

Novel Form of Cellulose With Drastically New Properties

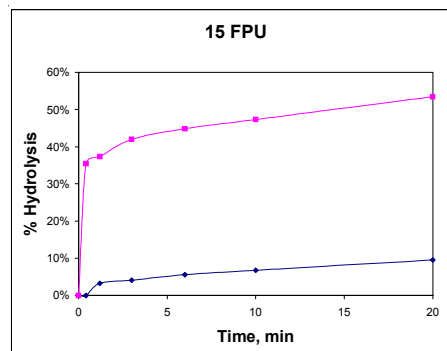
Overview

Auburn University is seeking a licensee or development partner for a new form of non-crystalline cellulose with physical properties drastically different from α -cellulose and MCC. These different properties include changes in morphology, surface area, porosity, crystallinity, bioavailability and viscosity in the wet form and density, melting point, reactivity, and water absorption in the dry form. This technology has potential breakthrough and/or disruptive applications in at least the following economic sectors:

- Polymers and Textiles
- Medicine (hydrogels)
- Biofuel processing
- Pulp & Paper Industry
- Food Industry
- Pharmaceutical Industry

Advantages

- Different solid forms with diverse properties can be created
- Absorbs over 5 times its weight in water
- Over 100 times more reactive than α -cellulose, allowing for improved enzymatic processing and polymerization
- Polymerization can create homopolymers or copolymers transformed into fibers, fabrics, foams or molded products
- Additional novel, biodegradable materials can be created via crosslinking or other processing steps
- Products are derived from cheap raw materials and are biodegradable
- Refined (e.g., α -cellulose, MCC) or unrefined (e.g., corn stover, wood, cotton) cellulose can be treated
- Simple process that involves a single reactive step without excessive temperatures or pressures
- High yield (>85%); No carbohydrate decomposition during the process



Enzymatic hydrolysis profiles of α -cellulose (blue) and treated α -cellulose (pink) with 15 FPU cellulase/g-glucan.

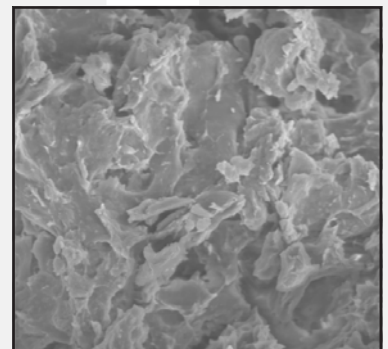
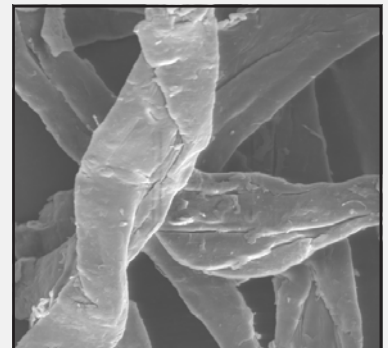
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Reference: Non-crystalline Cellulose

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Scanning electron micrographs (1000x) of untreated (top) and treated cellulose showing distinct physical forms

[Click here for a listing of Auburn's available physical science technologies](#)

Status

- Two patent applications have been filed (including [20050272926](#))
- Numerous tests have been conducted to confirm unique physical properties

Licensing Opportunities

- This technology is available for exclusive or non-exclusive licensing
- Joint development opportunities include funded research or a joint venture



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