

EBECRYL® 605/40

Bisphenol A Epoxy Diacrylate

March 2017



INTRODUCTION

EBECRYL 605/40 is a bisphenol A epoxy diacrylate diluted approximately 40% by weight with the reactive diluent tripropylene glycol diacrylate (TPGDA)⁽¹⁾ to provide a lower viscosity, easier handling product. EBECRYL 605/40 exhibits light color and fast cure response. Films of EBECRYL 605/40 cured via ultraviolet light (UV) or electron beam (EB) demonstrate high gloss, surface hardness, and superior chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL 605/40 is characterized by:

- Light color
- Low viscosity
- Fast cure response

UV/EB cured properties based on EBECRYL 605/40 are characterized by the following performance properties:

- Good surface hardness
- High gloss
- Good chemical resistance

The actual 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 605/40 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 screen printing. EBECRYL 605/40 is recommended for use in:

- Overprint varnishes
- Coatings for wood, chipboard, paper and rigid plastics
- Screen inks and coatings
- Adhesive for paper laminations
- Wood fillers

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	2
Appearance	Clear liquid
Color, Gardner scale max.	2
Viscosity, 25°C, cP/mPa-s	1750-2250

TYPICAL PHYSICAL PROPERTIES

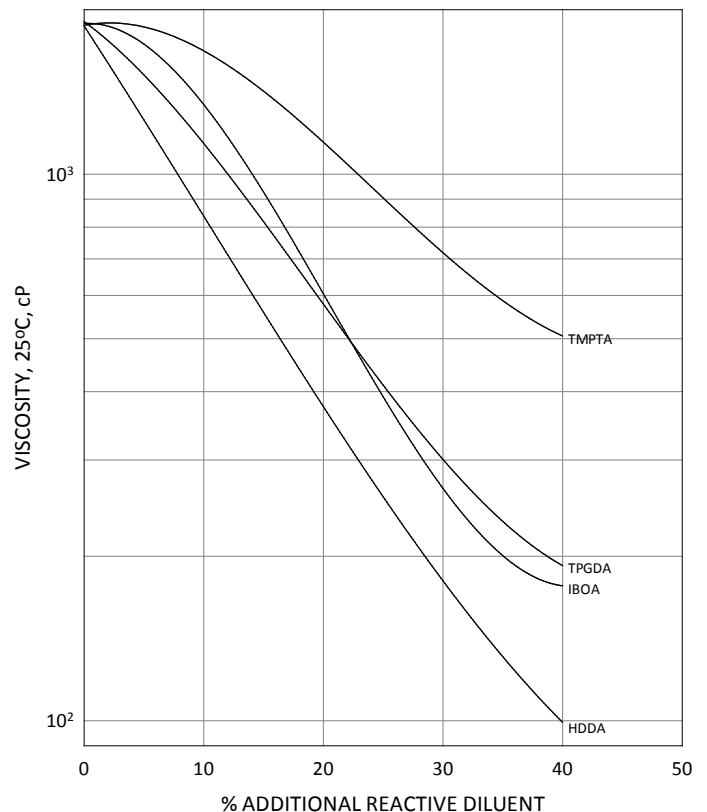
Density, g/ml at 25°C	1.10
Epoxy content, %ide	≤0.3
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	≅60
TPGDA, % by weight	≅40

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	7400 (51)
Elongation at break, %	3
Glass transition temperature, °C ⁽⁴⁾	80

GRAPH I

EBECRYL 605/40 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Product of allnex

(2) Theoretical determination based on the undiluted oligomer.

(3) UV cured 125 μthick films.

(4) Determined by Dynamic Mechanical Analysis

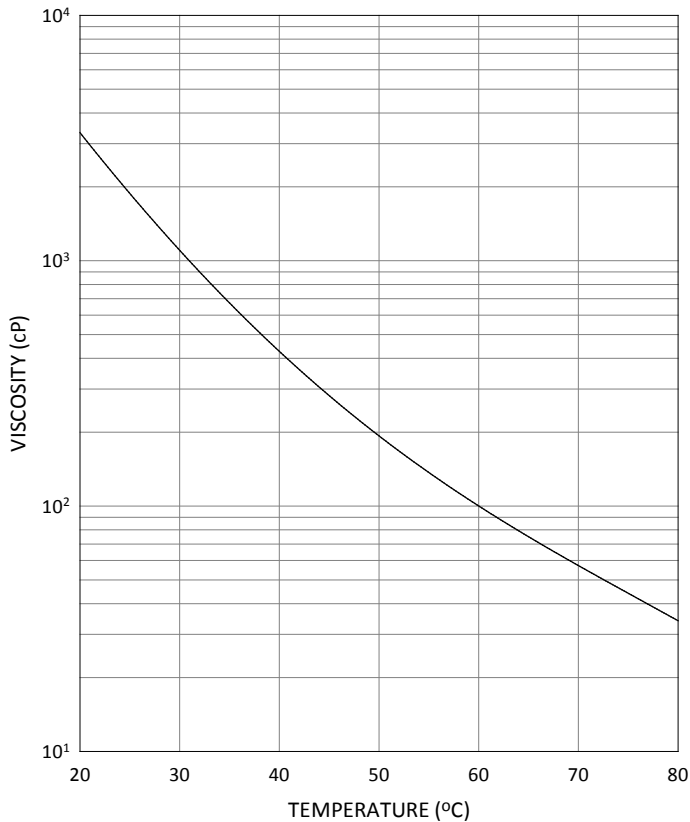
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 605/40 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and tripropylene glycol diacrylate (TPGDA). 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 605/40 with increasing temperature.

GRAPH II

EBECRYL 605/40 - VISCOSITY VS. TEMPERATURE



(1) Product of allnex

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PRECAUTIONS

Before using EBECRYL 605/40, 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 605/40.

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