



## New Lignin Separation Method *from Ammonia Solutions*

A scientist at the Savannah River National Laboratory has developed a new method to separate lignin from ammonia solutions. Bio-ethanol plants typically use ammonia to separate lignin from the cellulosic fibers for a more efficient operation. Lignin itself is a byproduct with a variety of potential markets. The new method provides an efficient means of separating lignin from the ammonia to provide a product free of impurities.

Biorefineries that convert cellulosic materials to ethanol require the separation of lignin from the feedstock. The use of ammonia to separate lignin results in a by product where existing methods cannot effectively yield a pure lignin material. Existing methods typically generate an undesirable colloidal suspension that results in inefficient yields. The new method, accomplished by evaporation and pH adjustment, results in lignin that can be effectively filtered and dried free of impurities.



## Background

Biorefineries receive massive amounts of lignin from the cellulosic fibers to be processed. Lignin is an amorphous polymer that can be used as a fuel source as well as a component in the manufacture of complex polymers. The challenge has been to find a way to effectively separate lignin from ammonia free of impurities. The new method has been tested using switchgrass with other cellulosic materials currently being studied.



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## at a glance

- **high yields**
- **free of impurities**
- **viable source of fuel**
- **available for complex polymers**
- **patent pending**

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## Technology transfer

The Savannah River National Laboratory (SRNL) is the U.S. Department of Energy's (DOE) applied research and development laboratory at the Savannah River Site (SRS). With its wide spectrum and expertise in areas such as homeland security, hydrogen technology, materials, sensors, and environmental science, SRNL's cutting edge technology delivers high dividends to its customers.

The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC. SRNS is responsible for transferring its technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

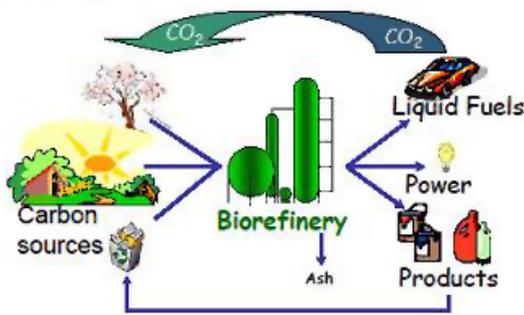


Figure 1 - Biorefinery Concept

## Partnering opportunities

SRNS invites interested companies with proven capabilities in this area of expertise to develop commercial applications for this process or product under a cooperative research and development agreement or licensing agreement. Interested companies will be requested to submit a business plan setting forth company qualifications, strategies, activities, and milestones for commercializing this invention. Qualifications should include past experience at bringing similar products to market, reasonable schedule for product launch, sufficient manufacturing capacity, established distribution networks, and evidence of sufficient financial resources for product development and launch.

## for more information

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