

EBECRYL® 3700

Bisphenol A Epoxy Diacrylate

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INTRODUCTION

EBECRYL 3700 is the diacrylate ester of a bisphenol A epoxy resin, and exhibits low odor and exceptional cure response. Films of EBECRYL 3700 cured by ultraviolet light (UV) or electron beam (EB) demonstrate high surface hardness, high gloss, and excellent chemical resistance. EBECRYL 3700 finds broad use in UV/EB applications, such as coatings, overprint varnishes, inks, adhesives, and electronics.

PERFORMANCE HIGHLIGHTS

EBECRYL 3700 is characterized by:

- Fast cure response
- Low odor

UV/EB cured products based on EBECRYL 3700 are characterized by the following performance properties:

- High surface hardness
- Excellent chemical resistance
- High gloss

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

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 3700 may be applied via direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, air knife, curtain, immersion and spin coating methods, as well as offset and screen printing. EBECRYL 3700 is recommended for use in:

- Clear coatings for paper, paper board, wood, rigid plastics
- Overprint varnishes
- Lithographic and screen inks
- Wood sealers
- Fast cure coatings
- Hybrid cationic/radical UV cure systems

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	1
Appearance	Clear liquid
Color, Gardner scale, max.	4
Epoxy content, %, max.	0.27
Viscosity, 65.5°C, cP/mPa·s	1800-2800

TYPICAL PHYSICAL PROPERTIES

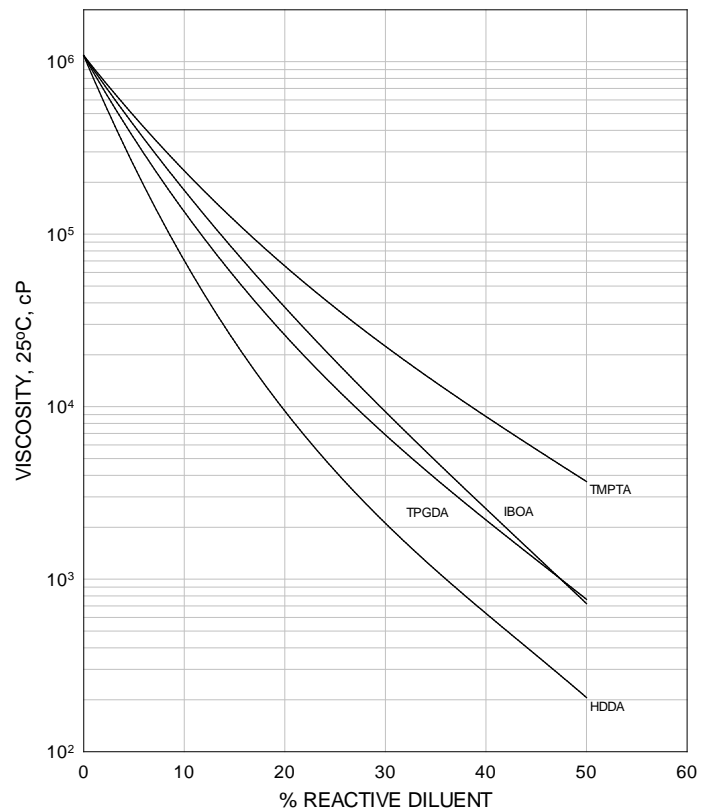
Density, g/ml at 25°C	1.18
Functionality, theoretical ⁽¹⁾	2
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES⁽²⁾

Tensile strength, psi (MPa)	12000 (83)
Elongation at break, %	5
Glass transition temperature, °C ⁽³⁾	65

GRAPH I

EBECRYL 3700 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Theoretical determination based on the undiluted oligomer.

(2) UV cured 125 μ thick films.

(3) Determined by Dynamic Mechanical Analysis.

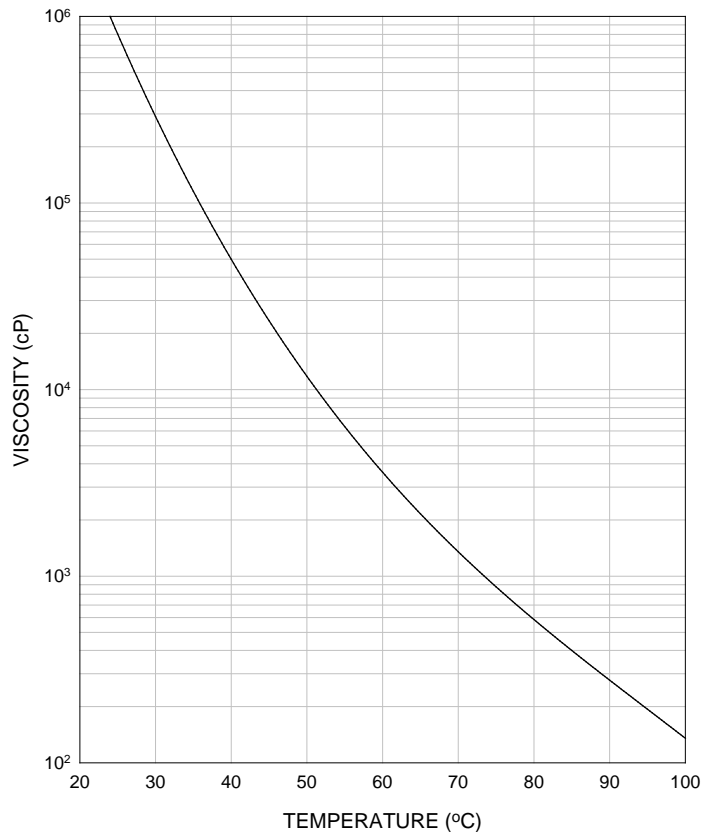
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3700 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and tripropylene glycol diacrylate (TPGDA)⁽¹⁾. 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 avoiding 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 3700 with increasing temperature.

GRAPH II

EBECRYL 3700 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 3700, 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 3700.

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) Products of allnex

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