

UCECOAT®
UV Curable Waterborne Resins

The UCECOAT® line of UV Curable Waterborne Resins are based on urethane acrylate chemistry, and have been developed to **bridge the performance gap between 100% solids UV-curable and conventional solvent-borne urethane acrylate systems.**

The UCECOAT® line includes both solutions and dispersions in water. They can be formulated into **primers, sealers, and topcoats** for wood, artificial flooring, plastics, and metal substrates.

Formulations with these resins, by themselves or in combination with the EBECRYL® 12 diluent, can be **roll coated, sprayed, curtain or vacuum coated** onto a variety of substrates.

GENERAL

- Environmental friendly - **meet low-VOC requirements** by using water as a diluent; **also formaldehyde-free**
- Low viscosity allows for various application methods: **spray, roll, curtain or vacuum coating** – can get nice **open-pore finish via spray**

Vs. Traditional Waterborne PU Dispersions

- ✓ **Tack free after drying, before UV cure** for most products, allowing **easy handling** and **limiting dust contamination**. Can get **“wet finish” look with UV-PUDs that are tacky after drying**
- ✓ **Offer various combinations** of excellent adhesion; chemical, stain & scratch resistance; good reactivity & range of hardness levels

Vs. Competitive UV-PU Waterborne Dispersions

- Reactivity, Chemical / Stain Resistance and Wood Wetting **better or similar to competitive UV-PUDs**
- Hardness, Stability, Foaming & Yellowing Resistance **similar to competitive UV-PUDs**

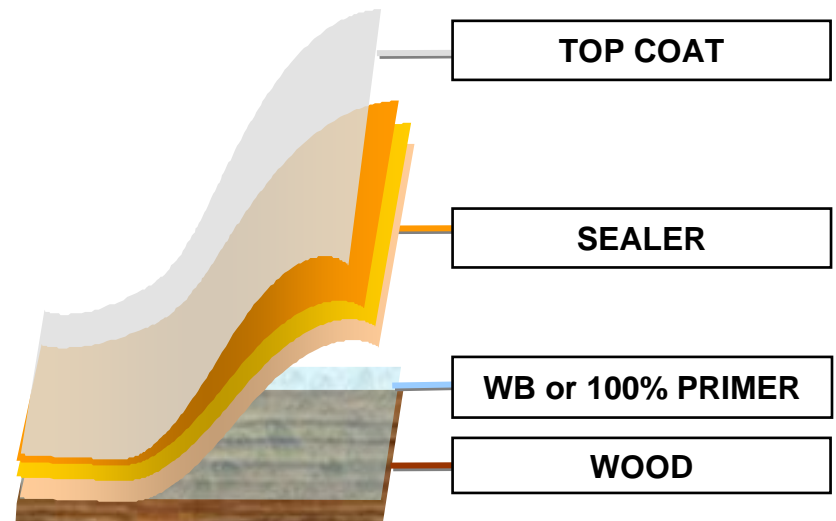
Vs. 100% Solids UV-PU System

- ❑ **Viscosity is controlled by dilution with water** instead of acrylated monomers
- ❑ **Low gloss finish easier to obtain** than with 100% solid systems
- ❑ **Reduction or elimination of solvents**
- ❑ **Viscosity can be controlled without altering the properties** of the final product
- ❑ **Better control over film build** – can get desired “non-plastic” look on wood

Better Appearance & Higher Throughput, with Lower VOC & Energy Consumption

For wood applications, the important steps are:

- Wood sanding
- Primer
- Sealer (not always)
- Top coat



- Needs to give good adhesion on the wood
- Needs to give good intercoat adhesion
- Needs to wet the substrate to give good "wet-look" or anfeuerungung



Technical data

- **Description: Aliphatic urethane acrylate**
- **Viscosity: 4500 mPa.s @ 25°C**
- **Solids: 50 %**
- **Xi-free**

