

EBECRYL® 3702

Fatty Acid Modified Bisphenol A Epoxy Diacrylate

March 2017



INTRODUCTION

EBECRYL 3702 is a fatty acid modified bisphenol A epoxy diacrylate that exhibits outstanding flow and leveling and pigment wetting properties. Films of EBECRYL 3702 cured by ultraviolet light (UV) or electron beam (EB) demonstrate high gloss, improved water resistance and good chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL 3702 is characterized by:

- Low odor
- Excellent pigment wetting
- Good flow and leveling
- Good hydrophilic-lipophilic balance for lithography

UV/EB cured products based on EBECRYL 3702 are characterized by the following performance properties:

- Good chemical and water resistance
- High gloss
- Greater flexibility than standard bisphenol A epoxy acrylates

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 3702 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 3702 is recommended for use in:

- Clear coatings for paper
- Overprint varnishes
- Lithographic ink vehicles
- Vehicles for metal decorating inks and clear coatings
- Screen ink vehicles
- Coatings for rigid and flexible plastics

SPECIFICATIONS

	VALUE
Acid value mg KOH/g, max.	3
Appearance	Clear liquid
Color, Gardner scale, max.	6
Epoxy content, %, max.	0.27
Viscosity, 65.5°C, cP/mPa·s	1600-2800

TYPICAL PHYSICAL PROPERTIES

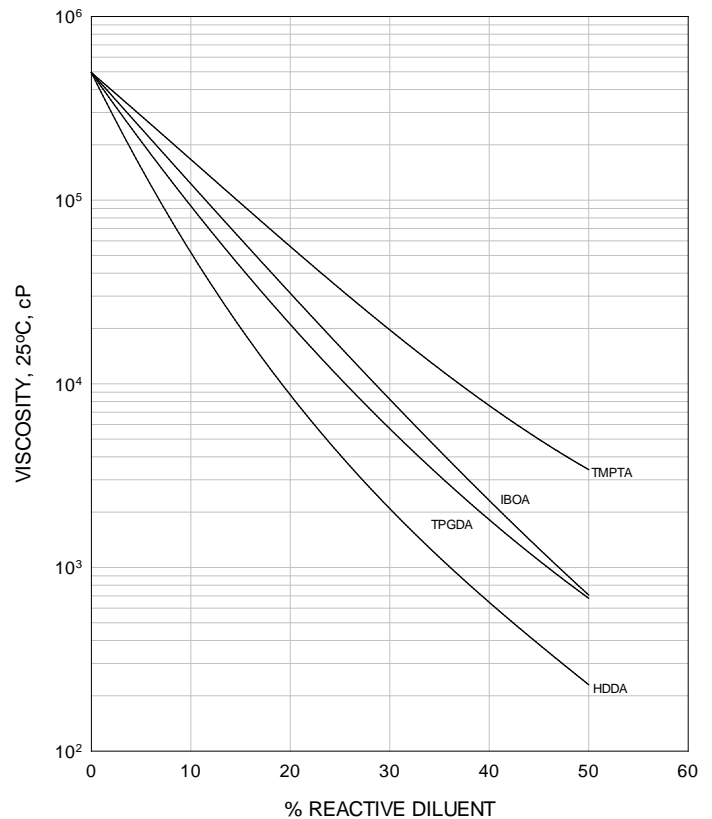
Density, g/ml at 25°C	1.14
Functionality, theoretical ⁽¹⁾	2
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES⁽²⁾

Tensile strength, psi (MPa)	9500 (66)
Elongation at break, %	10
Glass transition temperature, °C ⁽³⁾	56

GRAPH I

EBECRYL 3702 - 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.

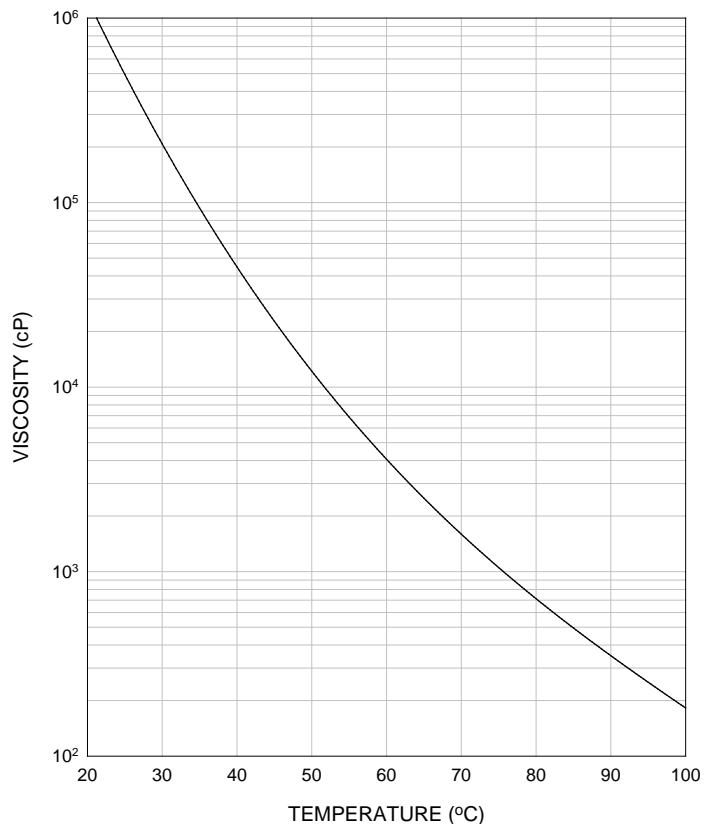
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3702 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 3702 with increasing temperature.

GRAPH II

EBECRYL 3702 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 3702, 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 3702.

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) Product of allnex

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