

EBECRYL® 3700-20T

Bisphenol A Epoxy Diacrylate

August 2017



INTRODUCTION

EBECRYL 3700-20T is the bisphenol A epoxy diacrylate, EBECRYL 3700, diluted 20% by weight with the reactive diluent trimethylolpropane triacrylate (TMPTA)⁽¹⁾, to provide a lower viscosity, easier handling product. EBECRYL 3700-20T exhibits very fast cure response and low odor. Films of EBECRYL 3700-20T cured by ultraviolet light (UV) or electron beam (EB) demonstrate high gloss, surface hardness, scratch resistance, and excellent chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL 3700-20T is characterized by:

- Fast UV/EB cure response
- Low odor

UV/EB cured products based on EBECRYL 3700-20T are characterized by the following performance properties:

- Excellent chemical resistance
- High gloss
- High surface hardness
- Good scratch 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 3700-20T 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 and screen printing. EBECRYL 3700-20T is recommended for use in:

- Clear coatings for paper and plastics
- Adhesives for paper lamination
- Lithographic and screen inks
- Wood fillers
- Overprint varnishes
- Paper upgrading

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	0.8
Appearance	Clear liquid
Color, Gardner scale, max.	3
Epoxy content, %, max.	0.22
Viscosity at 65.5°C, cP/mPa·s	425-625

TYPICAL PHYSICAL PROPERTIES

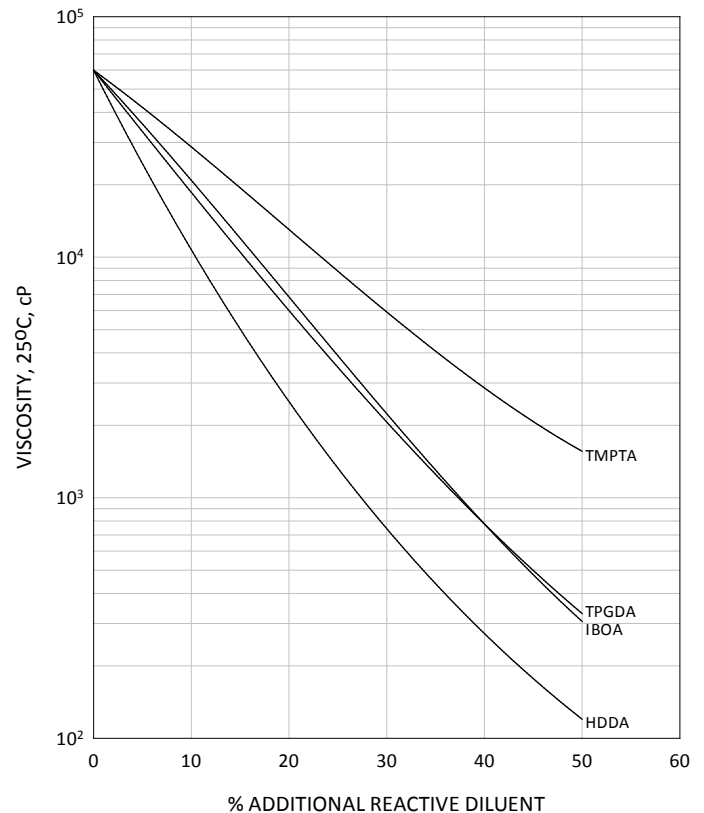
Density, g/ml at 25°C	1.17
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	80
TMPTA, % by weight	20

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	14900 (103)
Elongation at break, %	4
Glass transition temperature, °C ⁽⁴⁾	75

GRAPH I

EBECRYL 3700-20T - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Product of allnex.

(2) Theoretical determination based the undiluted oligomer.

(3) UV cured 125 μ thick films.

(4) Determined by Dynamic Mechanical Analysis.

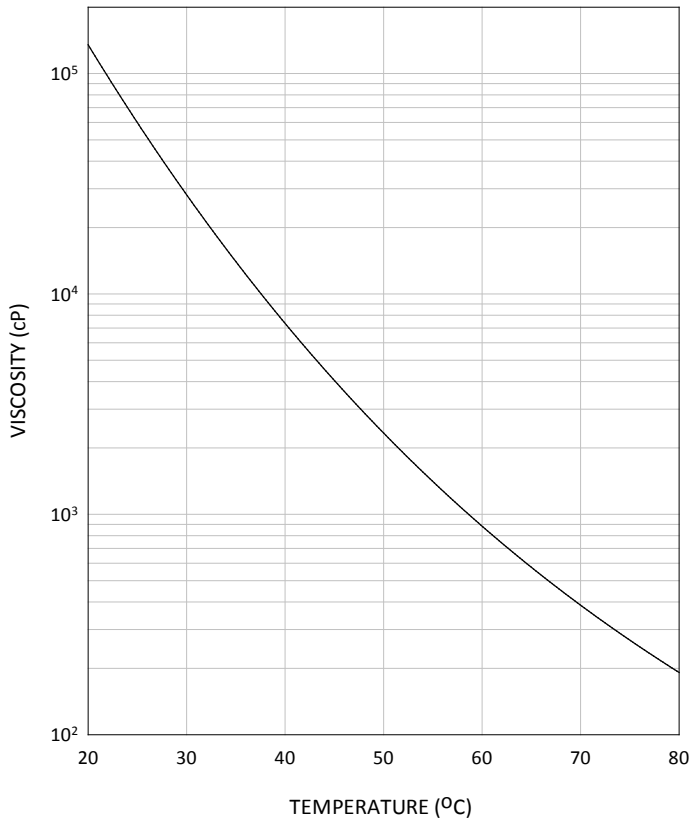
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3700-20T 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 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 3700-20T with increasing temperature.

GRAPH II

EBECRYL 3700-20T - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 3700-20T, 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 3700-20T.

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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