TECHNICAL DATASHEET

EBECRYL® 838

Polyester Hexaacrylate

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EBECRYL® UV/EB Energy Curable Resins

allnex The Coating Resins Company

INTRODUCTION

EBECRYL 838 is a polyester hexaacrylate that exhibits fast cure response and moderate viscosity. Films of EBECRYL 838 cured by ultraviolet light (UV) or electron beam (EB) demonstrate good abrasion and scratch resistance, solvent resistance and hardness.

PERFORMANCE HIGHLIGHTS

EBECRYL 838 is characterized by:

- Fast cure response
- Moderate viscosity

UV/EB cured products containing EBECRYL 838 are characterized by the following performance properties:

- Good abrasion/scratch resistance
- High surface hardness
- Solvent 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 838 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 838 is recommended for use in:

- Paper upgrading
- Coatings for wood and plastics
- Abrasion and scratch resistant coatings
- Dry offset inks
- Fast curing coatings and inks

SPECIFICATIONS	VALUE
Acid value, mg KOH/g, max.	30
Appearance	Clear liquid
Color, Gardner scale, max.	3
Viscosity at 25°C, cP/mPa·s	45000-55000

TYPICAL PHYSICAL PROPERTIES

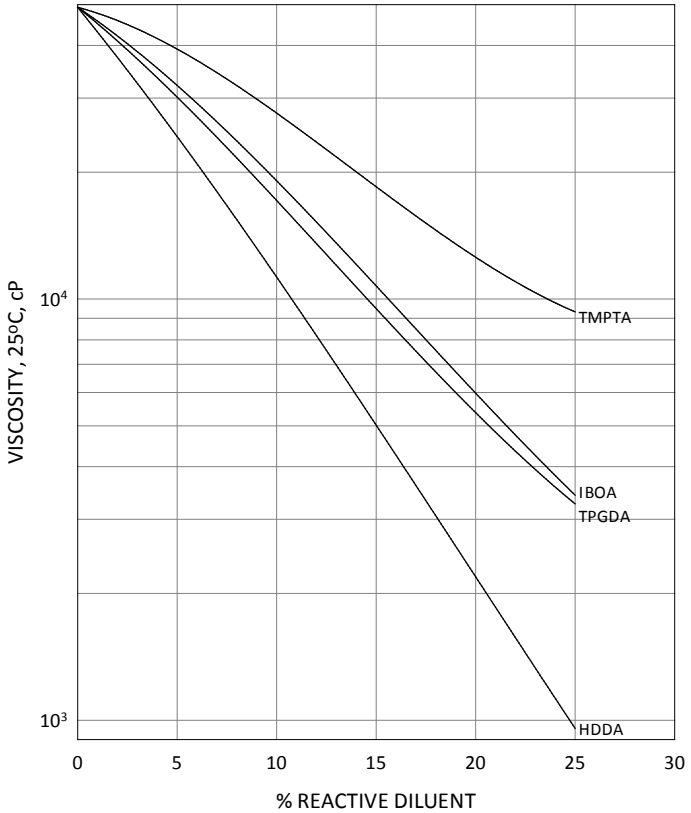
Density, g/ml at 25°C	1.18
Functionality, theoretical(1)	6
Oligomer, % by weight	>75
Acrylated polyols, % by weight	<25

TYPICAL CURED PROPERTIES(2)

Tensile strength, psi (MPa)	12500 (86)
Elongation at break, %	5
Glass transition temperature, °C(4)	60

GRAPH I

EBECRYL 838 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



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

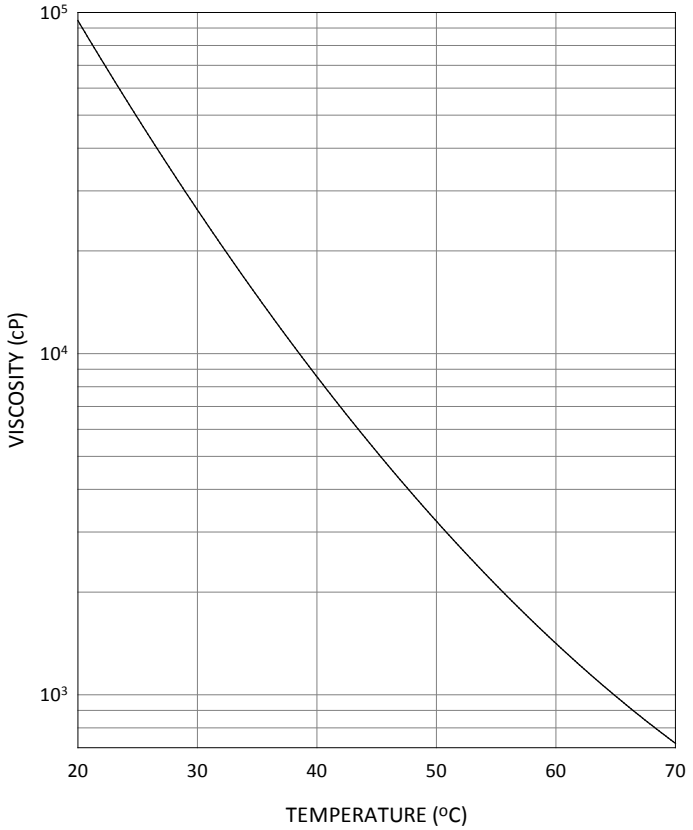
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 838 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.

Graph II illustrates the change in viscosity of EBECRYL 838 with increasing temperature.

GRAPH II

EBECRYL 838 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 838, 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 838.

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