CYTEC

RADCURE® Newsflash

Insights for
UV/EB Curable Inks and Coatings
September 2009

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EBECRYL® 8702 - Exceptional Characteristics for Clear and Pigmented Coatings

EBECRYL® 8702 is a unique high molecular weight hexa-functional aliphatic urethane acrylate. Its innovative design offers a good balance of several properties usually not observed in a single energy curable oligomer. EBECRYL 8702 embodies good reactivity and surface hardness typically associated with multi functional acrylates but its innovative structure expands its performance properties to include flexibility, water solubility, pigment and filler wetting. Cured films of EBECRYL 8702 exhibit also a good balance of performance properties such as good pencil hardness, impact resistance, and exterior durability.

These features coupled with its economical value, make EBECRYL 8702 the ideal choice for **clear and pigmented coatings for both graphical and industrial coating applications**.

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New Photoinitiator with Low Residual Odor

Cytec is introducing a new photoinitiator product specifically targeted for UV coating applications requiring very low residual odor.

EBECRYL P39 is a polymeric benzophenone derivative that functions as the photosensitizer in hydrogen abstraction type photoinitiator systems. Unlike benzophenone and similar low molecular weight photosensitizers, EBECRYL P39 exhibits low vapor pressure and volatility due to its polymeric structure.

When used in combination with suitable amine co-initiators such as EBECRYL P115 or EBECRYL 7100, EBECRYL P39 can produce UV coatings with fast cure response while imparting no odor to the cured coating. The product is also REACH compliant, as it is a polymer preparation manufactured in the Europea Union with (pre)registered monomers/reactants.

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Pigmented Coatings Using UV Curable Waterborne Dispersions

Traditional 100 % solids UV curable coatings use low molecular weight acrylate functional diluents rather than solvents to achieve the proper application viscosity. For spray or curtain coatings, the amour of diluent needed can be a significant portion of the total formulation and can reduce the quality of the coating, or lead to adhesion issues due to high shrinkage on cure.

Energy curable polyurethane dispersions (UV-PUDs) use water for viscosity control which allows for the creation of low viscosity, sprayable formulations without resorting to the use of diluents or solvents. The lower solids nature of these resins also gives the end user greater control over film build and appearance. While suitable for use as clearcoats, many UV-PUDs are difficult to cure when pigmented.
In this article will describe two separate resin strategies that have been developed to overcome cure issues encountered with pigmented UV curable coatings, while still retaining the excellen stain, scratch and chemical resistance associated with UV-PUDs.

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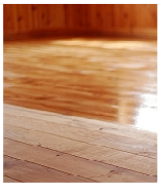
Field Applied UV Cured Topcoats for Wood



In the past five or so years, commercial UV curing has moved out of the factory and into the field, with numerous improvements in UV curing equipment pushing this transformation. Floor coatings are one of the main applications for field applied UV cured coatings.

Today, field applied or on site floor coatings for wood, vinyl, tile, and concrete are all in some phase of commercialization.
The benefits of UV cured field applied wood coatings are similar to factory applied wood coatings: increased productivity and performance. In addition, the immediate cure aspect provides an added benefit of quality, since the finish will not be damaged once it is cured, and cost savings to the end user through immediate use.
This article will compare the performance of field applied UV cured wood floor coatings with that of conventionally cured wood floor coatings.

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Energy Cure Flexographic Inks for PLA films

PLA films offer a natural high surface energy and significant potential for modification that provide desired end-use properties as well renewable raw material sourcing. The main challenges are obtaining consistent ink adhesion, the necessary equipment/ink modifications to accommodate the new substrates and the lack of barrier/functional properties.

To be able to better support green initiatives like printing on PLA substrates, Cytec has intensified its environmental activities by implementing the 12 Principles of Green Chemistry which enable Cytec to meet ever more stringent regulations and being environmentally proactive. One of the first success stories in this field is the launch of EBECRYL® bioligomers, which are only available in the Americas. These resins were developed to allow increased use of renewable raw material and have been commercialized to help the whole value chain in its efforts to increase Green Printing and reduce the environmental footprint.

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