



Carl Houtman: A government research perspective

Editor's Note: This month, we continue our series of columns profiling the background and expertise of TJ's editorial board members. These volunteer members spend long hours overseeing the peer review process and contributing to TJ. TAPPI would like to express its gratitude to the editorial board members for their hard work and willingness to share their expertise with the forest products community.

– Monica Shaw, Editorial Director

As a research chemical engineer with the U.S. Department of Agriculture's Forest Service, Forest Products Laboratory (FPL) in Madison, WI, Carl Houtman leads research efforts in recycling, bioenergy, pulping, bleaching, and fungal biochemistry. Carl, who was previously editor of *Progress in Paper Recycling (PPR)*, joined the *TAPPI Journal (TJ)* editorial board when *PPR* merged with *TJ* in 2011. He works closely with *TJ* editorial board member Mahendra Doshi, founder of *PPR*.

A native of rural Minnesota, Carl holds a B.S. and M.S. in Chemical Engineering from the University of Minnesota, completing them in 1983 and 1985. He then continued his studies at the University of Delaware, where he earned a Ph.D. in Chemical Engineering in 1990. Afterwards, he completed post-doctoral studies at the Institut de Catalyse in Lyon, France, which he finished in 1991. Returning to the United States, Carl followed his wife who wanted to study Medical Microbiology at the University of Wisconsin. Over the next several years, Carl taught General Chemistry, Polymer Science, Paper Processing, and Energy and Mass Balances with the Department of Chemical Engineering. He also worked with Raj Atalla on various projects relating to wood biogenesis and pulp bleaching.

Upon joining FPL in 1998, Carl's first project was to lead the development of test methods for determining



Carl Houtman is research chemical engineer with the USDA's Forest Products Laboratory.

when pressure sensitive adhesives are compatible with paper recycling. Funded by the U.S. Postal Service, this work developed methods that are part of current stamp specifications. While his research interest in developing recycling-compatible and sustainable pressure sensitive adhesives continues, he has expanded his focus to include ways for integrating biorefineries into pulp mill operations, estimating the economic performance of various lignocellulose processes, and understanding the mechanisms of fungal decay using engineering analysis.

Carl's research has appeared in approximately 60 publications. Among his published topics are polymer chemistry,

chemical vapor deposition, surface science, metal catalysis, adhesive performance, paper recycling, fungal biochemistry, and biorefinery economics research.

TAPPI connections

Encouraged by his first supervisor at FPL, Said Abubakr, Carl joined TAPPI in 1998. In addition to being the editor of *PPR*, Carl has held many positions within TAPPI, including Recycling Committee officer and technical program chair for several conferences. He is also a member of the Quality and Standards Management Committee, and will soon be secretary of the Pulp Manufacturing Division.

For Carl, making connections with people is what TAPPI is all about. "As a government researcher, find-

ing those to collaborate with is sometimes difficult,” he said. “I have often used my TAPPI connections to find people who can cooperate on projects.”

Industry trends and challenges

The most recent trend that Carl sees as a challenge to the pulp and paper industry is the strong market for technical cellulose. “This demand has pushed many to switch to making dissolving pulp,” he said. “I hope this isn’t a bubble.”

Going forward, Carl sees the biggest challenge – and opportunity – to research in this industry as public relations. “The paper industry is an important part of our economy and will continue to be so, yet it’s interesting that the rest of society is all about ‘green’ technology when we have always been a renewable resource industry,” Carl noted. “Part of our challenge is to let the public know more about who we are as an industry.”

On a personal note, Carl enjoys all sorts of outdoor activities, but bicycling, rock climbing, and ice



sailing in particular. From a volunteer perspective, he works with Engineers Without Borders on a project in Rwanda, where he has traveled to with students. Specifically, he is working on a bioenergy project of a different sort – cooking fires. Nearly all food in Rwanda is prepared by women in small rooms over open fires. “We want to develop a wood cooperative that will provide a steady supply of dry wood for cooking,” said Carl. **TJ**

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