SSL Postings

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 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, these Postings *will focus on SSL companies manufacturing here in the U.S., a series we call "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 "Keeping Manufacturing in the United States," which grew out of DOE's 2010 SSL Manufacturing R&D Workshop.*

Based in California's Silicon Valley, Intematix manufactures phosphors that are used as down-converters in LEDs – that is, they're used to convert the light emitted by blue LEDs into white light that can be used for general illumination. In addition to making phosphors that are coated directly on the LED, the company makes remote phosphors, which are put on a glass or plastic "envelope" that's external to the LED.

Intematix was founded in 2000 as a material science company focusing on batteries, solar power, and LEDs, and grew with the help of a DOE Small Business Innovation Research grant. The company's focus gradually narrowed so that, by 2005, it was

exclusively LEDs. A small percentage of Intematix's business used to involve LED packaging, but today the company only makes phosphors.

Intematix does the majority (about 55 percent) of its phosphor manufacturing in Fremont, CA, where about 135 people are employed, and the remainder is done in China. Founder and CTO Yi-Qun Li explains that without some kind of Chinese presence, his company would have a very difficult time obtaining the rare-earth materials that are used to make its phosphors, because those materials are mined in China and are carefully controlled by the Chinese government on a strict quota basis, with the result that they're in short supply on the international market. So having a factory in China ensures that Intematix has access to those rare-earth materials, and it also reduces their cost, because foreign customers have to pay high tariffs.

On the flip side, Yi-Qun notes that there are strong incentives for his company to do most of its manufacturing in the U.S. Chief among these is the protection of intellectual property, which can be an important consideration in high-tech industries. Yi-Qun explains that Intematix's proprietary phosphor formulas are developed in the U.S., and it's easier to protect those formulas here than it would be overseas.

Another factor, he says, is that it's easier here to find people who have the specialized skill sets that are required by Intematix – chiefly, engineers and material scientists. What's more, some of the company's customers are in the U.S., although Intematix sells globally. Lower overseas labor rates are not much of a factor, says Yi-Qun, because the process of manufacturing phosphors is highly automated rather than labor-intensive. Yi-Qun says the company is continuously developing new phosphor technologies and processes and plans to expand its U.S. manufacturing accordingly.

Intematix 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.

A survey of U.S. employment and job growth in the SSL industry is now being conducted by the Next Generation Lighting Industry Alliance (NGLIA). Administered by the National Electrical Manufacturers Association, NGLIA is an alliance of for-profit lighting manufacturers formed to accelerate SSL development and commercialization through government-industry partnership. NGLIA members collaborate with DOE on diverse activities in support of SSL core technology research, product development, manufacturing, demonstration, and market conditioning and outreach. To participate in the NGLIA survey, contact NGLIA at nglia@nema.org (all information provided will only be used in the aggregate and will be kept confidential for each company).

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