



Biomass Program

Advancement of High Temperature Black Liquor Gasification Technology

In the pulp and paper industry, black liquor gasification (BLG) can enable the recovery of pulping chemicals and production of syngas from the spent liquor accumulated in the pulping process. The syngas can be converted to value-added fuels, chemicals, and electricity, helping to boost the economics of the pulp mill.

To advance the commercial viability of BLG technology, Weyerhaeuser will work with Chemrec to conduct a pilot demonstration of the Chemrec high-temperature, entrained flow black liquor gasifier at Weyerhaeuser's New Bern, North Carolina facility. The demonstration aims to resolve how issues involving efficiency, throughput, and pulp mill integration can be dealt with quickly and at reasonable cost.

Long-term, continuous operation of the facility will advance the technology by generating improved knowledge of the underlying processes and equipment necessary for high-temperature entrained flow BLG. Such knowledge can then be applied to both the air-blown atmospheric unit at New Bern and future oxygen-blown pressurized

technology, which will serve as the basis for forest biorefineries.

R&D Pathway

Steps towards commercialization of high-temperature BLG will involve collaborative research studies at the New Bern facility to validate tools, models, and fundamental knowledge of the process garnered thus far. Utilizing the 'commercial' operation of the facility will allow for evaluation of solutions to long-term process issues, such as scaling and process integration, through actual implementation and demonstration.

Thermochemical R&D

Benefits

- Catalyze commercialization efforts of BLG technology through 'test bed' demonstration

Applications

Black liquor gasification can help boost the economics of pulp mills by enabling the production of valuable fuels, chemicals, and power from the black liquor.

Project Participants

Chemrec AB
Institute of Paper Science and Technology, Georgia Institute of Technology
Process Simulations Ltd.
Simulent Inc.
Weyerhaeuser Company

Project Period

FY 2004 – FY 2007

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