TECHNICAL DATASHEET

EBECRYL® 810

EBECRYL® UV/EB Energy Curable Resins

Polyester Tetraacrylate

March 2017

INTRODUCTION

EBECRYL 810 is a polyester tetraacrylate that exhibits low viscosity and good cure response. Films of EBECRYL 810 cured by ultraviolet light (UV) or electron beam (EB) demonstrate surface hardness, chemical resistance and generally good adhesion. EBECRYL 810 is particularly suited to application methods requiring low viscosity such as solventless spray and vacuum coating.

PERFORMANCE HIGHLIGHTS

EBECRYL 810 is characterized by:

- Low viscosity
- Good cure response

UV/EB cured products containing EBECRYL 810 are characterized by the following performance properties:

- Good chemical resistance
- Toughness and adhesion
- High surface hardness

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

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 810 may be applied via direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, air knife, curtain, immersion, vacuum, spin and spray coating methods, as well as flexographic printing. EBECRYL 810 is recommended for:

- Coatings for paper, wood and plastics
- Paper upgrading
- Vacuum applied coatings
- Flexographic inks
- EB cure paper-foil laminating adhesives
- Solventless spray and flow coater applications

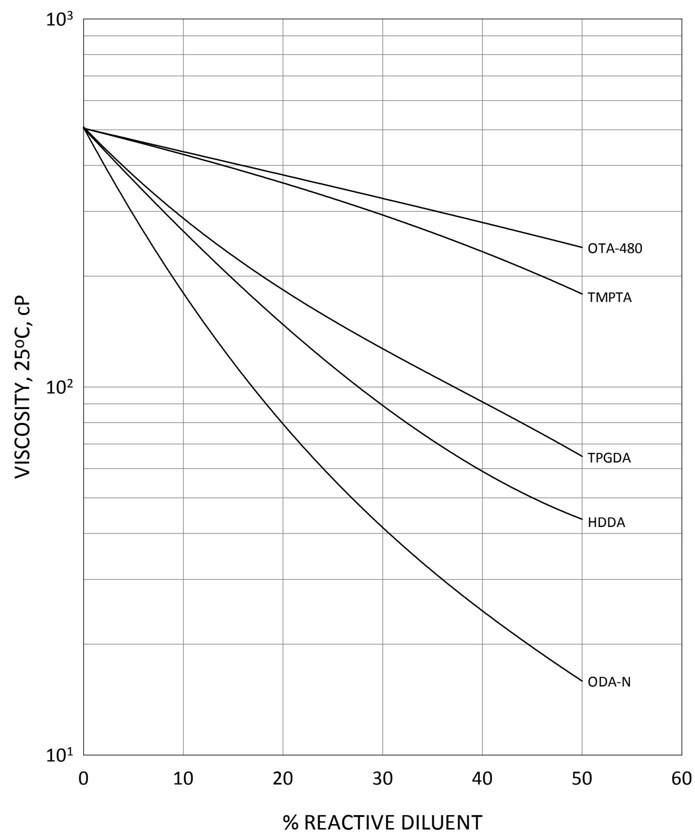
SPECIFICATIONS	VALUE
Acid value, mg KOH/g, max.	25
Appearance	Clear liquid
Color, Gardner scale, max.	2
Viscosity, 25°C, cP/mPa·s	400-600

TYPICAL PHYSICAL PROPERTIES	
Density, g/ml at 25°C	1.09
Functionality, theoretical(1)	4
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES(2)	
Tensile strength, psi (MPa)	6000 (41)
Elongation at break, %	6
Glass transition temperature, °C(3)	31

GRAPH I

EBECRYL 810 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



(1) Theoretical determination based on the undiluted oligomer.
(2) UV cured 125 µ thick films.
(3) Determined by Dynamic Mechanical Analysis.

VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL 810 with 1,6-hexanediol diacrylate (HDDA)[(1)], octyl/decyl acrylate (ODA-N)[(1)], propoxylated glycerol triacrylate (OTA-480)[(1)], trimethylolpropane triacrylate (TMPTA)[(1)], and tripropylene glycol diacrylate (TPGDA)[(1)]. 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.

PRECAUTIONS

Before using EBECRYL 810, 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 810.

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

(1) Product of allnex