

ALIPHATIC URETHANE HEXAACRYLATE

### INTRODUCTION

EBECRYL® 1290 is a hexafunctional aliphatic urethane acrylate that exhibits very fast cure response when exposed to ultraviolet light (UV) or electron beam (EB). Cured films of EBECRYL® 1290 demonstrate outstanding hardness, scratch and abrasion resistance, chemical resistance, and are resistant to yellowing.

### PERFORMANCE HIGHLIGHTS

EBECRYL® 1290 is characterized by:

- Fast cure response
- Light color

UV/EB cured products containing EBECRYL® 1290 are characterized by the following performance properties:

- Excellent scratch and abrasion resistance
- High gloss
- High surface hardness
- Chemical resistance
- 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 1290 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® 1290 is recommended for use in:

- Scratch and abrasion resistant coatings (hardcoats)
- Clear and pigmented coatings for paper, paperboard, wood, rigid plastics.
- Additive to improve cure speed, solvent resistance, and abrasion resistance.

### SPECIFICATIONS

|                        |              |
|------------------------|--------------|
| Appearance             | Clear liquid |
| Color, Gardner         | max. 1       |
| Viscosity, 60°C, mPa.s | 1800 - 2200  |

### TYPICAL PHYSICAL PROPERTIES

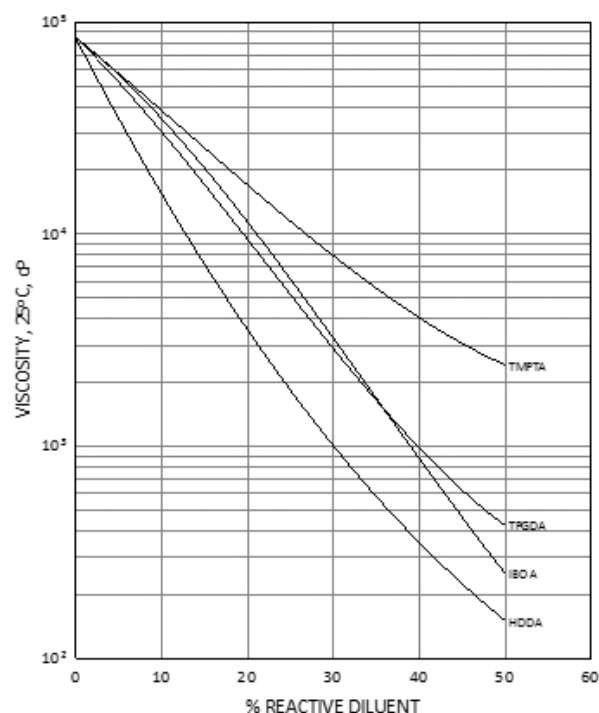
|                                    |      |
|------------------------------------|------|
| Density, g/cm <sup>3</sup> at 25°C | 1.19 |
| Functionality, theoretical         | 6    |

### TYPICAL CURED PROPERTIES

|                                  |           |
|----------------------------------|-----------|
| Tensile strength, psi (MPa)      | 6700 (46) |
| Elongation at break, %           | 2         |
| Glass transition temperature, °C | 69        |

### GRAPH I

EBECRYL® 1290 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



### VISCOSITY REDUCTION

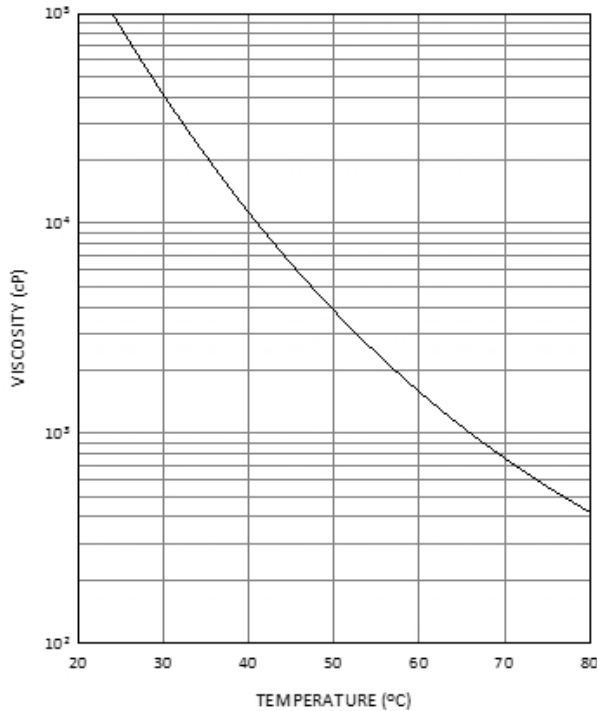
Graph I shows the viscosity reduction of EBECRYL® 1290 with 1,6-hexanediol diacrylate (HDDA)<sup>(1)</sup>, isobornyl acrylate (IBOA)<sup>(1)</sup>, trimethylolpropane triacrylate (TMPTA)<sup>(1)</sup>, and tripropylene glycol diacrylate (TPGDA)<sup>(1)</sup>. Although viscosity reduction can be achieved 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® 1290 with increasing temperature.

### GRAPH II

EBECRYL® 1290 - VISCOSITY VS. TEMPERATURE



### PRECAUTIONS

Before using EBECRYL® 1290, 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® 1290.