Case Study: Process Control, Midwest Biodiesel Products

Overview

Midwest Biodiesel is a multi-feed stock manufacturing firm with the versatility to produce biodiesel fuel from virtually any type of animal fat or vegetable oil. Headquartered less than 10 miles from St. Louis in South Roxana, Illinois, with a second plant in Newburg, Indiana, the firm meets the biodiesel needs of clients throughout the Midwest region. Founder and president of Midwest Biodiesel, Terry L. Zintel, started the company in 2005 as a means to help produce a safer, cleaner fuel which lessens dependency on foreign oil.

The Challenge

Midwest Biodiesel uses the transesterfication method of transforming vegetable and animal oils into biodiesel fuel. The complex chemical process of separating the fatty acids in the raw biomass from the glycerol by replacing the glycerol with short linear alcohols requires regular in-process testing. Midwest Biodiesel is a member of the ASTM (American Society for Testing and Materials) which sets strict standards for certification. In order to meet those standards and to deliver high quality product to clients, Midwest Biodiesel needs to test frequently during the transesterfication process to verify the reaction. "In our industry," says Zintel, "without reliable quality control equipment, you have no idea whether the necessary reaction is taking place. If that reaction does not take place, you get something that may appear to be biodiesel but which lacks quality. Poor quality fuel will create performance issues in vehicle engines and ultimately vehicles break down. Obviously, we don't find that acceptable."

Prior to using the QTA System, Midwest Biodiesel relied on a combination of in-house laboratory equipment and out-sourced tests to contract labs. Company president Zintel found these methods unsatisfactory in terms of both time and costs.

The Solution: Quality Trait Analysis

When Zintel learned of QTA's ability to streamline testing procedures and reduce costs for clients, he decided to try the new testing technology. After beginning to use QTA on a limited basis four years ago, Midwest Biodiesel has since become a 24 x 7 user of QTA. "What QTA does is provide biodiesel companies like mine with an option for bypassing the problems of the old testing methods," he says. "With QTA, we compare our product in-house against ASTM specification requirements, and know immediately that we meet those specifications."

How Midwest Biodiesel Benefits From Using QTA

Ease of Use

The "very, very short learning curve" of the QTA equipment earns high marks from Zintel. "Literally, the equipment is idiot-proof," he notes. "If you do something wrong, the machine tells you, so there are no testing errors. Everyone we hire learns to use this equipment in almost no time at all."

Costs

The ability to quickly train existing personnel to use QTA saves money in plant operations. Midwest Biodiesel finds QTA's service also enables them to dispense with other expenses. "The old analytical equipment we had to maintain ourselves, which was an additional cost," Zintel observes. "But with QTA, they handle all the equipment maintenance as part of their service."

Speed

The time involved in previous methods of testing slowed production time significantly. "As far as the outside labs, it takes a day just to FedEx the sample to them, then you're at the mercy of their schedules, they may have a back-up of other things to test and may not get to your sample for a few days."

Testing time on older analytical instrumentation, while shorter than outsourcing, was often an hour or more, compared to results in less than 60 seconds using QTA. "With QTA, the testing times from raw to finished product have diminished considerably," says Zintel.

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Reliability
Before using QTA, Midwest Biodiesel tried performing some in-house testing on traditional laboratory equipment. "We switched to QTA in a small way, at first," says Zintel, "but with the reliability and dependability of the testing numbers we received from QTA's equipment, we felt they proved better than the older methods, so we expanded to take the full suite of the services QTA offers."

Conclusion

"There are a number of testing companies offering similar testing equipment to QTA, but I feel none of them are as reliable as Cognis and I feel they are aggressively working on ASTM certification, which puts them head and shoulders above the competition," notes Zintel. "Once they have ASTM certification, they will become even more credible in the marketplace. Absolutely, without hesitation, I recommend QTA as a testing system to any biodiesel company."

About Cognis' QTA® Business

QTA® is a service business within Cognis Corporation – a worldwide supplier of innovative specialty chemicals and nutritional ingredients, with a particular focus on the areas of wellness and sustainability. The company employs about 5,500 people, and it operates production sites and service centers in 30 countries. Cognis' QTA® business provides on-site, ready-to-use analytical capabilities without additional investment in equipment or personnel. Patented, centralized calibration technology enhances accuracy. For more information on the QTA® system, visit www.qta.com

Cognis is part of the BASF Group, the world's leading chemical company. In 2009, Cognis recorded sales of about 2.6 billion euros and an Adjusted EBITDA (operating result) of 364 million euros.

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