Repeatable Catalyst, Repeat Customers

“International” couldn’t be more accurate when it comes to Styria, Austria-based BDIBioEnergy International’s customer base. Having recently begun or completed projects in China, England, Germany, Belgium and California, BDI’s retrofit capabilities and Repeatable Catalyst Technology (RepCAT) are in high demand.

RepCAT Recap

The RepCAT technology is capable of processing raw materials with a high proportion of free fatty acids (FFA), up to 99%. Per its name, the system allows the catalyst to be reused within the process, significantly reducing operating costs. And another very notable benefit: it has been approved in Europe for use with high-risk fats. In April 2020, BDI received approval from the European Food Safety Authority to deploy RepCAT as a disposal process for high-risk, contaminated waste fats. These materials were required to be disposed of by incineration only up until 2005, when BDI received approval to use Category 1 material in its standard multifeedstock process, explains BDI chief sales officer Herman Stockinger. “Last year, RepCAT was approved, so now our European customers using RepCAT can utilize this high-risk material, which is certainly lower in price and an additional benefit.”

Recent Project Roundup

The biodiesel first plant in Europe to utilize BDI’s RepCAT technology came online in March in Komárom, Hungary, where BDI built a 15 MMgy production facility for ENVIEN Group subsidiary Rossi Biofuel Zrt. An existing on-site biodiesel plant that opened roughly a decade before processes higher-quality waste materials, according to Stockinger. “The technology in the new plant is particularly designed for low-quality, high FFA materials, such as waste oils and contaminated animal fats, brown grease and used cooking oil,” he says.

In Bakersfield, California, Crimson Renewable Energy recently began operating a new line that BDI implemented at its existing biodiesel plant. The project added roughly 13 million gallons in production capacity, says Stockinger, noting that this wasn’t the first project BDI did in partnership with Crimson. In 2016, BDI performed a retrofit project at the same site, supplying the technology, key equipment and the engineering services. With the addition of the new line, Crimson’s total annual production capacity in Bakersfield is now more than 37 MMgy. “There, we also delivered our RepCAT technology, which results in about 90% savings for acids, lyes and catalysts compared to conventional biodiesel plants,” Stockinger says.

In Ghent, Belgium, Cargill is constructing a multi waste- and residues-based biodiesel plant at its existing integrated oilseeds crush and Bioro biodiesel site. The new plant will have a production capacity of 115,000 tons (approx. 30 MMgy) of biodiesel per year and is scheduled to open in June 2022. “We’re in the commissioning phase right now with this project, and it’s scheduled to come online in June, on time,” Stockinger says. “This plant will also use the RepCAT technology, and it is the first Cargill plant that will be capable of processing waste-based feedstocks.”

In Emden and Oeding, Germany, U.S.-based Renewable Energy Group has signed a contract with BDI to upgrade its existing plants by installing state-of-the-art feedstock pretreatment technology—BDI’s RetroFit technology—to process wastes fats and oils. Construction and the project is expected to be complete during the second half of 2023, with startup by year-end.

On the Horizon

As for what’s ahead, Stockinger says BDI plans to bring new biodiesel plant process control software to the market this year. “Our Smart Operation is similar to the adaptive cruise control in cars,” he explains. “It does not necessarily have to be a BDI plant; it’s an add-on to an existing process control that uses process history data to allow for optimal control of the different process units.”

Stockinger says it is currently installed in one plant in Europe. “It’s important to note that it isn’t necessarily new—it is used in the paper industry and others. You need to have a certain understanding of the chemical process in order to make the right selection and adjustments to a system, and we have this expertise in-house.”

On business and the market, BDI’s books are full, and the company is hiring, Stockinger says. “This a good situation, and in line with current requirements of the markets,” he says. “We’re not only offering biodiesel, but pretreatment for the renewable diesel industry, which is gaining momentum.”

Stockinger says there is some competition between biodiesel and renewable diesel when it comes to feedstock, but that the future will bring a balance of technologies. “In particular, we see that biodiesel shows the best greenhouse gas savings—with the right technologies, it allows use of the lowest quality waste materials that can’t be used for renewable diesel,” he says. “These waste materials require pretreating and are very hard to bring to a level that allows them to be used in renewable diesel reactors, due to the many impurities that cannot be separated up front. So, we see that there will always be good further opportunity of biodiesel when it comes to the use of low-quality waste materials.”

Finally, Stockinger says BDI is continually working to improve customer service—beyond enlarging its staff and adding services like Smart Operation, the company is performing more bottleneck analysis of biodiesel plants. “We will visit a customer, analyze operations and work out improvements,” he says. “It is usually a two-day visit, and we’ll deliver a report in which we make suggestions to improve the plant’s yield—things like energy consumption, improving byproducts, increasing the overall efficiency of the operations, and improving biodiesel quality. We’re sending our best people to do that, real experts who have been in the biodiesel industry for decades and really know the different processes.”
BDI has built numerous biodiesel plants worldwide with a total installed production capacity of more than 2 million tons of biodiesel per year. This allows 2.7 million cars to be operated in a CO₂-neutral manner.