

EBECRYL® 3701-20T

Modified Bisphenol A Epoxy Diacrylate

March 2017



INTRODUCTION

EBECRYL 3701-20T is the modified bisphenol A epoxy diacrylate, EBECRYL 3701, diluted 20% by weight with the reactive diluent trimethylolpropane triacrylate (TMPTA)⁽¹⁾ to provide a lower viscosity, easier handling product. Films of EBECRYL 3701-20T cured by ultraviolet light (UV) or electron beam (EB) exhibit flexibility, abrasion resistance, high gloss, and superior chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL 3701-20T is characterized by:

- Fast UV/EB cure response
- Reduced viscosity
- Easier handling

UV/EB cured products based on EBECRYL 3701-20T are characterized by the following performance properties:

- High gloss
- Superior chemical resistance
- Abrasion resistance

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 3701-20T 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, screen and flexographic printing. EBECRYL 3701-20T is recommended for use in:

- Clear coatings for paper
- Topcoats for wood
- Screen and flexographic ink vehicles
- Metal decorating ink and clear coatings
- Clear coatings for rigid and flexible plastics
- Laminating adhesives

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	4
Color, Gardner scale, max.	5
Epoxy content, %, max.	0.34
Viscosity, 65.5°C, cP/mPa-s	850-1250

TYPICAL PHYSICAL PROPERTIES

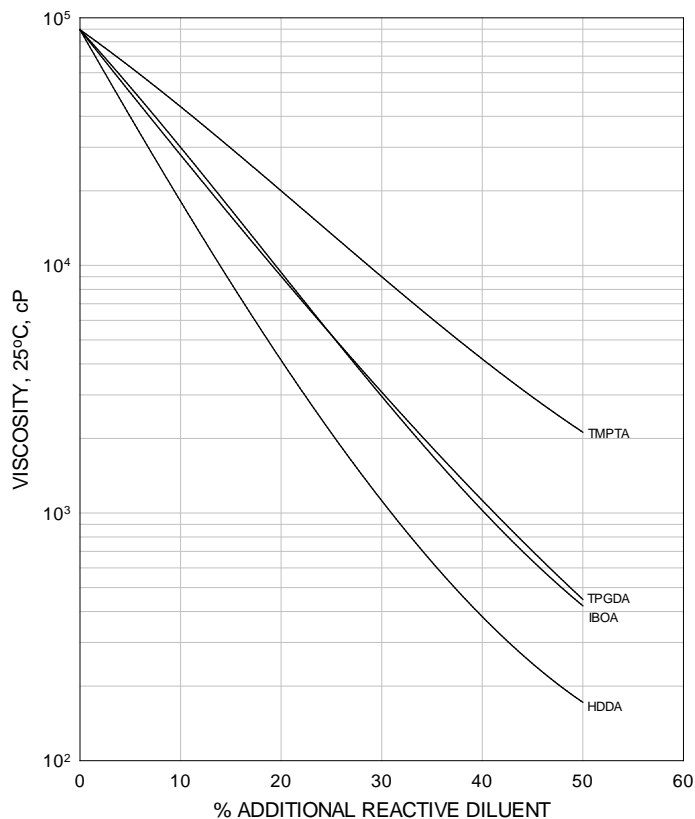
Density, g/ml at 25°C	1.18
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	>76
TMPTA, % by weight	20

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	14900 (103)
Elongation at break, %	7
Glass transition temperature, °C ⁽⁴⁾	62

GRAPH I

EBECRYL 3701-20T - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Product of allnex

(2) Theoretical determination based on the undiluted oligomer.

(3) UV cured 125 μ thick films.

(4) Determined by Dynamic Mechanical Analysis.

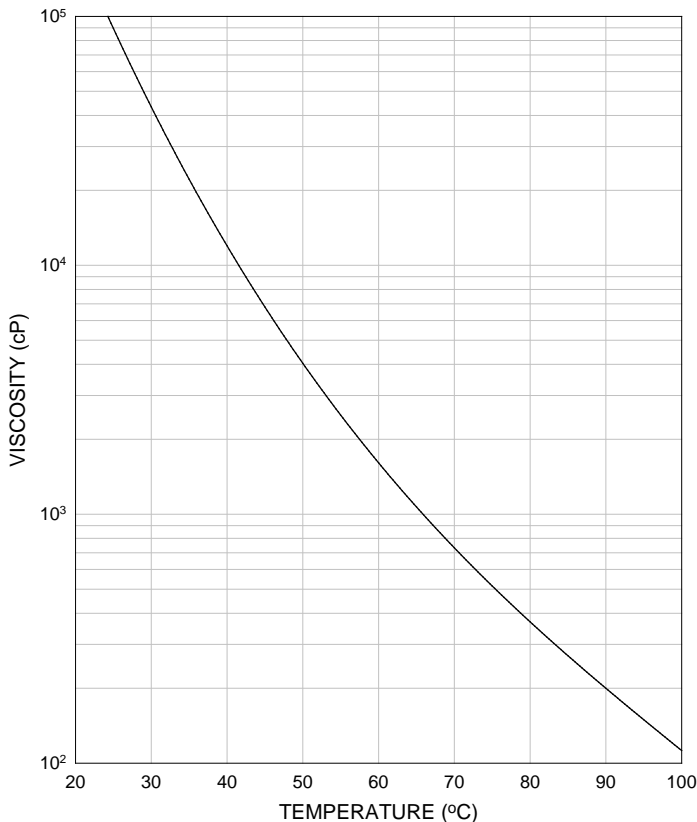
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3701-20T with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA), 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 3701-20T with increasing temperature.

GRAPH II

EBECRYL 3701-20T - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 3701-20T, 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 3701-20T.

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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