

SSL Postings

U.S. DEPARTMENT OF ENERGY

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Although you do not often hear about growth in domestic manufacturing here in the United States, the solid-state lighting industry is steadily growing and establishing a manufacturing presence here at home. Solid-state lighting was not only born of U.S. ingenuity and R&D, but is also riding the crest of a worldwide trend toward greater energy efficiency. This offers a golden opportunity for U.S. manufacturing to take a significant role in SSL. From time to time, the Postings focus on SSL companies manufacturing here in the U.S., in a series called "SSL in America." This is not intended to endorse or promote any of the companies, but rather to describe advances in energy-efficient solid-state lighting. The activities you'll read about here are consistent with the U.S. Department of Energy (DOE) white paper ["Prospects for U.S.-Based Manufacturing in the SSL Industry."](#)

Spotlight on Illumitex

Illumitex is a manufacturer of LED luminaires for horticultural and industrial applications. The company started in 2007 as an OEM manufacturer of LED packages that incorporated Illumitex's own patented optics — which, according to CEO Chris Hammelef, are positioned much closer to the chip than many other optics are, and thus result in fewer wasted photons. He notes that these optics are well suited for horticultural lighting, because they can blend the two areas of the spectrum that figure in plant growth — which are located in the red and the blue regions — into a uniform light that optimizes plant growth. In 2012, Illumitex began making the entire luminaire as well as the optics and LED packages.

Chris says that roughly 70% of the company's customers are in North America, and that all of the luminaires for those customers — as well as for customers in South America and Africa — are manufactured at Illumitex's headquarters in Austin, TX. There, about 75 people – from engineers and sales and marketing personnel to horticultural scientists and production staff — are employed. Chris notes that the luminaires for the company's Asian and European customers are manufactured overseas, as are all of the company's LED packages — a large portion of which are shipped to Austin to be incorporated into the luminaires that are made there.

He relates that Illumitex makes dynamic-spectrum (i.e., color-tunable) horticultural products for customers whose focus is on research, and makes static-spectrum horticultural products for customers whose focus is on production and yield, such as commercial greenhouses and vertical farms. Chris notes that the company has a dozen plant biologists on staff, who work closely with customers to increase yields — not only by identifying their spectral needs, which vary from plant to plant, but also by taking into consideration other factors such as humidity, carbon dioxide, nutrients, and temperature. He explains that such a broad-based approach is necessary, because customers who don't get the yields they expect tend to blame it on the lighting, even when the shortfall was due to other factors.

Chris says the spectra of Illumitex's static products are tuned for optimal efficacy in promoting plant photosynthesis, and notes that the company has more than 10 different spectral recipes but, when necessary, can also customize the spectra to meet a customer's unusual needs. He explains that Illumitex's horticultural products only emit light in the part of the spectrum that has a strong effect on plant growth, which is called the photosynthetically active radiation (PAR) spectrum and is generally between 400–700nm. That way, says Chris, no light is wasted.

He notes that because Illumitex is a vertically integrated company, making the LED packages in addition to the optics and the luminaire itself, it can better tailor spectral recipes to customer needs, because having full control of LED production allows for tweaking the phosphors in ways that produce subtle changes in the emitted spectra.

Chris says a major advantage of manufacturing in the U.S. is that it shrinks lead times and allows Illumitex to react to customer needs very quickly — as much as two months faster than if the manufacturing were done overseas. It also enables Illumitex to keep a close eye on product quality and resolve quality issues quickly, as well as to stock less inventory. Chris notes that Illumitex's manufacturing is highly automated, which — along with the company's practice of designing for manufacturability — offsets the higher labor rates in the U.S.

He calls horticultural lighting one of the hottest emerging lighting markets and says that Illumitex's horticultural products bring energy savings of more than 70% over the high-pressure sodium systems that have traditionally been used.

Illumitex is among a number of companies that are working to create and strengthen a solid-state lighting manufacturing base here in the U.S. This will not only help bring significant energy savings through more efficient lighting products, but will benefit our economy by adding jobs at multiple levels of the supply chain.

As always, if you have questions or comments, you can reach us at postings@akoyaonline.com.