

### ALIPHATIC URETHANE TETRAMETHACRYLATE

## INTRODUCTION

EBECRYL® 8605 is an aliphatic urethane tetramethacrylate diluted 15% by weight with the reactive diluent 1,6-hexanediol diacrylate (HDDA). As the main resin, EBECRYL® 8605 offers an excellent combination of toughness and hardness. As a co-resin, EBECRYL® 8605 can reduce coating curl and increase the ductility of higher functional resins with minimum impact on scratch and abrasion resistance.

## PERFORMANCE HIGHLIGHTS

EBECRYL® 8605 is characterized by:

- Light color
- Low odor

UV/EB cured products containing EBECRYL® 8605 are characterized by the following performance properties:

- Excellent exterior durability
- Good surface hardness
- Excellent abrasion resistance
- Toughness
- Good reactivity
- 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 photo initiators.

## SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 8605 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® 8605 is recommended for use in:

- Automotive OEM or Re-finish
- Exterior durable coatings
- Coatings for wood and plastic requiring excellent exterior durability
- Metal coatings
- Optical coatings
- Non-yellowing topcoats for wood
- Screen inks

## SPECIFICATIONS

Appearance

Clear liquid

## TYPICAL PHYSICAL PROPERTIES

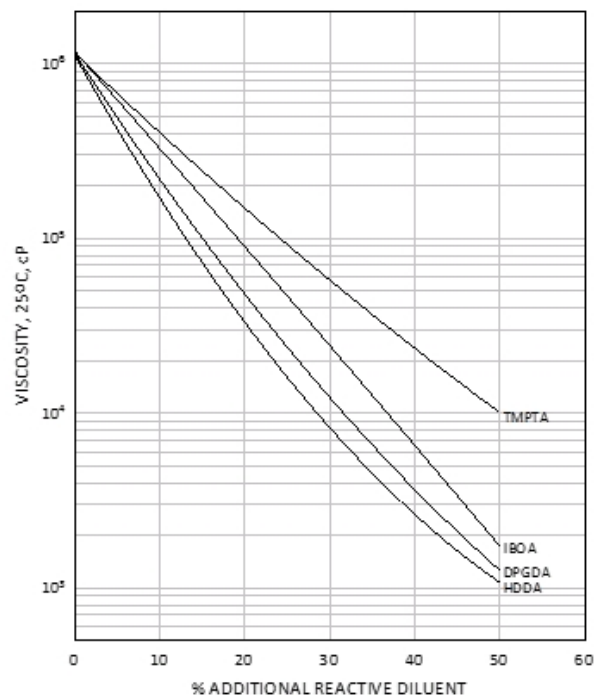
|                                    |          |
|------------------------------------|----------|
| Color, Gardner                     | max. 2   |
| Density, g/cm <sup>3</sup> at 25°C | 1.13     |
| Functionality, theoretical         | 4        |
| Oligomer, % by weight              | 85       |
| HDDA, % by weight                  | 15       |
| NCO, %                             | max. 0.2 |
| Viscosity, 60°C, mPa.s             | 24000    |

## TYPICAL CURED PROPERTIES

|                                      |               |
|--------------------------------------|---------------|
| Tensile strength, psi (MPa)          | 9000 (62)     |
| Elongation at break, %               | 4             |
| Young's modulus, psi (MPa)           | 350000 (2400) |
| Glass transition temperature, °C     | 90            |
| Refractive index, liquid, nD at 20°C | 1.506         |

## GRAPH I

EBECRYL® 8605 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



## VISCOSITY REDUCTION

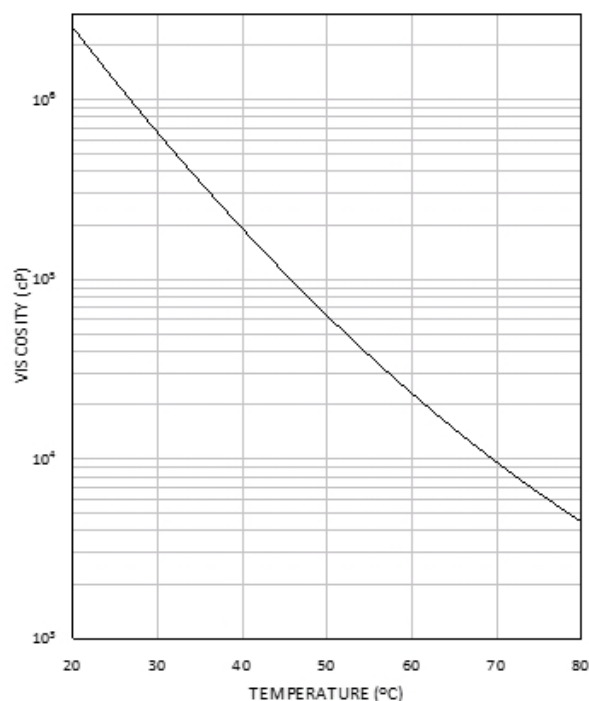
Graph I shows the viscosity reduction of EBECRYL® 8605 with 1,6-hexanediol diacrylate (HDDA)<sup>(1)</sup>, isobornyl acrylate (IBOA)<sup>(1)</sup>, trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup> and tripropylene glycol diacrylate (TPGDA)<sup>(1)</sup>. Although viscosity reduction can be achieved 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.

<sup>(1)</sup> product of allnex

Graph II illustrates the change in viscosity of EBECRYL® 8605 with increasing temperature.

## GRAPH II

EBECRYL® 8605 - VISCOSITY VS. TEMPERATURE



## PRECAUTIONS

Before using EBECRYL® 8605, 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® 8605.