

UV LED CURING ZEROING IN ON WIDE WEB APPLICATIONS

By Eric Fish, Editor-in-chief

Traditional UV curing is used today in wide web applications for the likes of protective varnish, silicone release and functional coatings, but new advancements in inks, adhesives and over-protective varnishes have UV LED poised for growth in this category. In fact, according to Jennifer Heathcote, Phoseon Technology director of business development, some companies are already incorporating UV LED into their operations – with more expected to follow.

“The latest improvements in the technology are making it increasingly viable – technically and economically,” she says. “UV equipment suppliers have achieved success in designing and producing UV LED curing systems in short head lengths, and these designs are rapidly being extended to longer lengths.”

One of the biggest factors that Heathcote notes when it comes to UV LED’s potential to increase in wide web applications has to do with the low-migration regulations that flexible packaging converters must comply with. She says the rapid degradation of mercury arc lamps makes process control for food packaging difficult – thereby forcing companies to use electron beam technology instead of UV technology.

“UV LED does not have the same degradation as mercury arc lamps,” she says. “As a result, UV LED offers superior process control that makes its use in flexible packaging for food safer.”



Phoseon’s FireLine FL400 water-cooled UV LED curing lamp, which can be used for wide web applications.

She notes a bevy of other benefits that have the potential to make UV LED curing a staple in wide web applications. These include:

- Compact heads that easily integrate into the press.
- The lack of extraction or make-up air.
- Less heat transfer to substrate.
- Brighter, bolder print jobs.
- More opaque white inks, and brighter metallics and fluorescents.
- Able to work in-line with solvent formulations.
- Easier to clean up on press.
- Cured jobs can be immediately slit, cured and converted, while non-UV jobs may require post-curing time that can range from hours to days.

Heathcote is quick to acknowledge the up-front costs of the UV LED curing equipment, but says that it’s common for printers to recoup

the initial investment quickly due to the process improvements that the technology enables. For instance, conventional arc lamps have a lifespan of about 1,000 hours and typically require a warm-up period before they can begin to function properly. UV LED bulbs have a much longer lifespan and virtually no warm-up period, she says.

Heathcote adds: “UV LED curing systems have no moving or consumable parts, virtually eliminating downtime for maintenance and repairs.”

UV LED is already used in narrow web and decorative printing applications. But with the advantages it offers over more conventional curing systems, wide web is the next market it’s poised to more significantly infiltrate, Heathcote notes. **FP**

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