

BIO-BASED ENERGY CURABLE POLYURETHANE DISPERSION

INTRODUCTION

UCECOAT® 7999 is a low-viscous high-performance energy curable polyurethane dispersion made from renewable feedstocks and suitable for use as a binder for clear and pigmented coatings. The product contains ~22% bio carbon certified by ASTM D6866 and contributes to a reduction of the material carbon footprint of > 500 g of carbon dioxide per kg of dry product. It is also regulatory compliant due to its solvent-free, tin-free and APEO-free composition. Its composition was optimized for excellent coating performance with good adhesion and flexibility.

PERFORMANCE HIGHLIGHTS

This product has been developed as a high-end binder for water-based clear and (white) pigmented coatings offering superior protection. It is characterized by a good colloidal stability alone or in the presence of pigments and additives. It is tack-free after water evaporation and before cure. It presents a low Minimum Film Formation Temperature (MFFT) that does not require the use of additional coalescing agents. It is physically drying and has a good reactivity upon radiation curing. The cured coating develops an immediate optimum hardness that is not requiring oxidative drying. It offers an excellent chemical and mechanical resistance but keeps also some flexibility resulting in good dimensional stability and adhesion.

SUGGESTED APPLICATIONS

The product can be easily applied by spray application due to its low viscosity. Alternatively, it can be applied by other coating methods like gravure, flexography, screen, curtain or immersion. It is used to cover natural or coated wood but other substrates include especially plastics & PVC flooring, as well as paper & paperboard, leather & textile or concrete.

TYPICAL WET PROPERTIES

Appearance	Translucent, pale yellow
Solid content, %	33 - 35
Brookfield viscosity at 25°C, mPa.s	< 200
pH	7.0 – 8.5
Mean particle size, nm	< 100
Minimum Film Formation Temperature, °C	≤ 5
Stability 60°C, days	≥ 10

SUSTAINABILITY POSITIONING



This product is aligned with our corporate sustainability commitment to pursue a greener and sustainable future together with our customers.

SUGGESTED STARTING POINT FORMULATION

The final properties of UV cured formulations specifically depend on the selection of formulation components such as additives (rheology modifiers, wetting agents) as well as photo-initiators. A starting point formulation for an UV curable clear coat is indicated below:

Component	parts
UCECOAT® 7999	100
Demineralized water	1.50
Rheology Modifier (e.g. ADDITOL® VXW6360)	1.50
Photo Initiator (e.g. IRGACURE® BCPK)	1.50

The product can be further formulated with other polymer dispersions to modify the properties of the cured coating. The use of alkyd dispersions is advantageous to keep the sustainable character of the product.

STORAGE AND HANDLING

This material should not be stored for more than 1 year. The recommended storage temperature range for UCECOAT® 7999 is between 4°C and 40°C (39°F to 104°F). The product needs to be stored above freezing temperature. Care should be taken to avoid exposure to high temperature or direct sunlight that will induce product destabilization or (in the worst case) uncontrollable radical polymerization with generation of heat. Formulation with acids, alkalis or salts may cause product destabilization. Storage and handling should be in stainless steel, amber glass, amber polyethylene or baked phenolic lined containers. Do not store this material under an oxygen free atmosphere. Procedures that remove or displace oxygen from the material should be avoided and air is thus recommended to remove material from the container by pressure. Open the container carefully to release any excess of pressure, then keep container tightly closed and handle normally.

PRECAUTION

Before using UCECOAT® 7999, please read the Safety Data Sheet for additional information on product safety and handling procedures, as well as recommended personal protective equipment. Consult Safety Data Sheet for emergency and first aid procedures.

The toxicological properties of this material have not been fully determined. Appropriate precautions should be taken to avoid eye and skin contact as well as to prevent inhalation of the aerosols or vapours. Wash thoroughly with water after handling and especially in case of spills or in case of contact with eyes or skin. Use with an adequate room ventilation.

STATUTORY LABELING

Please refer to Safety Data Sheet.