

BISPHENOL A EPOXY DIACRYLATE

INTRODUCTION

EBECRYL® 605 is a bisphenol A epoxy diacrylate diluted approximately 27% by weight with the reactive diluent tripropylene glycol diacrylate (TPGDA) to provide a lower viscosity, easier handling product. EBECRYL® 605 exhibits light color and fast cure response. Films of EBECRYL® 605 cured via ultraviolet light (UV) or electron beam (EB) demonstrate high gloss, surface hardness and superior chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL® 605 is characterized by:

- Light color
- Low viscosity

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

- Fast cure response
- 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 photo initiators.

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 605 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® 605 is recommended for use in:

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

SPECIFICATIONS

Appearance	Clear liquid
Acid value, mg KOH/g	max. 2
Color, Gardner	max. 2
Epoxy content, %	max. 0.5
Viscosity, 25°C, mPa.s	6000 - 9000

TYPICAL PHYSICAL PROPERTIES

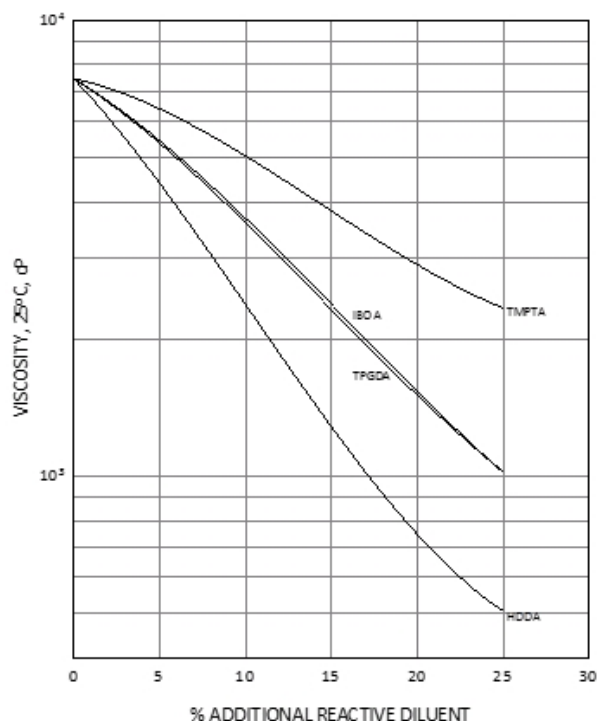
Density, g/cm³ at 25°C	1.146
Functionality, theoretical	2
Oligomer, % by weight	≈73
TPGDA, % by weight	≈27

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	8300 (57)
Elongation at break, %	7
Young's modulus, psi (MPa)	196000 (1352)
Glass transition temperature, °C	92

GRAPH I

EBECRYL® 605 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



VISCOSITY REDUCTION

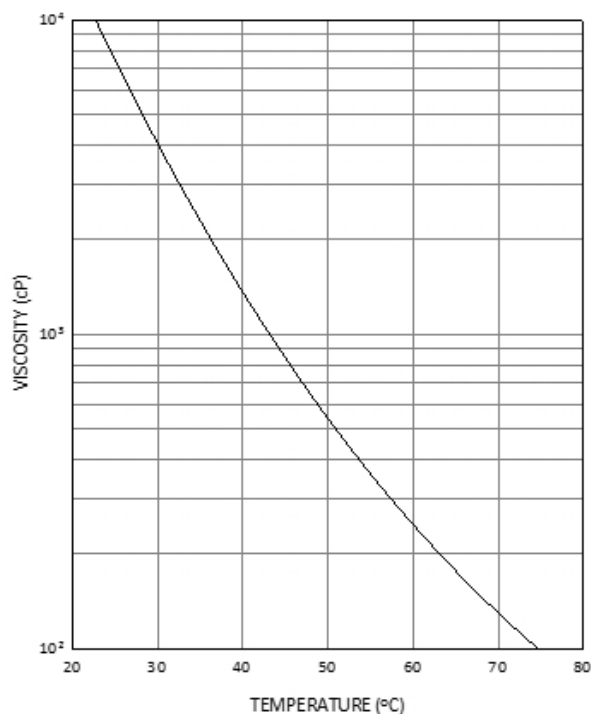
Graph I shows the viscosity reduction of EBECRYL® 605 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾ and tripropylene glycol diacrylate (TPGDA)⁽¹⁾. Although viscosity reduction can be achieved with non-reactive solvents, reactive diluents are preferred because they are essentially 100 percent converted during UV/EB exposure to form a part of the coating or ink, thus reducing solvent emissions. The specific reactive diluents used will influence performance properties such as hardness and flexibility.

⁽¹⁾ product of allnex

Graph II illustrates the change in viscosity of EBECRYL® 605 with increasing temperature.

GRAPH II

EBECRYL® 605 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL® 605, 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.