TECHNICAL DATASHEET

EBECRYL® UV/EB Energy Curable Resins

EBECRYL® 3708

Modified Bisphenol A Epoxy Diacrylate

March 2017

INTRODUCTION

EBECRYL 3708 is a modified bisphenol A epoxy diacrylate that exhibits relatively low viscosity and good cure response. Films of EBECRYL 3708 cured by ultra-violet light (UV) or electron beam (EB) demonstrate good flexibility, high gloss, toughness, and superior impact resistance.

PERFORMANCE HIGHLIGHTS

EBECRYL 3708 is characterized by:

- Relatively low viscosity
- Good UV/EB cure response

UV/EB cured products based on EBECRYL 3708 are characterized by the following performance properties:

- Good flexibility
- Good chemical resistance
- High gloss
- Toughness
- High impact resistance

The actual properties of UV/EB cured products also depend on the selection of the other formulation components, such as reactive diluents, additives and photoinitiators.

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 3708 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 3708 is recommended for use in:

- Clear coatings for paper, wood, and flexible and rigid plastics
- Topcoats for wood
- Metal decorating vehicles
- Adhesives for paper or film lamination
- Lithographic and screen ink vehicles

SPECIFICATIONS	VALUE
Acid value, mg KOH/g, max.	1.0
Appearance	Clear liquid
Color, Gardner scale, max.	4.0
Epoxy content, %, max.	0.20
Viscosity, 60°C, cP/mPa·s	3100-4100

TYPICAL PHYSICAL PROPERTIES

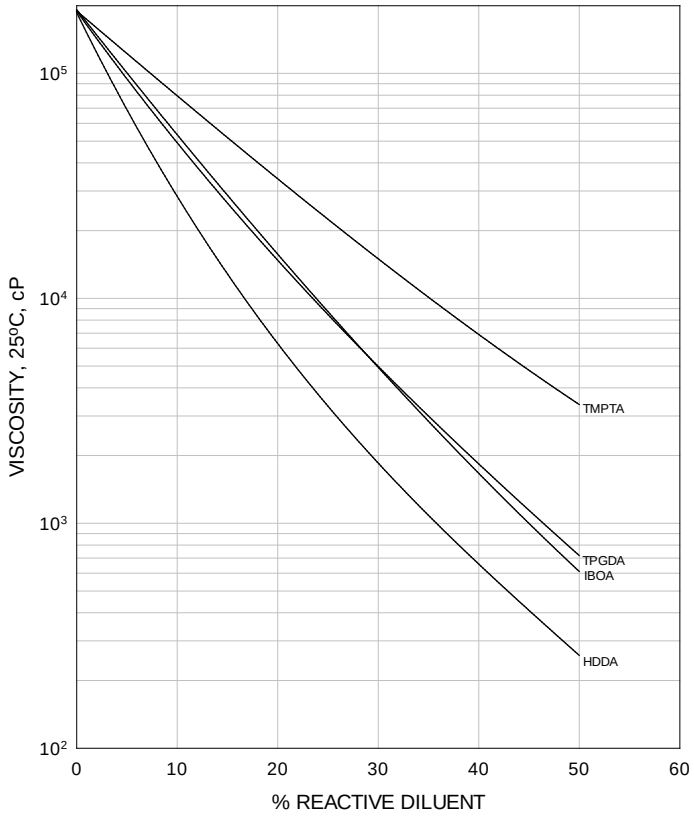
Density, g/ml at 25°C	1.16
Functionality, theoretical(1)	2
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES(2)

Tensile strength, psi (MPa)	3723 (26)
Elongation at break, %	112
Young's modulus, psi (MPa)	9900 (68)
Glass transition temperature, °C(3)	21

GRAPH I

EBECRYL 3708 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Theoretical determination based on the undiluted oligomer.
(2) UV cured 125 µthick films.
(3) Determined by Dynamic Mechanical Analysis.

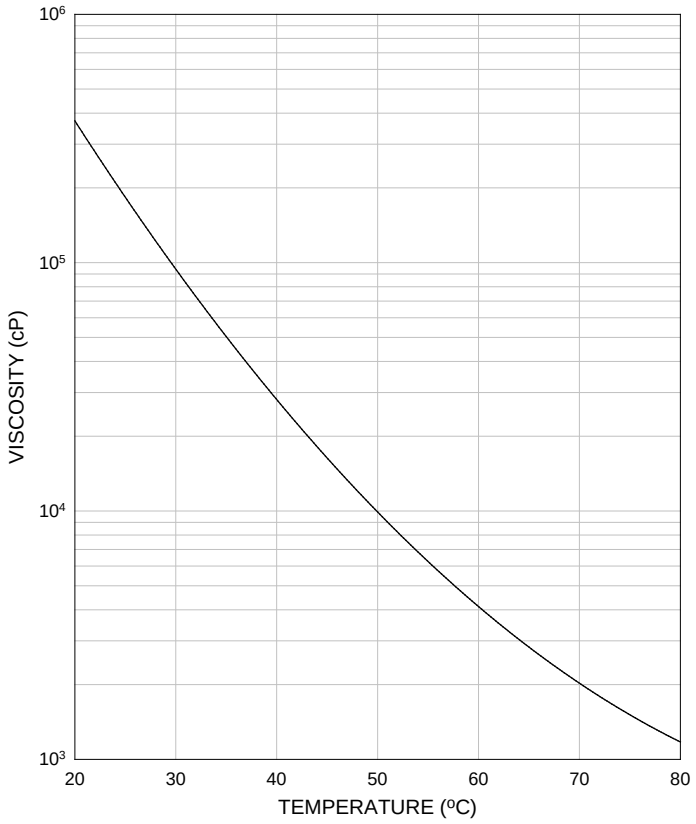
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 3708 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 avoiding 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 3708 with increasing temperature.

GRAPH II

EBECRYL 3708 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 3708, 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 3708.

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

www.allnex.com