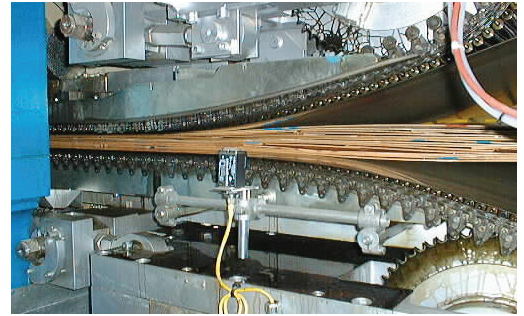


International Wood Composites Symposium

Market Intelligence | Product Development | Process Innovation



APRIL 30 – MAY 1, 2014 | THE RED LION ON FIFTH AVENUE | SEATTLE, WASHINGTON

Program Agenda & Presentation Abstracts



Presented by Washington State University
Composite Materials and
Engineering Center
www.cmec.wsu.edu

APA – The Engineered Wood Association
www.apawood.org

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Program Agenda

PRE-SYMPOSIUM: Northwest Wood-Based Biofuels + Co-Products Conference (NWBCC)	
Tuesday, April 29 5:00 pm – 7:00 pm	NWBCC Poster Session and Reception
Wednesday, April 30 8:00 am – 12:00 pm	Biofuel Co-Products Session

Day 1: Wednesday, April 30, 2014 Red Lion on Fifth Avenue Seattle, Washington	
7:00 am	Check-in/Registration Open for NWBCC and IWCS
1:00 pm	Welcome and Opening Remarks <i>Seattle Ballroom 3</i> Robert Tichy, Karl Englund, Vikram Yadama Washington State University Symposium Organizing Committee
1:10 pm	Distinguished Service Award
KEYNOTE SESSION Seattle Ballroom 3	
	<i>Moderator: Robert Tichy, Washington State University</i>
1:30 pm	Tom Julia, President Composite Panel Association <i>Market Forces and Regulatory Issues Facing the Composite Panel Industry</i>
2:15 pm	Ed Elias, President APA – The Engineered Wood Association <i>Entering an Age of Rediscovery</i>
3:00 pm	Break
SESSION I: Market Intelligence, Product Requirements Seattle Ballroom 3	
	<i>Moderator: Robert Tichy, Washington State University</i>
3:30 pm	Bob Flynn, Director, International Timber RISI, Inc. <i>Latin American Plantation Forest Resources and Development of the Composite Wood Panel Sector</i>
4:00 pm	Michael Zimmerman, Laboratory Manager Sauder Woodworking <i>The Good, the Bad and the Ugly: MDF Mills and Laminating</i>
4:30 pm	Todd Luce, Manufacturing Manager, Product Development Lynden Door <i>Dances with Elephants: The Life of a Wood Products Manufacturer in our Recovering Industry</i>
5:00 – 7:00 pm	Technical Forum Poster Session and Reception Browse through poster displays and talk with vendors. Complimentary wine and beer, hearty hors d'oeuvres.

Day 2: Thursday, May 1, 2014
 Red Lion on Fifth Avenue | Seattle, Washington

7:00 am	Symposium Check-in/Registration Open
7:00 am	Continental Breakfast Begins
SESSION II: Product and Process Innovation Seattle Ballroom 3	
	<i>Moderator: Ted Osterberger, Red Built</i>
8:00 am	Chris Brandt, Manager of Codes, Standards and Product Engineering Weyerhaeuser Company <i>The Role of Structural Composite Lumber in Mass Timber Construction</i>
8:30 am	Daniel Hindman, P.E., LEED Green Associate Professor Virginia Tech Department of Sustainable Biomaterials <i>Mechanical, Acoustic, and Fire Properties of Southern Pine Cross-Laminated Timber</i>
9:00 am	Tim Schallich, Vice-President Resources Columbia Forest Products <i>Rotary Veneer Production from North American Hybrid Poplar Plantations</i>
9:30 am	Chunping Dai, Principal Scientist, Engineered Wood Products Manufacturing Senior Scientist and Group Leader FP Innovations <i>Optimization of Veneer Drying Processes</i>
10:00 am	Break
10:30 am	Todd Miller, Technical Manager Momentive Specialty Chemicals <i>Enabling Technologies for Sustainable Composite Wood Products</i>
11:00 am	Tom Greten, Chief Executive Officer BINOS GmbH <i>The BINOS Scalper: Forming the Future</i>
11:30 am	Tomas Joscak, CEO Dascanova GmbH <i>3-D Mat Modification for Continuous Wood-Based Panel Production</i>
12:00 – 1:00 pm	Lunch

