

UV LED Curing Frequently Asked Questions

At Flint Group, our expertise in UV LED curing technology, showcased through our renowned EkoCure® range, has positioned us as a leader in the transition from traditional UV to low-energy UV LED curing systems in the labels and narrow web sector. Explore the future of narrow web printing, understand the advantages of UV LED curing, and discover how Flint Group is committed to helping printers reduce waste, enhance efficiency, and accelerate the drive for industry-wide sustainability.

Let's illuminate the path to UV LED success.

What is UV LED curing in flexographic printing?

UV LED curing in flexographic printing refers to the use of Ultraviolet Light Emitting Diodes (UV LED) as an alternative curing system to traditional curing utilising UV mercury-based lamps. As you continue reading, you will see that it's a technology that offers significant advantages in terms of energy efficiency and environmental impact.

UV LED curing is a much newer technology than traditional UV and was initially cost-prohibitive for printers, but as the technology scales and becomes more affordable, it has become much more accessible to the flexographic printing industry.

How does UV LED curing differ from traditional UV curing systems?

The technology differs from traditional UV curing systems by utilising UV LED light sources instead of UV Hg lamps.

The technology brings benefits such as reduced lamp power consumption, vastly reduced maintenance demands, consistent print (as UV LED lamps do not require warm-up time), and elimination of hazardous mercury in the lamp design. Changing legislation around the disposal of mercury might make traditional UV systems harder to acquire and maintain for packaging and label converters.

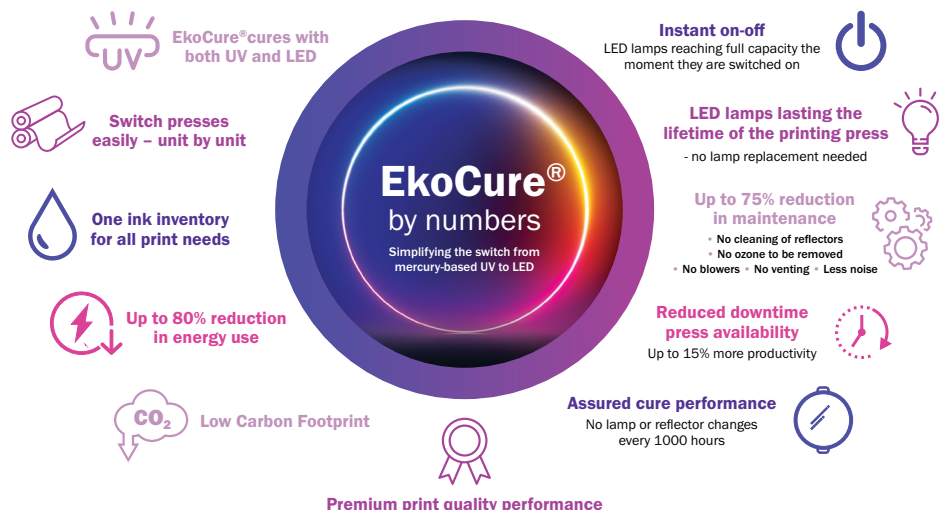
Why are printers switching from UV curing to UV LED curing systems?

Numerous operational advantages are unlocked by using UV LED curing systems, and integrating inks that cure under UV LED systems.

These include significant energy savings of up to 80% compared to traditional UV curing methods, reduced environmental risk by eliminating the use of mercury curing lamps, and longer service life of UV LED units. Additionally, UV LED's inherent capability of instant on-off eliminates the need for lamps to warm up, further enhancing overall efficiency and cost-effectiveness. This is much different than legacy UV mercury lamps. Notably, rapid advances in technology have also seen UV LED curing match and surpass traditional UV methods in terms of curing speed and consistency.

FlintGroup

10+ years of LED curing ink technology leadership



What are the principles behind UV LED curing technology?

UV LED curing technology involves the use of intense UV LED light sources to initiate a curing reaction in specially formulated printing inks.

These Light Emitting Diodes emit a narrow wavelength of light energy to create a single bell-shaped emission spectrum. This process activates photoinitiators in the ink. These photoinitiators are designed to absorb UV light transforming that into chemical energy, which will initiate or catalyze a crosslinking process leading to the polymerisation and subsequent curing of the ink.

What makes Flint Group's EkoCure® range stand out in the market?

Flint Group is ahead of the curve on UV LED curing technology. It has been pioneering high-performance inks in this market for more than a decade – long before the technology made it as accessible and more widely used as it is today.

Flint Group's EkoCure® range is the result of this experience. Furthermore, the series stands out in the market for its performance and versatility through the development of Dual Cure technology, a range of inks that are designed to cure under both traditional UV and UV LED curing systems. This flexibility makes it an ideal solution for printers and converters transitioning production lines from traditional UV to low-energy UV LED curing.

How does EkoCure® Dual Cure technology work in both traditional UV and UV LED curing systems?

EkoCure® Dual Cure technology uses a unique combination of photo-initiators and binders, enabling the ink to crosslink effectively when exposed to light wavelengths from traditional mercury-based or low-energy UV LED curing lamps.

Dual Cure technology offers printers the flexibility to transition gradually from traditional UV to UV LED curing. Press changes can be made unit by unit, which also minimises disruption and downtime. This flexibility helps to reduce waste and cost associated with a sudden system-wide replacement and allows for a smooth shift aligned with printers' operational priorities.

In what ways does EkoCure® contribute to reducing waste levels for printers?

EkoCure® contributes to waste reduction by facilitating a gradual transition to UV LED curing, performing at a high level under both techniques. Printers can use the same ink inventory for both curing technologies during the transition, preventing excessive stock, minimising the need to discard ink stores and preserving working capital.

How does EkoCure® help printers better control ink inventories and costs?

EkoCure® helps printers maintain control and streamline ink inventories by facilitating a seamless transition from traditional UV to UV LED curing. The ability to use one ink for both technologies minimises inventory complexities and streamlines the supply chain. Converters are not left with valuable ink inventory that is no longer compatible with the printing workflows, which would otherwise need to be discarded or removed.

The cost-saving aspects of using EkoCure® inks encompass reduced energy consumption, an extended lifespan of UV LED units resulting in lower replacement costs, and enhanced operational efficiency. Furthermore, an added advantage is the consistency in colour characteristics between Dual Cure and Hg inks. This eliminates the need for colour-matching when transitioning between the two ranges, offering an additional layer of efficiency and convenience for printers.

What considerations should printers keep in mind when transitioning from traditional UV to UV LED curing systems with EkoCure® inks?

Printers should consider aligning the transition with market-driven investment plans, retrofitting or replacing presses strategically, managing investments for tighter cost control, and ensuring compatibility with existing processes.

As a complete end-to-end partner in inks and coatings, Flint Group supports its customers from concept to implementation to enable a smooth transition.

How can printers get technical support or additional guidance on implementing UV LED curing with EkoCure® inks?

Printers can receive technical support and guidance on implementing UV LED curing with EkoCure® inks from Flint Group's experienced technical support team. With over ten years of LED-compatible ink technology development, the team can align processes and provide expertise through the transition process and beyond.

Are you ready for the future?

Would you like to discuss a transition to UV LED? If your answer is YES and YES, contact us today!

info.narrowweb@flintgrp.com