TECHNICAL DATASHEET

UCECOAT® 7210

Waterborne Urethane Acrylate Flexibilizer

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UCECOAT® Waterborne UV/EB Energy Curable Resins

allnex The Coating Resins Company

INTRODUCTION

UCECOAT 7210 is a UV/EB energy curable flexible urethane acrylate supplied as an emulsion in water. UCECOAT 7210 can be mixed in all proportions with UCECOAT 7200 and enables the formulation of protective UV coatings with adjustable flexibility as well as high abrasion and chemical resistances. UCECOAT 7210 can be blended (after pH neutralization) with other waterborne UV resins to increase solid content and/or flexibility.

PERFORMANCE HIGHLIGHTS

UCECOAT 7210 is characterized by:

- White appearance
- High solids content
- Good colloidal stability
- Low viscosity

UV/EB cured formulations based on UCECOAT 7210 are characterized by the following performance properties:

- Flexibility
- Direct adhesion onto common plastic substrates.

The actual properties of UV cured formulations also depend on the selection of other formulation components such as additives and photoinitiators.

SUGGESTED APPLICATIONS

Formulated UV/EB curable products containing UCECOAT 7210 are typically applied by spray, spin coating, dip coating, curtain coating and common roll-to-roll coating processes. Additional methods may also be used.

UCECOAT 7210 is recommended for use in energy cured protective hardcoats for:

- Consumer electronics (casing & display)
- Optical film
- Metallized plastics

SPECIFICATIONS	VALUE
Appearance	Emulsion
Non-Volatile Matter, %	63.5-66.5
pH	2.0-5.0
Particle size, nm, max.	1000
Viscosity, 25°C, cP/mPa·s, max.	1000

TYPICAL PROPERTIES

Density, g/ml at 25°C	1.10

FORMULATION GUIDLINES

It is always recommended to stir UCECOAT 7210 prior to use. After prolonged storage, the product can settle and may require agitation to redisperse. UCECOAT 7210 can be further diluted with water. Further formulation with additives and/or blending with other waterborne UV resins may require adjusting the pH of UCECOAT 7210 (before formulation) to neutrality by addition of a solution of sodium hydroxide or of an amine solution like triethylamine or Advantex®(1).

The appearance of the coating may benefit from the addition of a suitable wetting agent such as Tego® Wet 280(2) at a concentration of 0.5 to 1% in the wet formulation.

The following table provides a generic formulation for coatings with increased flexibility obtained from the combination of UCECOAT 7200 (hardcoat resin) and UCECOAT 7210 as the flexibilizer.

COMPONENT	Parts
UCECOAT 7200	100 - X
UCECOAT 7210	X
Esacure® HB(3)	2.8
Tego® Wet 280(4)	0.75
Deionized water	as needed to adjust viscosity

Gradually increasing the UCECOAT 7210 content in the formulation above will lead to protective coatings with increasing flexibility.

This formulation may be applied by roll coater or spray application by adjusting the dilution with deionized water. Typical application for a protective coating with 10 g/m² dry target coat weight will involve a water evaporation step (typically a few minutes between 50 to 80°C) followed by UV curing with typically 1 to 2 J/cm² total energy (UVA, UVB, UVC and UVV).

(1) Amine additive; product of Taminco
(2) Photoinitiator; product of Lamberti
(3) Flow & wetting aid; product Evonik
(4) Defoamer, product of allnex

PRECAUTIONS

Before using UCECOAT 7210, see the Safety Data Sheet for information on the identified hazards of the material and the recommended personal protective equipment and procedures.

STORAGE AND HANDLING

Protect the product from freezing. Care should be taken not to expose the product to high temperature conditions or direct sunlight. Containers should be kept closed and away from materials that react with water. Bacteriological contamination can occur if the product is stored for an extended period in a container which is not sufficiently sealed or clean. Storage and handling should be in stainless steel, amber glass, or amber polyethylene containers. After prolonged storage product can settle and may require agitation to re-disperse. This product is stable under normal conditions of handling and storage. Do not store this material under an oxygen free atmosphere. Wash thoroughly after handling. Use with adequate ventilation.

See the SDS for the recommended storage temperature range for UCECOAT 7210.

Please refer to the allnex Guide to Safety and Handling of Acrylate Oligomers and Monomers for additional information on the safe handling of acrylates.

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