EBECRYL® 411

Modified polyester oligomer

INTRODUCTION

EBECRYL 411 is a modified polyester resin for flexographic narrow web and rotary screen applications. It was developed for low viscosity inks and coatings with excellent adhesion to unprimed OPP films. EBECRYL 411 is diluted with dipropyleneglycol diacrylate (DPGDA)(1) monomer.

PERFORMANCE HIGHLIGHTS

EBECRYL 411 is characterized by:

- Low viscosity
- High reactivity

UV/EB cured formulations based on EBECRYL 411 are characterized by the following performance properties:

- Excellent adhesion to various unprimed filmic substrates
- Good cure response
- Enhanced cold water resistance

The actual properties of UV/EB cured products also depend on the selection of the other formulation components, such as reactive diluent(s), additives and photoinitiators.

SUGGESTED APPLICATIONS

Formulated products containing EBECRYL 411 may be applied by flexo, gravure or rotary screen.

COMPARATIVE DATA

Tape(2) adhesion to corona treated substrates

Cyan Flexo Inks

	OPP	Co-extruded OPP
EBECRYL 411	100%	100%
Competitive Polyester #1	80%	20%
Competitive Polyester #2	0%	0%
Competitive Polyester #3	0%	0%

Rotary Screen "First Down White" Ink

	OPP
EBECRYL 411	100%
Competitive Polyester #1	0%
Competitive Polyester #2	0%
Competitive Polyester #3	0%

SPECIFICATIONS(3) VALUE

Appearance	Clear liquid

TYPICAL PHYSICAL PROPERTIES

Color, Gardner scale	≤5.0
Density, g/ml at 25°C	1.11
Viscosity, 25°C, cP/mPa·s	~1300

TYPICAL CURED PROPERTIES(3)

Tensile strength, psi (MPa)	508 (3.5)
Elongation, %	54
Young's modulus, psi (MPa)	5365 (37)
Glass transition temperature, °C(4)	30

VISCOSITY REDUCTION

EBECRYL 411 can be further diluted with additional DPGDA or other reactive monomers such as 1,6-hexanediol diacrylate (HDDA)(1), tripropyleneglycol diacrylate (TPGDA)(1), trimethylolpropane triacrylate (TMPTA)(1), EBECRYL 40(1) or EBECRYL 160(1). The specific reactive diluent(s) used will influence performance properties such as hardness and flexibility.

(1) Product of Allnex
(2) 3M Scotch® Transparent Film Tape 600
(3) Test methods are available upon request.
(4) UV cured 125 µ thick films.
(5) Measured by Differential Thermal Analysis, max. tan δ

STORAGE AND HANDLING

Before using EBECRYL 411, consult the **Safety Data Sheet** for additional information on safety and handling procedures, and recommended personal protective equipment.

The recommended storage temperature range for EBECRYL 411 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 and skin. Direct contact with this material may cause severe eye and moderate skin irritation. Contact with skin may cause a cross-allergic reaction in persons already sensitized to acrylate materials. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation.

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