

MODIFIED POLYESTER ACRYLATE

INTRODUCTION

EBECRYL® 894 is a modified polyester acrylate specifically developed for UV curable field applied concrete and vinyl composition tile (VCT) floor coatings. EBECRYL® 894 contains a dye indicator to provide visible evidence that the floor coating is properly cured, and to visibly demonstrate differences in coating thickness. It is also resistant to yellowing upon cure and over its lifetime. The low viscosity of EBECRYL® 894 provides latitude to achieve low viscosity formulations, which are required for field applied applications. Concrete and VCT coatings based on EBECRYL® 894 provide a good balance of properties such as cure speed, adhesion, hardness, and scratch resistance. Good chemical and solvent resistance and high gloss are also obtained with concrete and VCT coatings based on EBECRYL® 894.

PERFORMANCE HIGHLIGHTS

- Ease of application of homogeneous coatings
- Visible control between cured and non-cured areas
- Shortened job completion times
- Elimination of non-cured areas
- Optimal floor coating properties

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

SUGGESTED APPLICATIONS

EBECRYL® 894 is recommended for use in UV curable field applied concrete, wood and VCT coatings.

TYPICAL PROPERTIES

Appearance	Blue liquid
Viscosity at 25°C, mPa.s	600
Density, g/cm ³ at 25°C	1.11
Functionality, theoretical	3.5
Oligomer, % by weight	100

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	1422 (9.6)
Elongation at break, %	2.7
Young's modulus, psi (MPa)	69355 (469)

STARTING POINT FORMULATION

clear coatings FOR CONCRETE

Component	pbw	Property/Value
EBECRYL® 894	75.00	Coating performance
EBECRYL® 160 or TMPEOTA	25.00	Viscosity reduction
BP/CPK ⁽¹⁾	2.96	Photoinitiator
BAPO ⁽²⁾	0.04	Photoinitiator
EBECRYL® P115 or EBECRYL® P116	5.00	Amine synergist (required for decolorization mechanism)

VISCOSITY	385 mPa.s
COAT WEIGHT (1-2 coats)	6-7 mils (150-175 µm)
CURE EXPOSURE	
Partial/gel cure	600-800 mJ/cm ²
Full cure for property development and decolorization	800-1500 mJ/cm ²

⁽¹⁾ 1/1 mixture of benzophenone and α -hydroxy-cyclohexyl-phenyl-ketone

⁽²⁾ Bis-acylphosphine oxide

RHEOLOGY MODIFICATIONS

In some applications, a more thixotropic coating is required. This can be achieved by adding rheology modifiers.

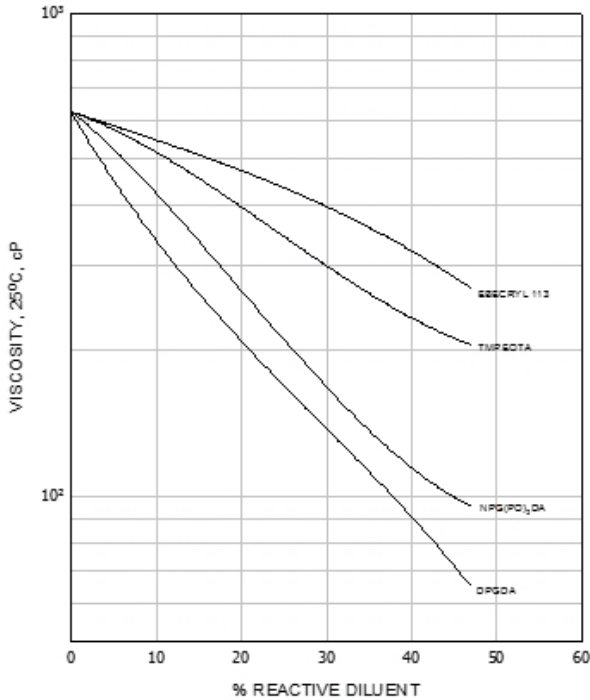
VISCOSITY REDUCTION

Graph I shows the viscosity reduction of EBECRYL® 894 with several of the recommended diluents for concrete and VCT coatings: dipropylene glycol diacrylate (DPGDA)⁽³⁾, EBECRYL® 145⁽³⁾ or propoxylated neopentyl glycol diacrylate (NPG(PO)2DA)⁽³⁾, EBECRYL® 160⁽³⁾ or ethoxylated trimethylolpropane triacrylate (TMPEOTA)⁽³⁾ and EBECRYL® 113⁽³⁾. 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.

⁽³⁾ product of allnex

GRAPH I

EBECRYL® 894 - VISCOSITY REDUCTION WITH REACTIVE DILUENTS



PRECAUTIONS

Before using EBECRYL® 894, 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® 894.