

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.

In southern Minnesota, less than two hours by car from Minneapolis, lies the town of New Ulm, population ~13,000. In addition to a 45-foot glockenspiel, testimony to the region's German heritage, New Ulm boasts a commercial brewery and the Minnesota Music Hall of Fame. It's also home to a facility that manufactures solid-state lighting.

That facility, which employs 950 people, is part of 3M, a large and diversified manufacturer of products that range from healthcare to industrial to consumer goods. And although SSL represents only a tiny fraction of the company's total business (and is not the exclusive focus of the New Ulm plant), that fraction is growing

rapidly and cuts across several of 3M's many divisions, says Tom Simpson, who heads the company's lighting lab.

One of the many things 3M does is make optics for display backlights. So when displays started to become LED-backlit around 2005, the company – which has been involved with light management for more than 80 years – optimized its existing optics for LED backlights. 3M branched into SSL for general illumination in 2009, when it started working on reflectors and light guides for LEDs, coming out with commercial products in 2011. Convinced by then that LEDs had become enough of a disruptor in the lighting industry to create a viable opportunity for 3M to leverage its light-management expertise, the company began manufacturing LED luminaires. In August of this year, it came out with its first LED lamps: A19 60W and 40W replacements that, at a minimum of 70 lm/W, are at least five times as efficient as their incandescent counterparts and – with the help of 3M's multilayer reflector film and refractive light guides – are made to look like them.

Those LED lamps are assembled at 3M's New Ulm facility, along with several different LED luminaires. The lamps incorporate many U.S.-made components – including all of the optics. Many of the lamps' components are made by 3M, and many of those 3M-made components are manufactured at the company's facilities in Decatur, Alabama, and Menomonie, Wisconsin.

All of 3M's SSL manufacturing is done in the U.S. According to Tom, the company's policy is that whatever can be done here in the U.S. is done here, even if it's outsourced to a U.S.-based firm. He says the company's internal SSL manufacturing involves several hundred jobs, all of them high-tech.

One advantage to 3M of manufacturing in the U.S. is that the New Ulm factory is less than two hours' drive from the company's laboratory in Maplewood. Tom notes that this facilitates rapid product development and problem-solving, because the laboratory

folks routinely interact with those who work in the plant. He explains that this is part of 3M's philosophy of getting lots of people with very different backgrounds – from the physicist, to the chemist, to the industrial engineer, to the marketing team – to all think about the same problem in different ways. And even though the Decatur and Menomonie plants are further away from the lab, they're still worlds closer than if they were overseas, so it's relatively easy for all involved to meet face-to-face, even at short notice.

Tom says that the New Ulm plant, which has been in operation for years but only started manufacturing SSL in 2011, is a well-run facility that is able to compete with overseas factories for a number of reasons. For one thing, many of the suppliers are located here in the U.S., not to mention customers, so shipping costs are low. And there's also a fair amount of automation, which negates the cheap overseas labor costs. Tom emphasizes that 3M pays a lot of attention to cost and believes it makes good business sense to manufacture SSL here in the U.S. – otherwise it wouldn't. He says that while 3M is likely to set up overseas plants to service those regions as the company's SSL customer base expands, its U.S. SSL manufacturing is going full-steam ahead, and will continue to grow and remain a key part of its operations.

3M 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@lightingfacts.com.