EBECRYL® 8402

Technical Datasheet

ALIPHATIC URETHANE DIACRYLATE

INTRODUCTION

EBECRYL® 8402 is a low viscosity aliphatic urethane diacrylate. Films of EBECRYL® 8402 cured by ultraviolet light (UV) or electron beam (EB) exhibit good flexibility, toughness and excellent exterior durability. Low viscosity coatings or enhanced performance via increased oligomer content are possible with EBECRYL® 8402. Note that EBECRYL® 8402 typically develops a semi-crystalline aspect upon storage. For additional information, please refer to the Storage and Handling section.

PERFORMANCE HIGHLIGHTS

EBECRYL® 8402 is characterized by:

- Low viscosity for handling ease
- Light color

UV/EB cured products based on EBECRYL® 8402 are characterized by the following performance properties:

- Toughness
- Flexibility
- Exterior durability
- Non-yellowing
- Excellent adhesion to difficult substrates, particularly vinyl

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® 8402 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® 8402 is recommended for use in:

- Coatings for wood
- Coatings for plastics
- Flexographic inks
- Screen inks
- Exterior durable coatings

SPECIFICATIONS

Appearance	Clear liquid
Color, Gardner	max. 1
Viscosity, 65.5°C, mPa.s	450 - 650

TYPICAL PHYSICAL PROPERTIES

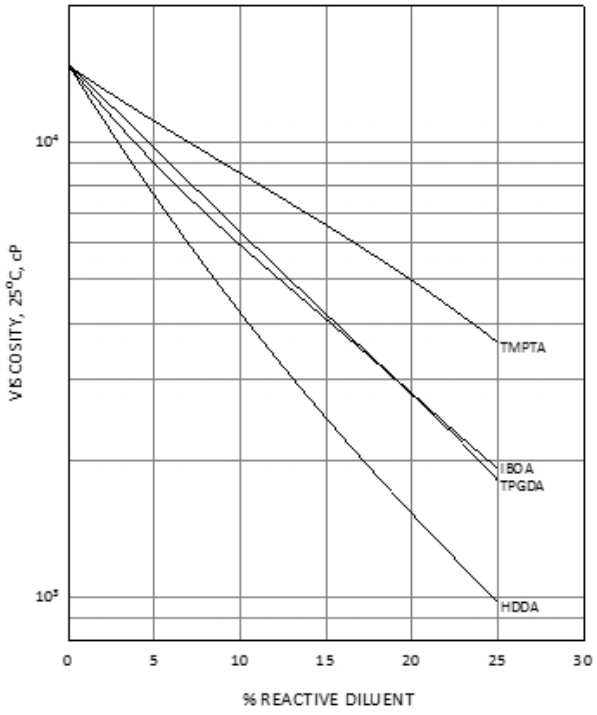
Density, g/cm³ at 25°C	1.12
Functionality, theoretical	2
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	3600 (25)
Elongation at break, %	55
Young's modulus, psi (MPa)	68500 (472)
Glass transition temperature, °C	35

GRAPH I

EBECRYL® 8402 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



VISCOSITY REDUCTIONS

Graph I shows the viscosity reduction of EBECRYL® 8402 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.

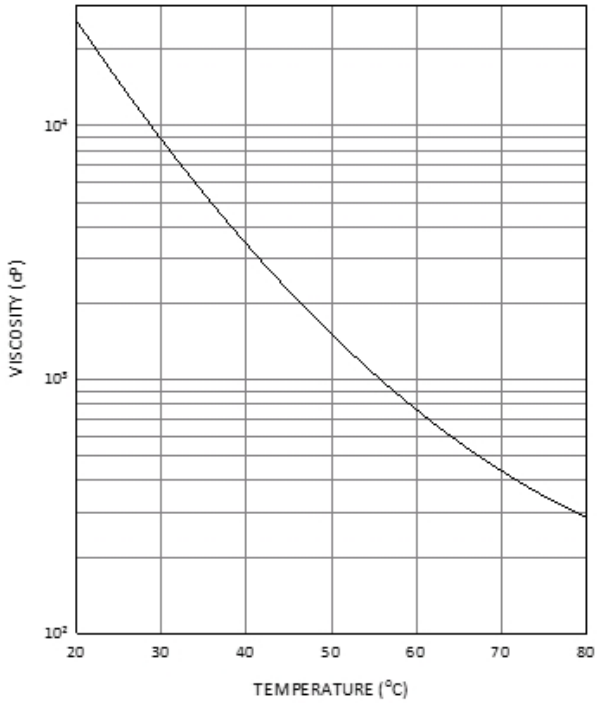
[(1)] product of allnex

Graph II illustrates the change in viscosity of EBECRYL® 8402 with increasing temperature.

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GRAPH II

EBECRYL® 8402 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL® 8402, 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.

Upon storage, EBECRYL® 8402 may show signs of crystallization. This crystallization can be removed by heating containers of EBECRYL® 8402 to a uniform temperature of 60°C. Ovens or hotboxes are recommended methods of heating.

Heating tapes should not be used. In typical formulations, EBECRYL® 8402 does not exhibit signs of crystallization.

See the SDS for the recommended storage temperature range for EBECRYL® 8402.

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