Industry Cellulosic Nanomaterials Research Priorities

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Transforming the forest products industry through innovation
Agenda 2020 Cellulosic Nanomaterials Team

- **Co-Leaders**
  - Phil Jones, Imerys
  - Paul Durocher, Sappi
  - Board Liaison: Dean Benjamin, New Page

- **Committee Membership:**
  - FPL, U of Maine, US Dept of Agriculture, Bennet LLC

- **Objective**
  - Pursue methods and technologies that will be realistic enablers of corporate product development activities
Research Priority Development

- Key Commercialization Factors
  - Ability to manufacture with a cost structure that supports the value generated by material use
  - Customers
  - Enabling technologies
Team has identified key technical “challenge areas”

- Drying for re-dispersion (post-processing handling)
- Characterization and standards
- Incorporation into non-aqueous materials
- Surface functionalization
- Environment, safety and health considerations and life cycle assessment
- Enabling applications

Manufacturing technology as it affects cost of the nanocellulose must also be considered
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Status of Research Priority Development

Initial thoughts: More detailed gap analysis under way

- Drying for re-dispersion (post-processing handling), preserving morphology
  - Higher solids to reduce shipping cost
  - 100% solids for use in non-aqueous systems
- Characterization and standards
  - Production-compatible method to measure size, length and aspect ratio of nanocellulose
- Incorporation into non-aqueous materials
- Surface functionalization
- Enabling applications
- Environment, safety and health considerations and life cycle assessment

May not be “precompetitive research”

Build on work done to date
Status of Research Priority Development

Next Steps:

- NNCO / FPL Workshop - Cellulose Nanomaterials – A Path to Commercialization.”
  - May 20 - 21, 2014 in Washington DC
  - Identify critical information gaps and technical barriers in the commercialization of cellulose nanomaterials via expert input from user communities

- Combine feedback from workshop with team perspective to finalize research priorities
Thank You

For More Information

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