

# UCECOAT<sup>®</sup> 7890

## Acrylated Polyurethane Dispersion

### INTRODUCTION

UCECOAT 7890 is a high performance acrylated polyurethane dispersion specifically developed for UV curable field applied wood and VCT (vinyl composition tile) floor coatings. UCECOAT 7890 demonstrates good foam control and excellent wetting of matting agents, pigments, and substrates. This results in floor coatings with a uniformly matte appearance. Floor coatings based on UCECOAT 7890 exhibit a good balance of flexibility and hardness, thus providing good adhesion and coin scuff. Excellent hardness and solvent and chemical resistance are also provided through use of UCECOAT 7890.

### PERFORMANCE HIGHLIGHTS

- Good foam control in floor coatings
- Excellent wetting of matting agents, pigments, and substrates
- Good adhesion and coin scuff
- Excellent hardness and solvent and chemical resistance
- Tack-free after water evaporation
- Excellent stability

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

### SUGGESTED APPLICATIONS

UCECOAT 7890 is recommended for use in UV curable field applied floor coatings.

### STARTING POINT FORMULATION

PRODUCT	%	PROPERTY
UCECOAT 7890	89.32	Coating performance
Water (deionized)	0.50	Viscosity/pH adjustment
NH <sub>4</sub> OH (28%, GR ACS) <sup>(1)</sup>	0.50	pH adjustment
Gasil <sup>®</sup> 23F <sup>(2)</sup>	3.00	Gloss reduction
ADDITOL <sup>®</sup> VXW 4973 <sup>(3)</sup>	0.18	Foam control
Butyl Carbitol <sup>(4)</sup>	1.00	Film coalescence
Byk <sup>®</sup> UV 3500 <sup>(5)</sup>	2.00	Flow and leveling
ADDITOL BCPK <sup>(3)</sup>	3.50	Photoinitiator
	100.00	

- Coat at 5-7 mils with a T-bar or flat pad applicator on stained/sealed wood, and allow to dry
- Cure at 300 mJ/cm<sup>2</sup>
- The wood should be stained/sealed before applying the topcoat. Exhaustive testing of stain/sealers for compatibility and performance has not been done. Waterborne and solventborne stains/sealers from Pro-Finisher, Behr, and Zinsser performed well in Cytec lab testing.
- Photoinitiator levels of 1.0-3.5% give the same properties.

- (1) Product of EMD Chemicals
- (2) Product of PQ Corporation
- (3) Product of Cytec Industries Inc.
- (4) Product of The Dow Chemical Co.
- (5) Product of Byk Additives & Instruments

### TYPICAL PROPERTIES

Appearance	Translucent to white liquid
Density, g/ml at 25°C	1.05
MFFT, °C	~0
Particle size, nm	<150
pH	6.0-8.5
Solid content, % by weight	~35
Viscosity at 25°C, cP	<200

### PROPERTIES OF STARTING POINT FORMULATION

PROPERTY	TWO TOPCOATS ON SEALED OAK
60° Gloss	25
Crosscut Adhesion (610 tape)	5B
Nickel Test	Very slight burnish
Black Heel Mark Resistance	No marking
Pencil Hardness	H
MEK Double Rubs	200+
Chemical resistance (24 hour spot test, with cottonball, covered)	
Mustard	No stain or distortion
Betadine	No stain or distortion
RIT <sup>®</sup> Dye (navy, undiluted)	Slight stain (no stain at 30 minutes)
Xylene	No stain or distortion
Olive Oil	No stain or distortion
Formula 409 <sup>®</sup>	No stain or distortion
Vinegar	No stain or distortion
Water	No stain or distortion
Ethanol (99.5%)	Slight stain (no stain at 30 minutes)
Ethanol (50%)	No stain or distortion
Isopropanol (99%)	No stain or distortion
Isopropanol (70%)	No stain or distortion
Windex <sup>®</sup>	Slight stain (no stain at 30 minutes)

### PREPARATION OF STARTING POINT FORMULATION

All additions are done under high speed agitation. Preblend the water and ammonium hydroxide, and add to the UCECOAT 7890 to adjust pH to greater than 8. Slowly add the matting agent. After the addition is complete, continue agitating for an additional 20-25 minutes. Slowly add the defoamer. Preblend the remaining components, and add to the mixture. Agitate an additional 5 minutes. Filter the mixture through a 190 micron filter. Allow to de-air for 24 hours before use.

## STORAGE AND HANDLING

Before using UCECOAT 7890, consult the **Material Safety Data Sheet** for additional information on hazards, handling procedures, and recommended protective equipment.

The recommended storage temperature range for UCECOAT 7890 is  $\geq 4^{\circ}\text{C}$  ( $39^{\circ}\text{F}$ ) to  $\leq 40^{\circ}\text{C}$  ( $104^{\circ}\text{F}$ ). Protect the product from freezing. Avoid conditions that may expose the material to high temperatures. Protect from direct sunlight. Use with adequate ventilation. Keep container closed. After prolonged storage product can settle and may require agitation to re-disperse. This product is stable under normal conditions of handling and storage.

## PRECAUTIONS

Avoid contact with skin and eyes and breathing vapors. Direct contact with this material may cause minimal eye and skin irritation. Wash thoroughly after handling.

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

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