

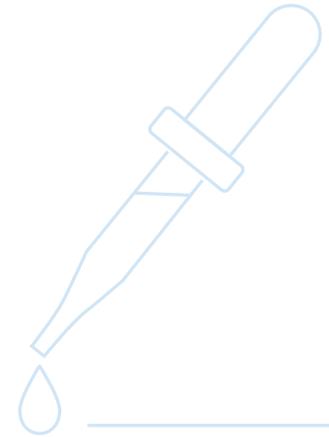


novozymes® 

Novozymes Uses Process Modeling to Optimize and Develop Biodiesel Processes

“With Aspen Plus® models, we can now do conceptual development work without the need of going into the lab.”

**– Mads Philipsen, Global Process Engineer,
Biodiesel Technician, Novozymes**



CHALLENGE

Know-how and expertise of designing and retrofitting biodiesel facilities must accelerate to implement biodiesel at scale.

SOLUTION

Aspen Plus and Aspen Properties™ to confidently support production processes

VALUE CREATED

- Increased confidence in engineering studies
- Accelerated time to value from design to operations
- Supported feasibility studies and project design documentation
- Reduced costs in process development



Introduction

Novozymes A/S is a global biotechnology company based in Denmark. As the world's largest provider of enzyme and microbial technologies, its industrial enzymes have applications across more than 30 industries, including biofuels. Novozymes' enzyme solutions help biodiesel producers future-proof their plants, tackle feedstock flexibility and achieve improved profitability.

How to Implement Biodiesel at Scale

Facing increasing biodiesel market demand, rising materials costs and more stringent industry regulations, Novozymes was looking to support the development and optimization of biodiesel processes (optimization is no easy task because of the multiple variables involved and the many unknowns related to the diversity and quality of feedstocks). A well-known and competitive enzyme supplier, Novozymes has significant experience in the development and use of Eversa® Transform 2.0 biocatalyst and FlexFit® technology for waste bio-based feedstocks, and as a result, extensive knowledge in biodiesel production processes.

Novozymes saw great potential in combining AspenTech technology with its own unique design and processing expertise to more quickly identify new opportunities to increase profitability of biodiesel production processes. The company's process engineers knew the benefits of simulation and believed that the powerful capabilities of Aspen Plus could help them. They also understood how their knowledge and expertise on the design and retrofit of biodiesel facilities could play a critical role in accelerating implementation of biodiesel at scale.





Faster, More Accurate Identification of Opportunities

Using the comprehensive property systems and rigorous modeling capabilities of Aspen Plus, process engineers were able to evaluate the parameters affecting equilibrium under different conditions. They leveraged their domain expertise to identify production optimization opportunities and potential biodiesel development projects more quickly than previously—and without requiring extensive lab work.

Aspen Properties' comprehensive component libraries and property regression/estimation methods embedded within Aspen Plus enables the team to calibrate the models to laboratory and literature data while more accurately predicting the complex behavior of biodiesel processes.

This results in reduced process development costs and faster time to value. Using AspenTech's highly-accurate models, the team is able to support the design and retrofitting of biodiesel facilities, improve feedstock flexibility and support deployment of enzymatic biodiesel at a broader scale.

In addition, the models support feasibility studies and design documentation (i.e., heat and material balances, and physical properties for detailed engineering project stages) and enable the team to accurately and confidently identify opportunities to maximize profits and ensure on-spec maximum production from design to operations of biodiesel processes.

Aspen Plus provides Novozymes process engineers with a reliable system to mimic lab experimentation. Together, with Aspen Properties and their deep knowledge of biodiesel production processes, Novozymes is able to confidently define and validate business cases to help biodiesel producers increase profits and feedstock flexibility.



About Aspen Technology

Aspen Technology, now part of Emerson, is a global software leader helping industries at the forefront of the world's dual challenge meet the increasing demand for resources from a rapidly growing population in a profitable and sustainable manner. AspenTech solutions address complex environments where it is critical to optimize the asset design, operation and maintenance lifecycle. Through our unique combination of deep domain expertise and innovation, customers in asset-intensive industries can run their assets safer, greener, longer and faster to improve their operational excellence.

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