

# Don't fear big steps

## Switching from thermal to UV-curing

Necessary plant conversions and a new technology often inhibit the implementation of UV coatings. Does that explain why chemical curing is still a niche market? Ines Marquard, Synthopol Chemie and Prof. Jamil Bagdachi, Eastern Michigan University evaluate this question and also discuss a possible intermediate solution with UV-waterborne coatings.

"Diluting with water is the healthier and environmentally preferred option"



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### 1 In single segments, like wood coating, UV technology is well known. How can you overcome fears of bad investments with UV in other segments?

Before committing to investment in UV-technology you should carefully research and understand the chemistry involved in order to fully appreciate its capabilities and limitations. As developers and manufacturers of UV resins we have effectively supported customers who wanted to adopt this economically viable technology. Flat stock like foils, wooden doors or plastic parts for domestic appliances are easier to coat by UV than 3D objects with their many zones of shadows. Additionally you have to consider the security aspect, UV-lamps only being suitable for use by appropriately qualified staff, and it is important that the ozone by product is carefully removed.

Also beneficial in gaining an overview is in attending seminars, UV exhibitions, and/or speaking with other suppliers active in the UV sector.

Only when you understand how the process works, will you appreciate which criteria influence both the product finished quality and throughput capabilities in your particular product area.

### 2 What advantages do thermally and chemically cured UV waterborne systems offer compared to pure UV-cured systems?

I really prefer to work with UV-dispersions, because they offer much more flexibility of formulation. Also compared to a conventional UV-system using reactive diluents, diluting with water is the healthier and environmentally preferred option.

Due to fast physical drying speed and controlled shrinkage, a good matting effect, and a permanent pigmentation, can be obtained. The UV post cure gives high blocking resistance for the stacking and storage of the coated parts, and the excellent chemical resistance results in manufacture of a high quality and durable product. Meanwhile hydro-uv-metallic coatings are successfully used for the application on vacuum cleaners. In the case of deep brilliant high gloss surfaces, conventional UV-systems dominate the market, although it is also possible to achieve this using UV-dispersions but through elimination of the physical drying property.

For the wood or graphic industries it is easy to combine both the worlds of physically dried acrylic dispersions and of UV cured systems by incorporating either an integrated in-line UV lamp or by post offline use of an external UV lamp cure. ◀

#### topic preview

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December:

#### Powder coatings

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January:

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