

EBECRYL® 284

Aliphatic Urethane Diacrylate

March 2017



INTRODUCTION

EBECRYL 284 is an aliphatic urethane diacrylate diluted 12% by weight with the reactive diluent 1,6-hexanediol diacrylate (HDDA)⁽¹⁾. Films of EBECRYL 284 cured by ultraviolet light (UV) or electron beam (EB) exhibit excellent exterior durability, toughness, and flexibility, and are resistant to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL 284 is characterized by:

- Light color

UV/EB cured products containing EBECRYL 284 are characterized by the following performance properties:

- Excellent exterior durability
- Good flexibility
- Excellent toughness
- Non-yellowing

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 284 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 screen printing. EBECRYL 284 is recommended for use in:

- Coatings for wood and plastic requiring excellent exterior durability
- Screen inks
- Clear coatings for cork
- Metal coatings
- Pigmented coatings for wood

SPECIFICATIONS

	VALUE
Appearance	Clear liquid
Color, Gardner scale, max.	2
Viscosity, 60°C, cP/mPa·s	1900-2300

TYPICAL PHYSICAL PROPERTIES

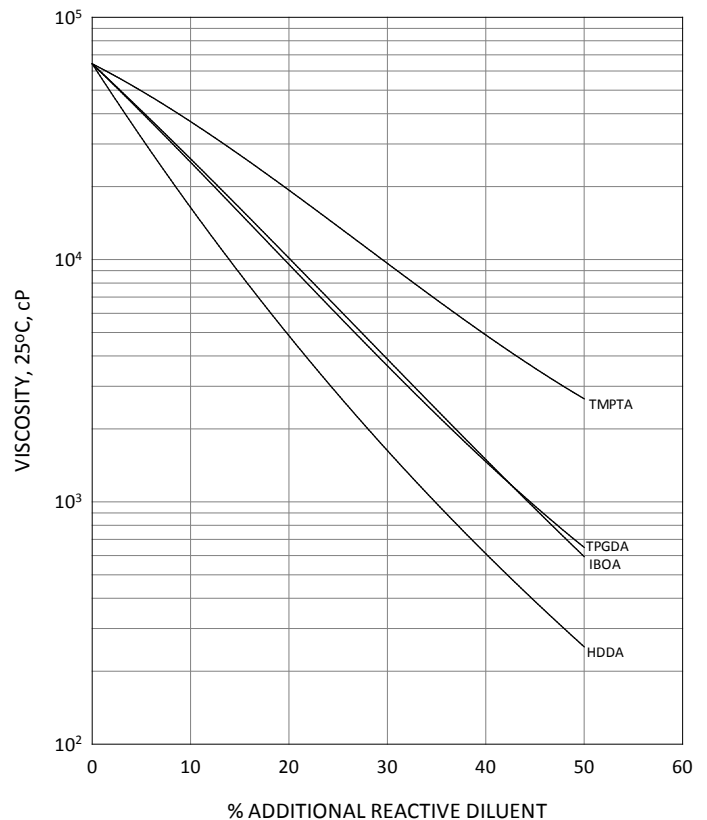
Density, g/ml at 25°C	1.18
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	88
HDDA, % by weight	12

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	5900 (41)
Elongation at break, %	58
Glass transition temperature, °C ⁽⁴⁾	50

GRAPH I

EBECRYL 284 - VISCOSITY REDUCTION WITH REACTIVE DILUENT



(1) Product of allnex

(2) Theoretical determination based on the undiluted oligomer.

(3) UV cured 125 μ thick films.

(4) Determined by Dynamic Mechanical Analysis.

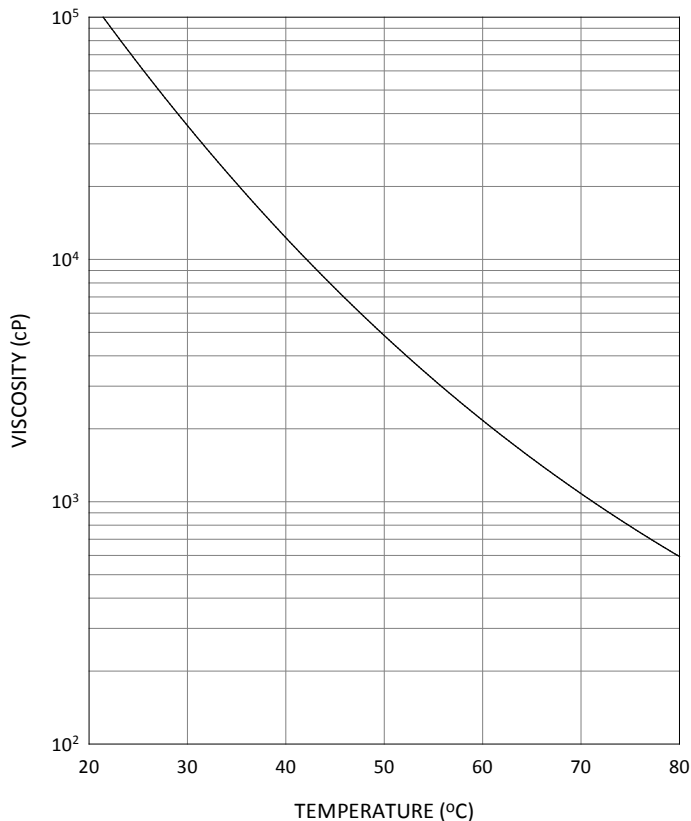
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 284 with 1,6-hexanediol diacrylate (HDDA), 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 284 with increasing temperature.

GRAPH II

EBECRYL 284 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 284, 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 284.

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

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