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BIOTECHNOLOGY: POET plans on-site enzyme manufacturing at Project Liberty plant

Cellulosic ethanol plant in northwest Iowa has achieved a 70-gallon-per-ton conversion rate.

[FDCE OWNED AND OPERATED EQUIPMENT]



PROJECT LIBERTY: The Project Liberty ethanol plant uses cobs, leaves, husk and some stalk as feedstock to make cellulosic ethanol.

Rod Swoboda
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Last week the POET-DSM Advanced Biofuels company announced it will build an on-site enzyme manufacturing facility at its cellulosic ethanol plant at Emmetsburg in northwest Iowa, pending state and local approvals.

The facility will be integrated into the Project Liberty technology package, replicable in future cellulosic ethanol manufacturing facilities. For Project Liberty, the on-site enzyme manufacturing facility will directly pipe enzymes into the Liberty ethanol production process without requiring downstream processing, stabilizers and other chemicals required for enzyme transportation.

New enzymes improve efficiency

New enzymes developed by DSM are also expected to improve effectiveness of the enzyme mix, further reducing costs for the cellulosic ethanol manufacturing process. The CRB Co. has been awarded the contract for the design, engineering and construction management. Basic engineering is complete, and construction is expected to begin in late spring or early summer.

Project Liberty is a cellulosic ethanol plant using corn cobs, leaves, husk and some of the stalk to produce renewable biofuel. Over the last 18 months, significant design improvements have been made to the plant and further investments put in to improve yields and make the process more consistent and reliable. The facility is producing at a rate of 70 gallons per dry ton of biomass, near the target conversion rate, and is currently in a ramp-up phase.

Boost for cellulosic ethanol efficiency

“Enzymes for manufacturing cellulosic ethanol have been improving dramatically in recent years, and this is another leap delivered by our partner DSM – an improvement in both cost and performance,” POET President Jeff Lautt says. “This will be a valuable addition to POET-DSM’s integrated licensing package.”

“We have reached some important production thresholds in recent months. This gives us the confidence to move to this next level of technology development,” says Atul Thakrar, president of DSM Bio-based Products & Services. “The startup and ramp-up of Project Liberty has provided valuable experience for developing a cost-effective process that can be replicated across the U.S. and world.”

Poet-DSM Advanced Biofuels LLC is a 50-50 venture between two companies: Royal DSM and Poet LLC. Based on Sioux Falls, S.D., the company is a cooperative effort of two innovators that provides a key to unlocking the opportunity of converting corn crop residue into cellulosic ethanol.

Drawing on the expertise of Poet and DSM in converting cellulosic biomass into ethanol, Poet-DSM Advanced Biofuels has built its first commercial-scale plant co-located with Poet Biorefining at Emmetsburg. Based on this plant, the firm plans to globally license a technology package for conversion of corn crop residue to cellulosic bio-ethanol.