

ALIPHATIC URETHANE ACRYLATE

INTRODUCTION

EBECRYL® 8812 is an aliphatic urethane acrylate that does not contain any intentionally added organic tin compounds, heavy metals*, hydroquinone (HQ) or methyl ether of hydroquinone (MEHQ). Please note that quinones are present in many raw materials, so the overall quinone content is reduced, but not zero in EBECRYL® 8812. EBECRYL® 8812 is diluted with 10% by weight of the reactive diluent ethoxyethoxyethyl acrylate (EOEOEA). Films of EBECRYL® 8812 cured by ultraviolet light (UV) or electron beam (EB) exhibit excellent abrasion resistance, toughness, rapid cure response and resistance to yellowing.

*As defined by C.O.N.E.G's Toxic in Packaging Legislation, the ASTM Standard Consumer Safety Specification on Toy Safety F 963 (ASTM F 963-08), or the EU Directive 94/62/EC (and amendments) on packaging and packaging waste.

PERFORMANCE HIGHLIGHTS

EBECRYL® 8812 is characterized by:

- No intentionally added tin, heavy metals*, or quinones
- Light color
- Crystalline semi-solid state
- Rapid cure response

UV/EB cured products containing EBECRYL® 8812 are characterized by the following performance properties:

- Regulation friendly for tin, heavy metals*, and quinones
- Excellent abrasion resistance
- Good toughness
- Good flexibility
- Exterior durability

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

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing EBECRYL® 8812 may be applied via direct or reverse roll, offset gravure, metering rod, slot die, knife over roll, air knife, curtain, immersion and spin coating methods, as well as screen printing. EBECRYL® 8812 is recommended for use in:

- In applications that must meet regulations for tin, heavy metal*, and quinone content
- Coatings for rigid and flexible plastics
- Floor tile coatings
- Laminating adhesives
- Screen ink vehicles and clear coatings
- Wood topcoats
- Metal decorating ink vehicles and clear coatings

SPECIFICATIONS

Color at elevated temp., Gardner	max. 1.0
Color at elevated temp., Apha	max. 100
NCO, %	max. 0.20
Viscosity at 65.5°C, mPa.s	5000 - 15000

TYPICAL PHYSICAL PROPERTIES

Density, g/cm ³ at 25°C	1.05
Functionality, theoretical	2.5
Oligomer, % by weight	90
EOEOEA, % by weight	10

VISCOSITY REDUCTION

The viscosity of EBECRYL® 8812 can be reduced with additional EOEOEA or other reactive diluents such as dipropylene glycol diacrylate (DPGDA)⁽¹⁾, 1,6-hexanediol diacrylate (HDDA)⁽¹⁾, isobornyl acrylate (IBOA)⁽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.

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PRECAUTIONS

Before using EBECRYL® 8812, 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® 8812 may show signs of crystallization. This crystallization can be removed by heating containers of EBECRYL® 8812 to a uniform temperature of 70°C. Ovens or hotboxes are recommended methods of heating.

Heating tapes should not be used. In typical formulations, EBECRYL® 8812 does not exhibit signs of crystallization.

See the SDS for the recommended storage temperature range for EBECRYL® 8812.