

EBECRYL® 3720-TM40

Bisphenol A Epoxy Diacrylate

March 2017



INTRODUCTION

EBECRYL 3720-TM40 is the bisphenol A epoxy diacrylate, EBECRYL 3720, diluted 40% by weight with the reactive diluent trimethylolpropane triacrylate (TMPTA)⁽¹⁾ to provide a lower viscosity, easier handling product. EBECRYL 3720-TM40 exhibits fast cure response and light color. Films of EBECRYL 3720-TM40 cured by ultraviolet light (UV) or electron beam (EB) demonstrate high gloss and surface hardness, and excellent chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL 3720-TM40 is characterized by:

- Fast UV/EB cure response
- Light color

UV/EB cured products based on EBECRYL 3720-TM40 are characterized by the following performance properties:

- Excellent chemical resistance
- High gloss
- High surface hardness

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 3720-TM40 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 3720-TM40 is recommended in:

- Clear coatings for paper and plastics
- Adhesives for paper/film lamination
- Screen ink vehicles
- Metal decorating vehicles
- Wood fillers
- Photoresists
- Overprint varnishes

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	2
Appearance	Clear liquid
Color, Gardner, max.	2
Viscosity, 25°C, cP/mPa-s	5500-8500

TYPICAL PHYSICAL PROPERTIES

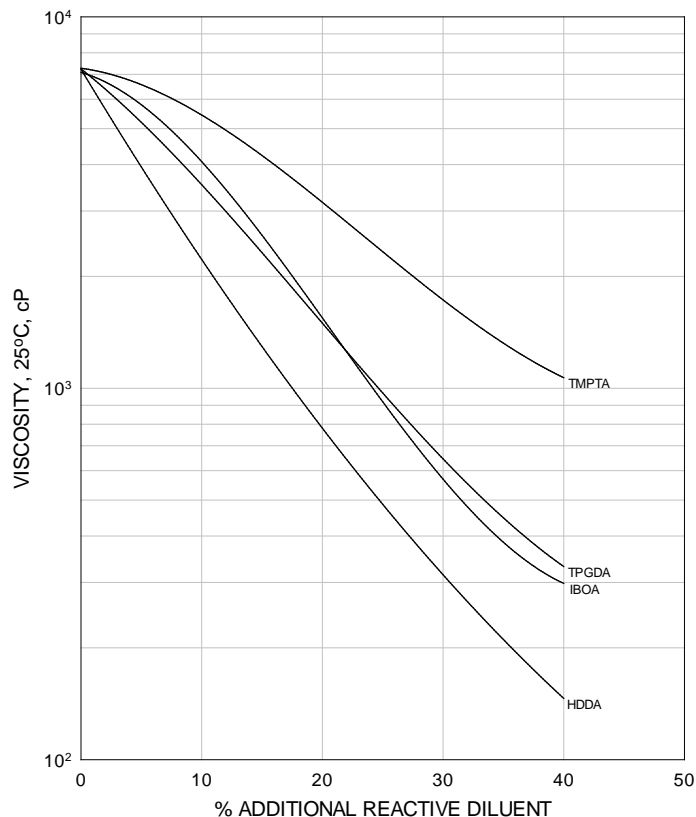
Density, g/ml at 25°C	1.15
Epoxy content, %	≤0.5
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	60
TMPTA, % by weight	40

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	8300 (57)
Elongation at break, %	4
Glass transition temperature, °C ⁽⁴⁾	80

GRAPH I

EBECRYL 3720-TM40 - 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

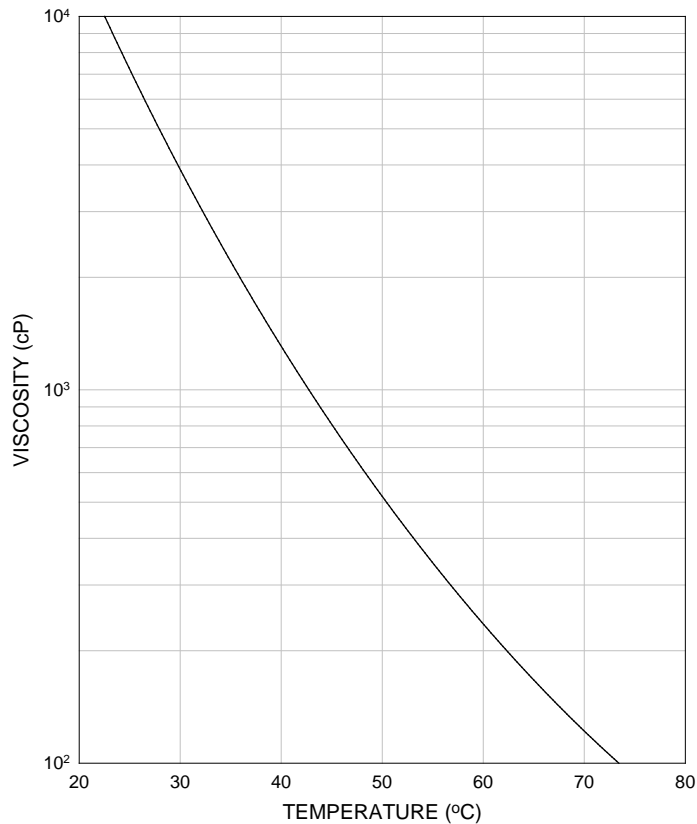
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3720-TM40 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 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 3720-TM40 with increasing temperature.

GRAPH II

EBECRYL 3720-TM40 - VISCOSITY VS. TEMPERATURE



(1) Product of allnex

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PRECAUTIONS

Before using EBECRYL 3720-TM40, 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 3720-TM40.

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