

EBECRYL® 8804

Aliphatic Urethane Diacrylate

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INTRODUCTION

EBECRYL 8804 is an aliphatic urethane diacrylate that is a high viscosity liquid at room temperature and is light in color. Films of EBECRYL 8804 cured by ultraviolet light (UV) or electron beam (EB) exhibit excellent abrasion resistance, toughness and flexibility, and are resistant to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL 8804 is characterized by:

- Very light color
- Low odor
- High viscosity

UV/EB cured products containing EBECRYL 8804 are characterized by the following performance properties:

- Good abrasion resistance
- Excellent flexibility
- Exceptional 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 8804 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. EBECRYL 8804 is recommended for:

- Abrasion resistant coatings for flexible substrates such as vinyl and other plastics
- Laminating adhesives
- A modifying oligomer to increase flexibility
- Glass coatings

SPECIFICATIONS

	VALUE
Color at elevated temperature, Gardner scale, max.	2
NCO, %, max.	0.2
Viscosity, 65.5°C, cP/mPa·s	10000-24000

TYPICAL PHYSICAL PROPERTIES

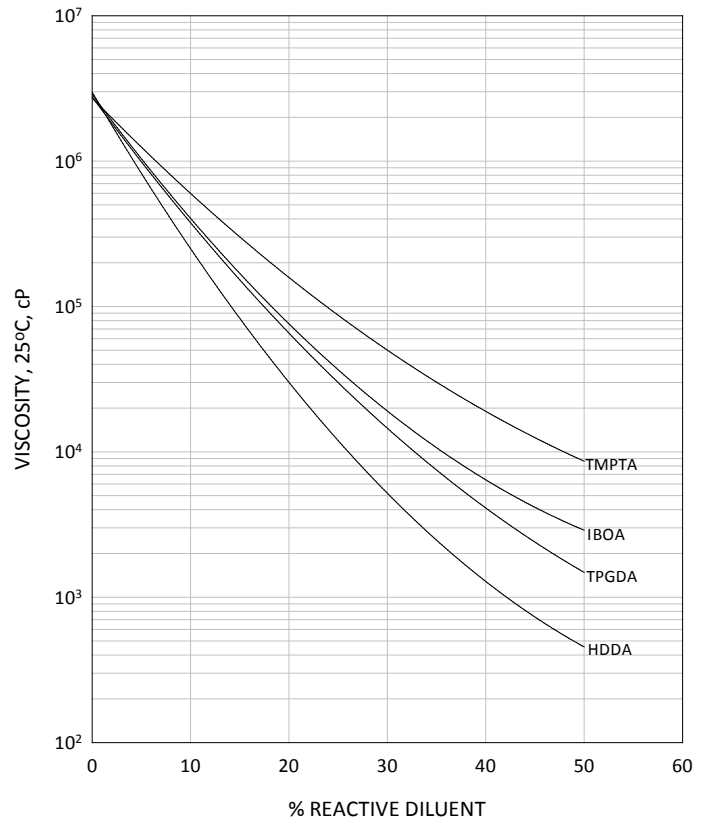
Density, g/ml at 25°C	1.14
Functionality, theoretical ⁽¹⁾	2
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES⁽²⁾

Tensile strength, psi (MPa)	3000 (21)
Elongation at break, %	103
Glass transition temperature, °C ⁽³⁾	24

GRAPH I

EBECRYL 8804 - 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.

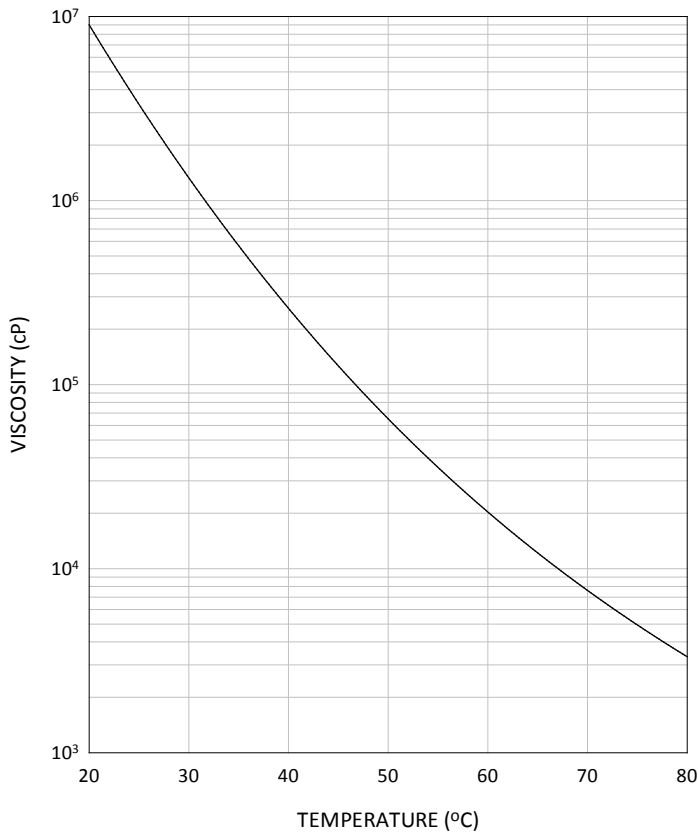
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 8804 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 8804 with increasing temperature.

GRAPH II

EBECRYL 8804 - VISCOSITY VS. TEMPERATURE



(1) Product of allnex.

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PRECAUTIONS

Before using EBECRYL 8804, 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 8804.

Please refer to the allnex Guide to Safety and Handling of Acrylate Oligomers and Monomers for additional information on the safe handling of acrylates.