

EBECRYL[®] 8301-R

Aliphatic Urethane Hexaacrylate

INTRODUCTION

EBECRYL 8301-R is a hexafunctional aliphatic urethane acrylate that provides extremely fast cure response when exposed to ultraviolet light (UV) or electron beam (EB). Cured films of EBECRYL 8301-R exhibit high hardness, scratch and chemical resistance, and are resistant to yellowing.

PERFORMANCE HIGHLIGHTS

EBECRYL 8301-R is characterized by:

- Light color
- Excellent cure speed
- Moderate viscosity

UV/EB cured products containing EBECRYL 8301-R are characterized by the following performance properties:

- High hardness
- Excellent scratch resistance
- Good solvent resistance
- High gloss
- 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.

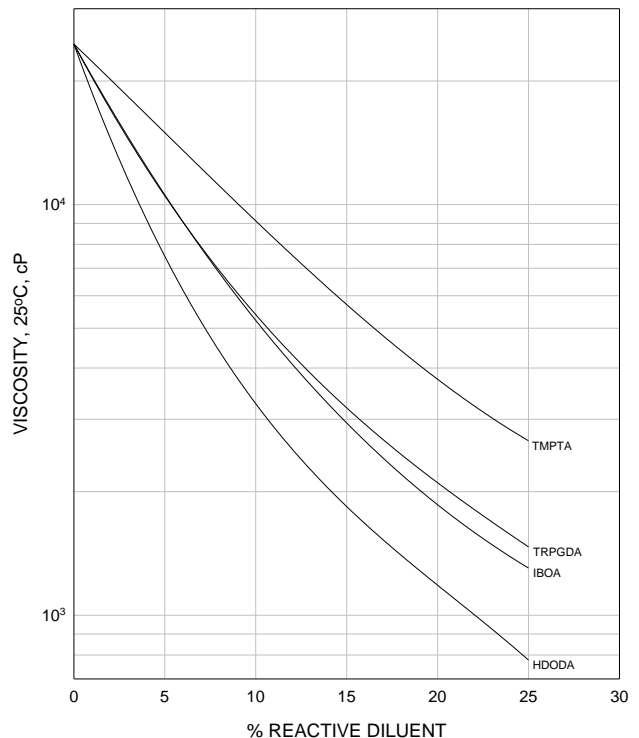
SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 8301-R 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 8301-R is recommended for:

- Scratch resistant coatings on plastic
- Wood coatings and fillers
- A modifying oligomer to improve cure speed, solvent resistance, and gloss of a wide variety of coatings and inks

SPECIFICATIONS	SMT ⁽¹⁾	VALUE
Appearance at 65.5°C	002-G	Clear liquid
Color, 65.5°C, Gardner scale, max.	001-B	2
Inhibitor (MEHQ) content, ppm	075-H	125-400
Isocyanate content, % , max.	091-H	0.08
Viscosity at 65.5°C, cP	013-CC	150-550
TYPICAL PHYSICAL PROPERTIES		
Density, g/ml at 25°C		1.16
Functionality, theoretical ⁽²⁾		6
TYPICAL CURED PROPERTIES ⁽³⁾		
Tensile strength, psi		7750
Elongation at break, %		3
Glass transition temperature, °C ⁽⁴⁾		63

Graph I
EBECRYL 8301-R
Viscosity Reduction of Reactive Diluents



(1) Standard Methods of Testing available upon request.

(2) Theoretical determination based on the undiluted oligomer.

(3) UV cured 125 μ thick films.

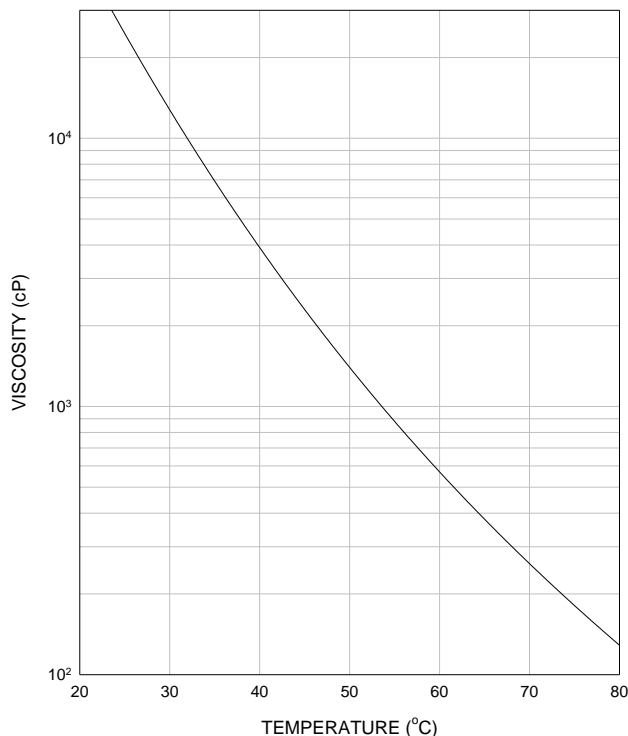
(4) Determined by Dynamic Mechanical Analysis.

VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 8301-R with 1,6-hexanediol diacrylate (HDODA)⁽¹⁾, isobornyl acrylate (IBOA)⁽¹⁾, trimethylolpropane triacrylate (TMPTA)⁽¹⁾, and tripropylene glycol diacrylate (TRPGDA)⁽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 8301-R with increasing temperature.

Graph II
EBECRYL 8301-R
Viscosity vs. Temperature



(1) Product of Cytec Industries Inc.

STORAGE AND HANDLING

Before using EBECRYL 8301-R, consult the **Material Safety Data Sheet** for additional information on safety and handling procedures, and recommended personal protective equipment.

The recommended storage temperature for EBECRYL 8301-R is 4°C to 40°C (39°F to 104°F). 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.

PRECAUTIONS

Avoid contact with eyes, skin and clothing. Direct contact with this material may cause severe eye and moderate skin irritation. Repeated or prolonged dermal contact may cause allergic skin reactions. Wash thoroughly after handling. Use with adequate ventilation. Keep container closed.

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

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