

EBECRYL® 4833

Aliphatic Urethane Diacrylate

March 2017



INTRODUCTION

EBECRYL 4833 is an aliphatic urethane diacrylate diluted 10% by weight with the reactive diluent N-vinyl-2-pyrrolidone (N-VP)⁽¹⁾. Ultraviolet light (UV) or electron beam (EB) cured films of EBECRYL 4833 exhibit excellent toughness, flexibility, and adhesion to various plastics, and are resistant to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL 4833 is characterized by:

- Light color

UV/EB cured products containing EBECRYL 4833 are characterized by the following performance properties:

- Excellent toughness and flexibility
- Good adhesion to various plastics
- 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 4833 may be applied via screen printing as well as direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, air knife, curtain, immersion and spin coating methods. EBECRYL 4833 is recommended for use in:

- Silkscreen inks and coatings on various substrates
- Flexible high build clear coatings

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	3
Appearance at elevated temperature	Clear liquid
Color at elevated temperature, Gardner scale, max.	2
NCO, %, max.	0.18
Viscosity, 60°C, cP/mPa·s	2000-3000

TYPICAL PHYSICAL PROPERTIES

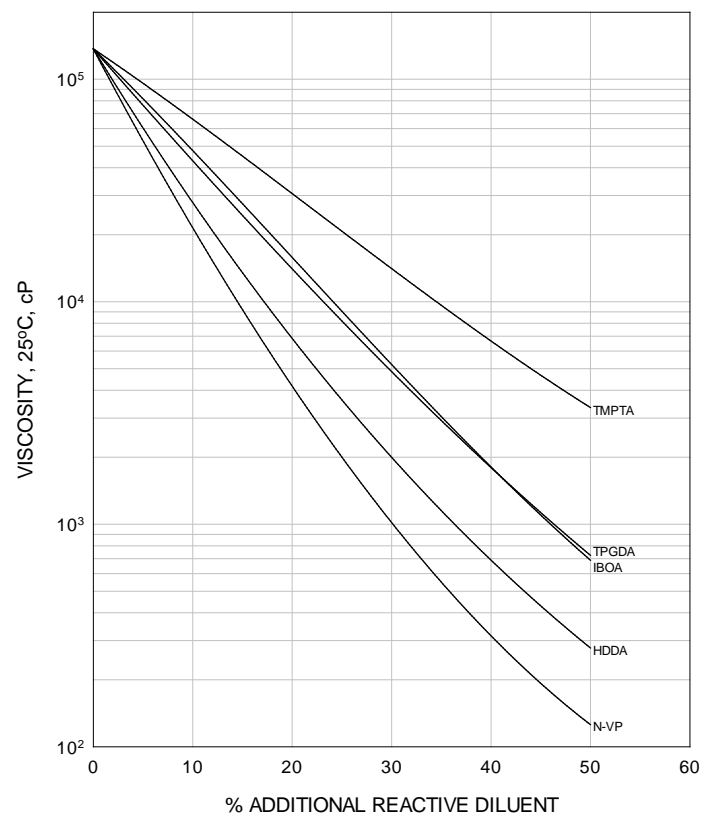
Density, g/ml at 25°C	1.11
Functionality, theoretical ⁽²⁾	2
Oligomer, % by weight	90
N-VP, % by weight	10

TYPICAL CURED PROPERTIES⁽³⁾

Tensile strength, psi (MPa)	7800 (54)
Elongation at break, %	120
Glass transition temperature, °C ⁽⁴⁾	47

GRAPH I

EBECRYL 4833 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Product of Ashland and BASF Corp.

(2) Theoretical determination based on the undiluted oligomer.

(3) UV cured 125 μ thick films.

(4) Determined by Dynamic Mechanical Analysis.

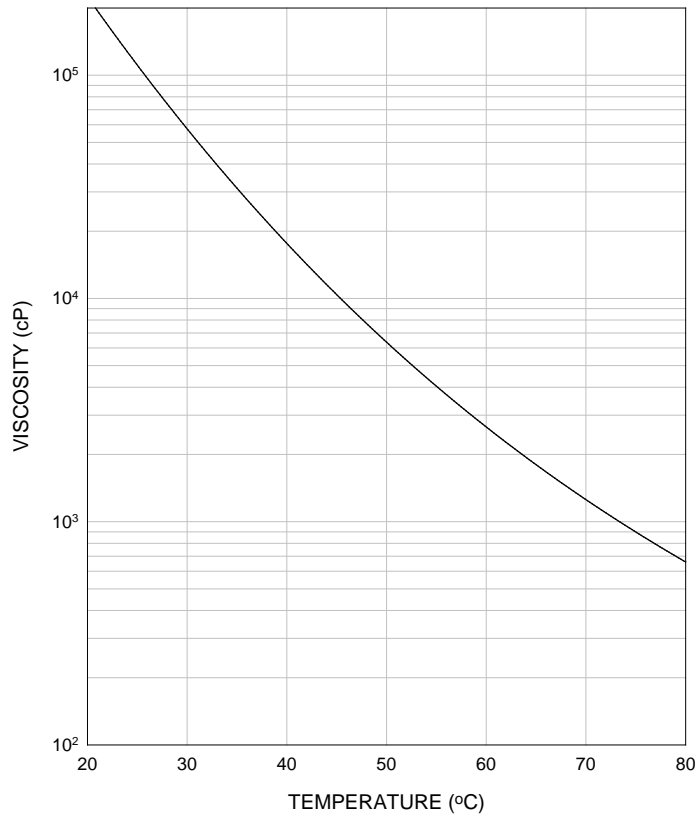
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 4833 with 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, N-vinyl-2-pyrrolidone (N-VP), 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 4833 with increasing temperature.

GRAPH II

EBECRYL 4833 - VISCOSITY VS. TEMPERATURE



PRECAUTIONS

Before using EBECRYL 4833, 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 4833.

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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