

BIO-BASED ALIPHATIC DIACRYLATE

## INTRODUCTION

EBECRYL® 5781 is a low viscosity bio-based diacrylate. When properly formulated, coatings and inks based on EBECRYL 5781 cured by ultraviolet light (UV) or electron beam (EB) energy display high reactivity with good hardness and scratch resistance.

## PERFORMANCE HIGHLIGHTS

EBECRYL® 5781 is characterized by:

- Low viscosity
- High reactivity
- High Tg
- Low shrinkage
- High renewable content (57%)

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

EBECRYL® 5781 is recommended for use in:

- Low viscosity pigment pastes
- BPA free overprint varnishes and coatings

Formulated UV/EB curable products containing EBECRYL® 5781 may be applied by flexography, screen, gravure, and direct or reverse roll coating.

## VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL® 5781 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

## TYPICAL PHYSICAL PROPERTIES

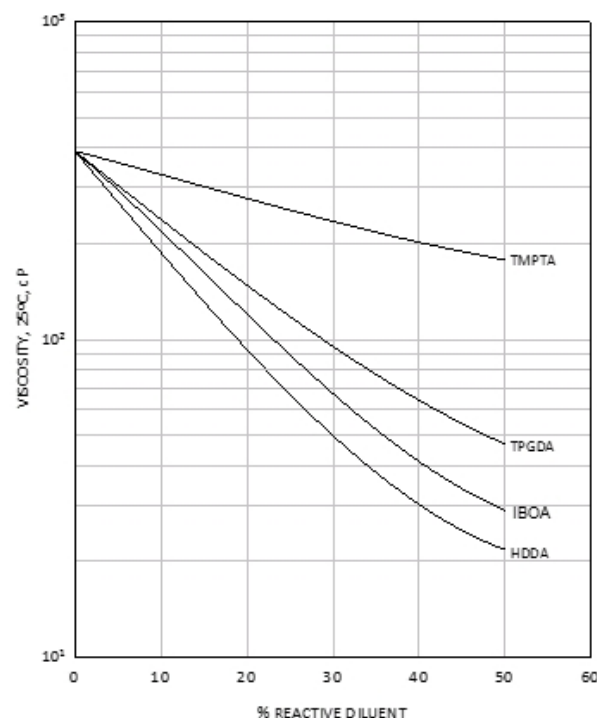
Appearance, ambient	Liquid to crystalline
Color, Gardner	< 4
Density, g/cm <sup>3</sup> at 21.5°C	1.26
Functionality, theoretical	2
Refractive index, 23°C	1.4930
Viscosity, 25°C, mPa.s	450

## TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	1740 (12)
Elongation at break, %	< 1
Young's modulus, psi (MPa)	456750 (3150)
Glass transition temperature, °C	162
Volumetric shrinkage, %	8.4

## GRAPH I

EBECRYL® 5781 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



## PRECAUTIONS

Before using EBECRYL® 5781, 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.

Upon storage, EBECRYL® 5781 may become crystalline. This crystallization can be removed by heating containers of EBECRYL® 5781 to a uniform temperature of 50°C. Ovens or hotboxes are recommended methods of heating. Heating tapes should not be used.

See the SDS for the recommended storage temperature range for EBECRYL® 5781.