

## 115. The Great Lakes Bioenergy Center Material Production Chain: Integrated Production and Characterization of Feedstocks, Pretreated Biomass, and Hydrolysate as Standardized Reagents for Center-Wide Research

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The goal of the Great Lakes Bioenergy (GLBRC) Material Production Chain (MPC) is to produce consistent high quality feedstocks, Ammonia Fiber Expansion (AFEX™)-treated biomass, and AFEX-treated corn stover and switchgrass hydrolysates as reagents for center-wide research.

A major challenge in conducting research in a large center is providing researchers with significant amounts of standardized research materials. The GLBRC MPC is a highly integrated project with researchers and support staff from Plants, Deconstruction, Conversion, Sustainability, Core Facilities, and Scientific Computing Areas working together to design and implement standard operating procedures (SOPs) and quality control (QC) measures to produce standardized materials for center-wide research. These materials include a variety of plant feedstocks (corn stover, mixed-prairie, miscanthus, poplar, sorghum, and switchgrass), ammonia fiber expansion (AFEX™) treated biomass, and hydrolysates generated from AFEX-treated corn stover and switchgrass. All materials are produced by adhering to SOPs and tested to ensure they fall within the boundaries defined by statistically robust QC measures. A custom laboratory information system (LIMS) was developed to catalogue and track materials, their relevant data and experimental details as they move through MPC, and to allow researchers to seamlessly order materials. Here we present the main features of the MPC and provide examples data collected at each step.

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