

POLYETHER TETRAACRYLATE

INTRODUCTION

EBECRYL® 40 is a tetrafunctional polyether acrylate characterized by low viscosity, mild odor and light color. When formulated with acrylate oligomers, EBECRYL® 40 provides fast cure response in ultraviolet light (UV) and electron beam (EB) curable coatings and inks. Besides its high reactivity, EBECRYL® 40 improves the hardness and solvent resistance of cured inks and coatings. EBECRYL® 40 is particularly recommended for lithographic offset inks, overprint varnishes and paper upgrading.

PERFORMANCE HIGHLIGHTS

EBECRYL® 40 is characterized by:

- Light color
- Low viscosity
- Low odor
- Good cure response

UV/EB cured products based on EBECRYL® 40 are characterized by the following performance properties:

- High surface hardness
- Good solvent resistance
- Low residual odor
- Reduced shrinkage

The actual properties of UV/EB cured products also depend on the selection of the other formulation components, such as reactive diluents, additives, and photo initiators.

SUGGESTED APPLICATIONS

EBECRYL® 40 is commonly used as a diluting reactive oligomer in UV/EB cured coatings and inks. Effective levels of EBECRYL® 40 typically range from 10% to 50% depending on the application. In lithographic inks and varnishes it is quite effective in adjusting viscosity while maintaining or improving cure response and physical properties. EBECRYL® 40 is recommended for:

- Offset inks
- Overprint varnishes
- Coatings on paper, plastics
- Paper upgrading
- Reducing curl on flexible substrates

SPECIFICATIONS

Appearance	Clear liquid
Color, Gardner	max. 2
Viscosity, 25°C, mPa.s	110 - 210

TYPICAL PHYSICAL PROPERTIES

Density, g/cm ³ at 25°	1.15
Flash point, Cleveland open cup, °C	> 100
Functionality, theoretical	4

TYPICAL CURED PROPERTIES

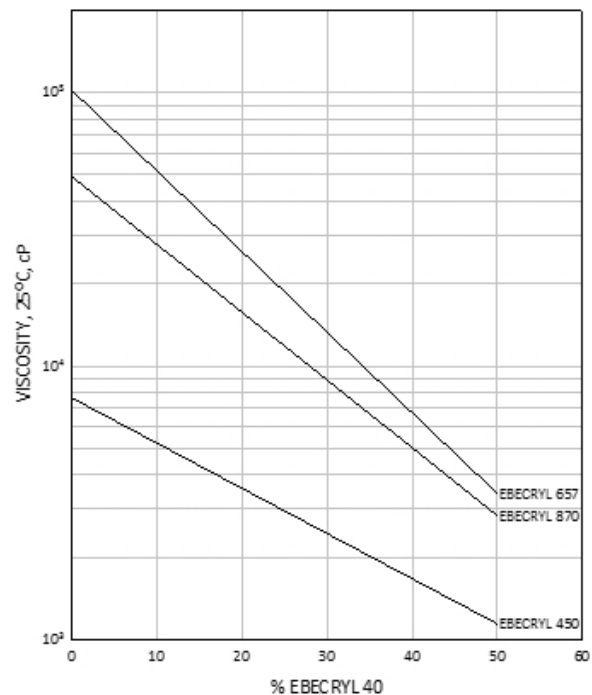
Tensile strength, psi (MPa)	5200 (36)
Elongation at break, %	4
Young's modulus, psi (MPa)	185000 (1276)
Glass transition temperature, °C	48

VISCOSITY REDUCTION

Graph I illustrates the viscosity reduction of several EBECRYL® oligomers used as lithographic ink vehicles when blended with an increasing weight percent of EBECRYL® 40.

GRAPH I

EBECRYL® 40 - DILUENCY EFFECT ON VISCOUS OLIGOMERS



PRECAUTIONS

Before using EBECRYL® 40, 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® 40.