Manufacturing

Can semiconductor expertise be applied to biopharma manufacturing? Entegris bets $40M that it can

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During a recent visit to a New Hampshire microbrewery, it occurred to Entegris' life sciences chief John Lynch that the process for making beer is similar to that of manufacturing pharmaceuticals.

"You have a bioreactor, where the yeast produces the alcohol," Lynch said in an interview. "Then you have the purification step. Then you have the final fill and bottling step."

Even when enjoying a cold one, Lynch can't get away from considering the drugmaking process. When he arrived at Entegris four years ago, Lynch was tasked with figuring out how the company's expertise in developing assemblies for semiconductor manufacturing could be applied to the production of biopharmaceuticals.

"We've been serving customers in semiconductor and other highly complex manufacturing environments for over 50 years, and that makes us well suited to address some of the similar needs around yield and purity with the pharmaceutical industry," Lynch said.

Last year, the company decided to put $10 million toward developing bioprocessing assemblies and has earmarked another $30 million for it this year. The investment is in response to the increased demand for single-use, high-purity bulk systems, especially those for freezing, thawing, transporting and storing drug substances.

"One of the areas where we're filling a gap with our unique technology is that critical step between purification and final fill or bottling," Lynch said. "You take that bulk drug, which is very precious, and you put it in bags, freeze it down to negative 80 Celsius and then ship it, store it, and it has to be kept pure and you want to make sure those bags don't break. We make the most robust, clean bag for that."

Entegris' Aramus fluid-handling system is used to produce vaccines and is an example of the technology the semiconductor assemblies company is applying to life sciences. (Entegris)

The money is spread over manufacturing sites in Bloomington, Minnesota; Logan, Utah; and at the company's headquarters in Billerica, Massachusetts. For business continuity, Entegris will set up the manufacturing operation in Billerica to replicate the one in Bloomington. The company will add a technology center for the life science initiative there as well. With the scale-up, Entegris plans to add 200 employees this year.

Entegris' facilities will develop and produce assemblies including Entegris' fluid-handling system, Aramus, which already is in use to manufacture and deliver vaccines. The company acted quickly when it realized COVID-19 vaccinemakers would need to secure the large, sterile plastic bags used to grow vaccine cells.

"What's limiting the ability to get vaccines produced quickly? Bag supply," Lynch said. "Obviously, that created an opportunity for new entrants like us to quickly respond, just like we've done in the semiconductor industry."

Beyond vaccine production, Entegris notes it can offer expertise in a broad range of technologies that have applications in life sciences including materials handling and fluid management, filtration and contamination control and specialty chemical production.

Having worked in the pharma industry and for companies that served the pharma industry, Bertrand Loy has had this expansion in mind since he took over as CEO in 2012. Loy recognized from the start that Entegris was a natural partner with the life sciences industry due to its expertise in complex manufacturing processes.