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NEWS RELEASE

GEI Achieves 34-Day Consecutive Bioethanol Production Using Its Continuous SSF process from Wood Biomass-Derived Pulp

Green Earth Institute Co., Ltd. ("GEI") has achieved its longest continuous operation to date-34 consecutive days of bioethanol production using its proprietary Continuous Simultaneous Saccharification and Fermentation (Continuous SSF) Process.

The achievement exceeded GEI's key commercialization benchmark of 32 days, and was demonstrated at its bench-scale facility at Green Earth Research Center in Kisarazu, Japan, utilizing wood biomass-derived pulp as the feedstock.



Photo of the bench plant (currently engaging in joint research with Daio Paper Corporation)

The Continuous SSF Process utilizes wood pulp and other pulp materials produced by paper manufacturers as the feedstock. A key feature of the process is the continuous recycling and reuse of both cellulase enzymes used for saccharification and yeast used for ethanol production.

Extending the duration of continuous operation reduces the frequency of cleaning and preparation work required between operating cycles, thereby maximizing annual plant utilization. As a result, the process is expected to increase annual ethanol production while reducing production costs through decreased consumption of enzymes and utilities.

Conventional batch processes generally operate for approximately two days per cycle and require fresh enzymes and yeast for each run. In contrast, GEI's Continuous SSF Process is capable of continuous operation for over 30 days and recycles both.

GEI's "Technology Package" is scheduled to be deployed first at the pilot facility currently being constructed in collaboration with Daio Paper Corporation.

Following the successful pilot-scale validation of the Technology Package, it is expected to be adopted at Daio Paper's planned commercial-scale facility for the production of bioethanol and other biobased products, scheduled to commence operation around 2030.

The Technology Package integrates GEI's core process technology, equipment specifications, and operational expertise, which together form the foundation of the continuous SSF process demonstrated in this long-term operation.

GEI will continue develop this technology in an effort to reduce costs and enhance long-term operational stability, while actively promoting licensing of this technology package to companies in Japan and overseas that are considering bioethanol production.

Through the deployment of this technology package, GEI seeks to expand the supply of bioethanol and biobased chemicals derived from domestic resources, contributing to the realization of a circular economy and enhancing energy security.

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