

URETHANE OLIGOMER FOR THERMOFORMING

INTRODUCTION

EBECRYL® 8413 is designed as the pigment grind oligomer for UV cured thermoformable ink applications and is designed for use in conjunction with the letdown oligomer, EBECRYL® 1300. EBECRYL® 8413 exhibits good milling properties and has very high elongation (550%). When used together with EBECRYL® 1300, non-blocking thermoformable inks can be developed. These thermoformable inks demonstrate scratch and temperature resistance, as well as excellent adhesion to a variety of plastic substrates without the necessity of corona discharge or flame pretreatment.

PERFORMANCE HIGHLIGHTS

EBECRYL® 8413 is characterized by:

- Excellent flexibility, 550% elongation at break
- Good milling properties
- High gloss
- Light color

UV cured thermoformable inks based on EBECRYL® 8413 and EBECRYL® 1300 are characterized by the following performance properties:

- Thermoformability (In external tests, 1 to 8 draw ratios have been achieved on polycarbonate sheets)
- Tack-free state after cure, non-blocking systems
- Good temperature resistance
- Good scratch resistance
- Low shrinkage (1.2%)
- Suitable for first and second surface applications
- Excellent intercoat adhesion
- Good adhesion to a variety of untreated plastic substrates including:
 - Polycarbonate
 - Polystyrene
 - PVC (polyvinylchloride)
 - Polyester
 - Acrylic
 - PET-G (glycol modified polyethyleneterephthalate)

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

SPECIFICATIONS

Appearance	Hazy tan liquid
Viscosity, 60°C, mPa.s	21000 - 44000

TYPICAL PHYSICAL PROPERTIES

Density, g/cm ³ at 25°C	1.04
Flash point, °C (est.)	> 100

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	1160 (8)
Elongation at break, %	500
Young's modulus, psi (MPa)	3780 (26)
Glass transition temperature, °C	-29

SUGGESTED APPLICATIONS

Formulated products containing EBECRYL® 8413 may be applied via flat bed screen methods and are recommended for use in screen inks in the following three-dimensional markets.

- Displays / Signage / POP
- Vending machine panels
- Packaging
- Sporting goods
- Architectural
- Electronics
- Appliance Nameplates
- Housing
- Toys
- Novelty items

PRECAUTIONS

Before using EBECRYL® 8413, 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® 8413.