Film properties

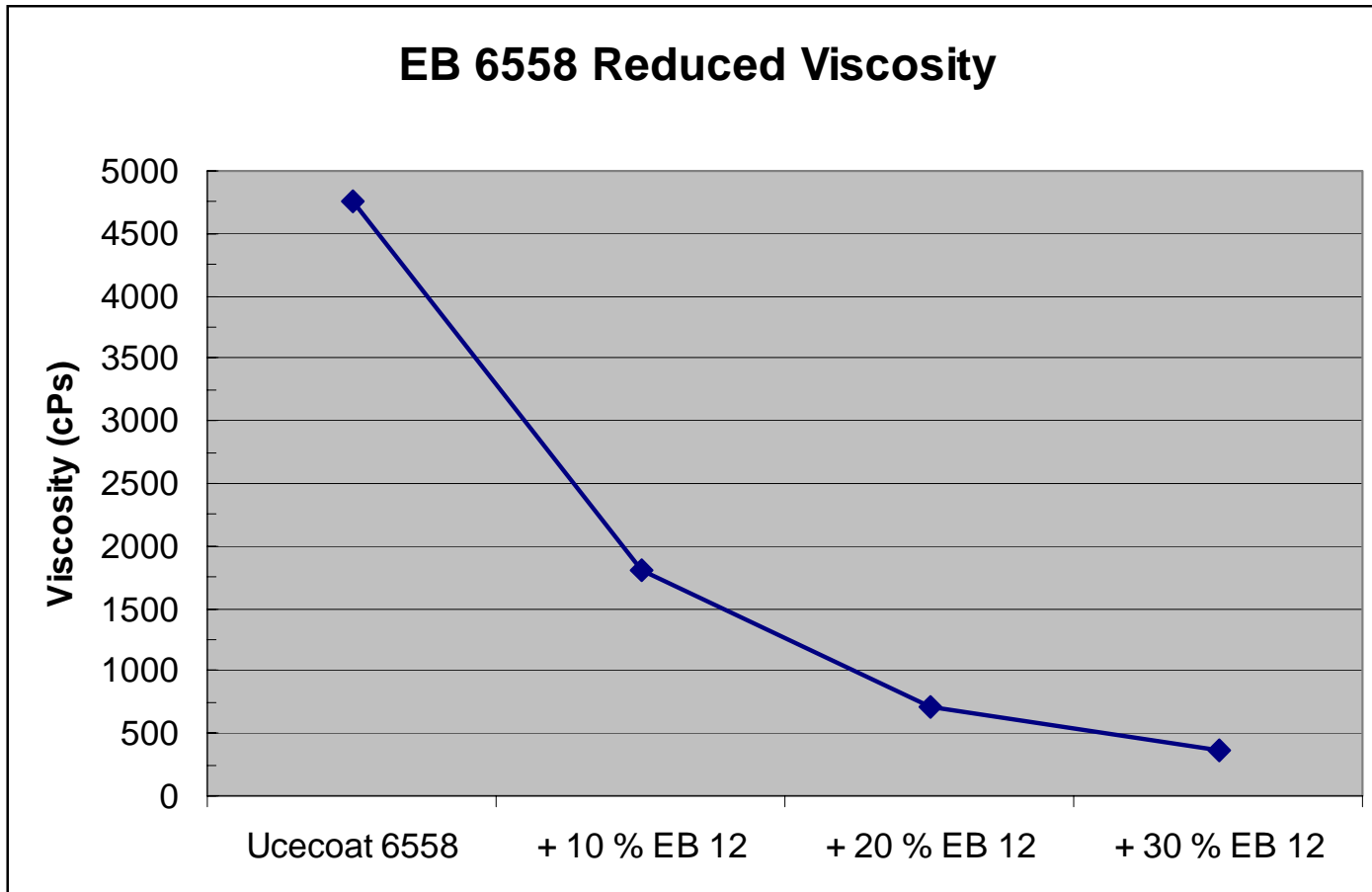
- **Not tack-free after physical drying**
- **Resoluble before UV curing**

Product features

- **Primer for wood and resilient flooring**
- **Excellent adhesion**
- **Excellent wood wetting**
- **Water content: maximum 50% - temperature max 50°C**

Viscosity Control

- Do not use additional water to reduce viscosity (possible stability problems)
- Do use partially water soluble products such as EBECRYL[®] 12



Technical data

- Description: Aliphatic urethane acrylate
- Viscosity: 6000 mPa.s @ 60°C
- Solids: 95 %
- Xi-free

Film properties

- Not tack-free after physical drying
- Resoluble before UV curing

Product features

- Primer for wood and resilient flooring
- Excellent adhesion
- Excellent wood wetting
- Control viscosity through addition of up to 50 % water

- **Alkoxyated triacrylate, dilutable up to 45% by weight with water, reactive diluent in waterborne UV/EB curable coatings and inks**
- **Recommended diluent for the UCECOAT[®] line of waterborne UV resins**

Raw Material	Clear
UCECOAT[®] 6558	79.0
EBECRYL[®] 12	19.5
ADDITOL[®] BCPK	1.5

Property	Result
Viscosity, cps @ 25C	700
Adhesion	5B (best)
Cure speed	250 mJ/cm²

General Information:

- Water must be completely removed before UV curing
- Prior to curing, flash-off moisture at 35°C with low air speed (0.5 m/s), or forced air + microwaves
- IR is not suitable for open porous finishing: bubbles
- ADDITOL® BCPK is the preferred photoinitiator
- UCECOAT® products give best properties when cured warm (not allowed to cool after water evaporation)
- For PVC floor coatings temperatures up to 80°C can be used
- pH control is critical when adding pigments, fillers, etc.

Flow and Leveling Agents:

- Use ADDITOL® VXW 6360 at +/- 0.4% for flow & leveling
- Use MODAFLOW® AQ 3025 or ADDITOL® XW 395 for flow & leveling without foam stabilization side effect. They also enhance gloss and DOI, while reducing cratering. Can be used in conjunction with silicones.

Rheology modifiers

- Use ADDITOL[®] VXW 6360 at +/- 0.4% for rheology control (thickener)

Foam control

- For severe foaming, use either 2100 or 9200 in conjunction with a true defoamer such as our ADDITOL[®] XL 6507, which is a non-silicone air release additive with excellent compatibility with clearcoats
- Use MODAFLOW[®] 2100 or MODAFLOW[®] 9200 for flow & leveling with air-release properties
- Use ADDITOL[®] VXW 6386 or 4926 as silicone-free air release agents or defoamers
- Use ADDITOL[®] VXW 6399 or VXW 6393 mineral oil/hydrocarbon based additives as defoamers

Miscellaneous

- Use ADDITOL[®] VXW 6396 for wetting