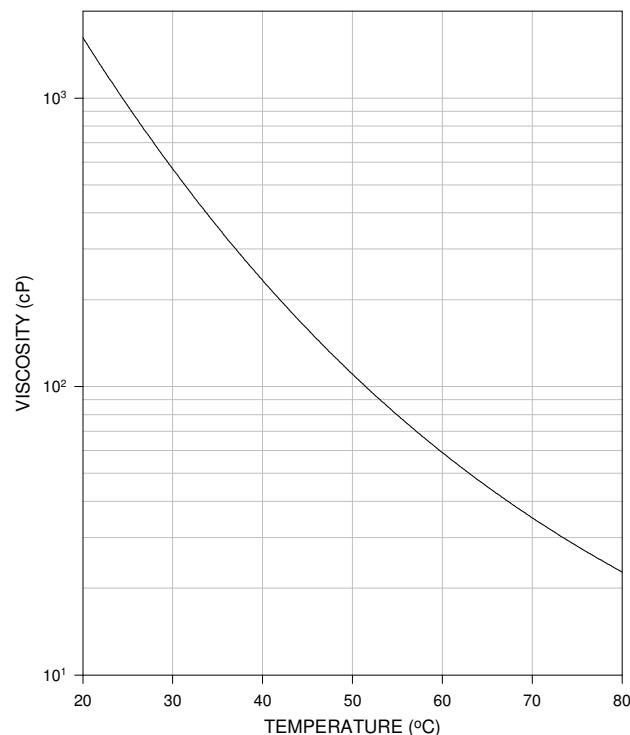
(3) Measured on an EB cured film, 100 microns, 5 MRad, 250 keV

## VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3300 with 1,6-hexanediol diacrylate (HDODA)<sup>(1)</sup>, isobornyl acrylate (IBOA), trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup>, and tripropylene glycol diacrylate (TRPGDA)<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.

Graph II illustrates the change in viscosity of EBECRYL 3300 with increasing temperature.

**Graph II**  
**EBECRYL 3300**  
**Viscosity vs. Temperature**



(1) Product of Cytec Industries Inc.

## STORAGE AND HANDLING

Before using EBECRYL 3300, consult the **Material Safety Data Sheet** for additional information on hazards, handling procedures, and recommended protective equipment.

The maximum recommended storage temperature for EBECRYL 3300 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. 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, skin and clothing. Direct contact with this material may cause severe eye and moderate skin irritation. Repeated or prolonged dermal contact may cause allergic skin reactions. Wash thoroughly after handling. Use with adequate ventilation. Keep container closed.

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

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