

MODIFIED BISPHENOL A EPOXY DIACRYLATE

INTRODUCTION

EBECRYL® 645 is the modified diacrylate ester of a bisphenol A epoxy resin diluted 25% by weight with the reactive diluent tripropylene glycol diacrylate (TPGDA). EBECRYL® 645 exhibits light color, fast cure response, and improved wetting properties of pigments, matting agents, and substrates. Films of EBECRYL 645 cured by ultraviolet light (UV) or electron beam (EB) possess high gloss, high surface hardness and excellent chemical resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL® 645 is characterized by:

- Improved wetting of pigments, matting agents, and substrates
- Light color
- Fast cure response

UV/EB cured properties based on EBECRYL® 645 are characterized by the following performance properties:

- High surface hardness
- High gloss
- Excellent chemical resistance
- Good water 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® 645 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 flexographic and screen printing. EBECRYL® 645 is recommended for use in:

- Low gloss overprint varnishes
- Coatings for wood, chipboard, paper and rigid plastics
- Paper upgrading
- Screen print inks and coatings
- Wood fillers

SPECIFICATIONS

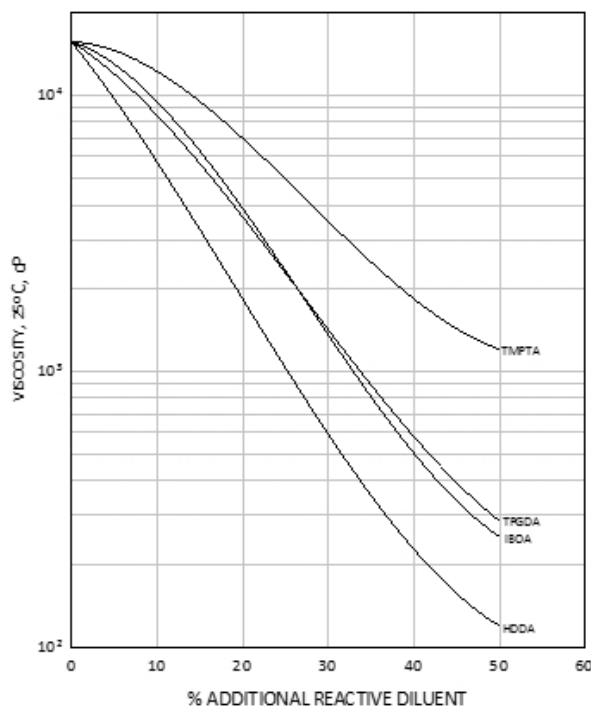
Acid value, mg KOH/g	max. 3
Appearance at elevated temp.	Clear liquid
Color, Gardner	max. 3
Viscosity at 25°C, mPa.s	13000 - 20000

TYPICAL PHYSICAL PROPERTIES

Density, g/cm ³ at 25°C	1.17
Epoxy content	0.22
Functionality, theoretical	2
Oligomer, % by weight	75
TPGDA, % by weight	25

GRAPH I

EBECRYL® 645 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



VISCOSITY REDUCTION

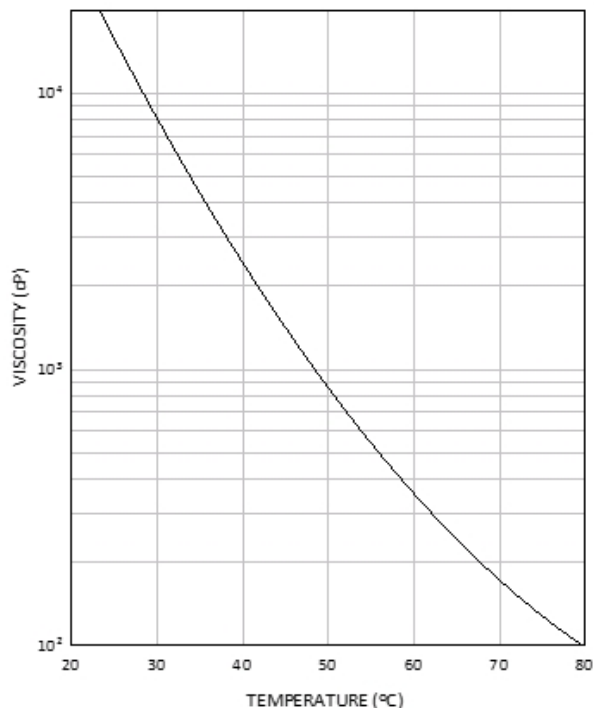
Graph I shows the viscosity reduction of EBECRYL® 645 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾ and tripropylene glycol diacrylate (TPGDA)⁽¹⁾. Although viscosity reduction can be achieved with non-reactive solvents, reactive diluents 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® 645 with increasing temperature.

GRAPH II

EBECRYL® 645 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL® 645, 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® 645.