EBECRYL® 4690

Technical Datasheet

be ECOWISE™

EBECRYL® 4690 belongs to the ECOWISE CHOICE product range for the industrial wood market.

ALIPHATIC URETHANE ACRYLATE

INTRODUCTION

EBECRYL® 4690 is an aliphatic urethane acrylate diluted ~28% by weight with 1,6-hexanediol diacrylate (HDDA). EBECRYL® 4690 exhibits a good reactivity and produces hard and tough coatings. The product contains ~27% bio-carbon (according to ASTM D6866).

PERFORMANCE HIGHLIGHTS

UV/EB cured coatings based on EBECRYL® 4690 are characterized by the following performance properties:

- Very good mechanical properties
- High abrasion resistance
- Good chemical resistance
- Low yellowing
- Robust outdoor resistance (weathering)

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

SUGGESTED APPLICATIONS

EBECRYL® 4690 is designed for use in the formulation of UV/EB energy curable coatings for application by roller coating, spraying and curtain coating on wood, cork, furniture, paper, parquet plastics and film. It is a very suitable choice for outdoor building and cladding applications.

FORMULATING

Coatings can be adjusted to appropriate viscosity for the application with additional HDDA(1) or the addition of other standard reactive diluents such as dipropylene glycol diacrylate (DPGDA)(1), isobornyl acrylate (IBOA)(1) and trimethylolpropane triacrylate (TMPTA)(1) as well as solvents such as butyl acetate.

EBECRYL® 4690 is compatible with most acrylate monomers and oligomers. Because of the many possible combinations with reactive diluents and solvents, the compatibility must be tested in each individual case.

UV curing of coatings formulated with EBECRYL® 4690 requires the addition of standard commercial photo initiators. Typical levels are 4 - 6% although this may vary to meet the reactivity requirements for the application. In the case of EB curing, a low oxygen atmosphere must be ensured to avoid surface inhibition.

Lower gloss coatings can be produced using standard matting agents. Care should be taken with respect to sedimentation which may cause the coating to gel prematurely.

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SPECIFICATIONS

Color, Apha	< 75
Viscosity, 23°C, mPa.s	25000 - 33000

TYPICAL PHYSICAL PROPERTIES

Acid value, mg KOH/g	max. 1
Density, g/cm³ at 20°C	~1.1
Flash point, °C	> 100
Functionality	> 4
Hydroxyl content, %	max. 0.5

TYPICAL CURED PROPERTIES

Tensile strength, psi (MPa)	2320 (16)
Elongation at break, %	1.5
Young's modulus, psi (MPa)	203000 (1400)
Tg, °C	82

PRECAUTIONS

Before using EBECRYL® 4690, 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® 4690.