

EBECRYL® 8210

Aliphatic Urethane Acrylate

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INTRODUCTION

EBECRYL 8210 is an aliphatic urethane acrylate that exhibits low viscosity and high reactivity in ultraviolet (UV) light or electron beam (EB) curable coatings. Cured films of EBECRYL 8210 demonstrate high hardness with good scratch, abrasion and chemical resistance. EBECRYL 8210 also contains primary hydroxyl groups that can be utilized for dual cure polymerization. Dual cure can provide instantaneous tack-free coating surfaces via UV or EB exposure while reaction of the hydroxyl groups with a suitable isocyanate⁽¹⁾ enables polymerization in regions of the coating where UV or EB energy exposure is insufficient or absent⁽²⁾.

PERFORMANCE HIGHLIGHTS

EBECRYL 8210 is characterized by:

- Low viscosity
- Light color
- Excellent reactivity
- Dual functionality

UV/EB cured products containing EBECRYL 8210 are characterized by the following performance properties:

- High gloss
- Good scratch and abrasion resistance
- Chemical resistance
- Low yellowing
- Adhesion

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

SPECIFICATIONS

	VALUE
Acid value, mg KOH/g, max.	8.0
Appearance	Clear liquid
Color, Gardner scale, max.	2
Viscosity, 25°C, cP/mPa-s	2750-5250

TYPICAL PROPERTIES

Density, g/ml at 25°C	1.11
Functionality, theoretical ⁽³⁾	3.5
Hydroxyl value, mg KOH/g	75-110
NCO, %	≤ 0.02

TYPICAL CURED PROPERTIES⁽⁴⁾

Tensile strength, psi (MPa)	6400 (44)
Elongation at break, %	2.1
Young's modulus, psi (MPa)	379000 (2614)
Glass transition temperature, °C ⁽⁵⁾	68

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL 8210 may be applied via direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, air knife, curtain, immersion, spin and spray coating methods. EBECRYL 8210 is recommended for:

- Coatings requiring high scratch/abrasion resistance and improved adhesion
- A modifying oligomer to increase cure speed, solvent resistance and abrasion resistance.
- Dual cure coating systems.

PRECAUTIONS

Before using EBECRYL 8210, 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 8210.

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) Isocyanate prepolymers are suggested for their lower toxicity. Potential isocyanate prepolymers include the aliphatic HDI biuret; HDI or IPDI based isocyanurate trimers; the aromatic TDI trimer or MDI-TMP adduct.
- (2) For example, shaded areas or the lower layers of thick clear or pigmented coatings.
- (3) Theoretical acrylate functionality based on the undiluted oligomer.
- (4) UV cured 125 μ thick films.
- (5) Determined from Dynamic Mechanical Analysis loss modulus.

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