Thursday, May 1, 2014
continued

SESSION III: Adhesives Seattle Ballroom 3	
	<i>Moderator: Vikram Yadama, Washington State University</i>
1:00 pm	Chip Frazier, Professor, Department of Sustainable Biomaterials Virginia Tech <i>Influence of Organic-fillers in Phenol-formaldehyde Wood Adhesion</i>
1:30 pm	Kaichang Li, Professor, Dept. of Wood Science and Engineering Oregon State University <i>A Blend of Natural Materials as a Superior Wood Adhesive</i>
2:00 pm	Michel Delmas, Professor Université de Toulouse <i>Biolignin™: A Renewable Raw Material for Wood Adhesives</i>
2:30 pm	Break
3:00 pm	Philip Humphrey, President Adhesive Evaluation Systems, Inc. <i>Micro-Structural Adhesion in Bio-Composite Materials during their Heated Consolidation</i>
3:30 pm	Paschalis Tsirogiannis, Senior Technical Representative Chimar Hellas S.A. <i>Use of Nanomaterials to Enhance the Hydrophobicity and Oleophobicity of Laminated Wood-Based Panels</i>
4:00 pm	Luisa Carvalho, Coordinator Professor Polytechnic Institute of Viseu, Portugal Staff member, University of Porto <i>Recent Developments in the Performance of Formaldehyde Scavengers in Wood-Based Panels</i>
4:30 pm	Adjourn

2014 Symposium Organizing Committee

Karl Englund, Washington State University

Robert Tichy, Washington State University

Vikram Yadama, Washington State University

Steve Zylkowski, APA—The Engineered Wood Association

May 1
4:00 pm
Seattle Ballroom 3

An Overview of the Performance of Formaldehyde Scavengers in Wood-Based Panels

Luísa Carvalho

Coordinator Professor
Polytechnic Institute of Viseu
Viseu, Portugal
Staff member
University of Porto
Porto, Portugal

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Formaldehyde-based resins are the predominant choice in the wood-based panels industry. Since the reclassification of formaldehyde as “carcinogenic to humans” by the International Agency for Research on Cancer (IARC) in 2004, several efforts have been made by industry to reduce formaldehyde in wood-based panels. New product classes based on formaldehyde emissions emerged and different world regions have established their own classifications, reference methods and standards, as CARB in California and the new E1plus, currently under discussion by the European Committee for Standardization.

Reduction in F/U molar ratio has been a strategy adopted in the last decade to decrease formaldehyde emission. However, this reduction decreases the reactivity of UF resins. Another strategy is the use of scavengers. Natural or bio-based substances such as pozzolan, tannins, charcoal, starch, chitosan and chemical compounds as primary and secondary amines, sodium sulfites, borax and ammonium phosphates have been tested. Commercial formaldehyde scavengers are available on the market, usually based on amino compounds, polyalcohols and other compounds. However, in certain cases they penalize physico-mechanical properties and have adverse effects such as discoloration of wood and formaldehyde re-emission.

An overview of the use of formaldehyde scavengers in wood-based panels is presented, as well as the latest development achieved by our team. The performance of several scavengers, namely sodium metabisulfite, ammonium bisulfite and urea, is assessed through the resulting physico-mechanical properties and formaldehyde emission (perforator, desiccator and gas analysis). The tested scavengers showed distinct performance differences under several emission testing conditions, which were interpreted in terms of the stability of formed chemical compounds. The effect of scavengers on VOCs emission is also addressed.



COMPOSITE MATERIALS AND ENGINEERING CENTER WASHINGTON STATE UNIVERSITY

Washington State University is uniquely positioned with nationally recognized programs in architecture, construction management, civil engineering, wood engineering, and materials discovery and processing. WSU's Composite Materials and Engineering Center (CMEC) provides a unified program of research, education, and technology transfer in the areas of sustainable composite materials, processing innovations, and enhanced design methodologies for structural performance and public safety. We develop new building, polymeric, and cementitious materials from a range of recycled and sustainable virgin resources. We also develop innovative structural systems to effectively utilize new materials while maintaining economic viability and public safety. The laboratory is equipped to conduct research in composite materials development through structural testing. In addition, the laboratory is accredited by the International Code Council – Accreditation Service which indicates that we meet the highest international quality standards and allows our evaluation reports and services to be used as evidence for code compliance. Our award-winning research has resulted in numerous patents and inventions.

In March, WSU broke ground on the new Clean Technology Laboratory Building, a 96,000-square-foot building that will be built to LEED sustainability standards. It will provide cutting-edge lab facilities for the Composite Materials and Engineering Center and other specialized research units on the Pullman campus. The design of the Clean Technology Laboratory Building will enable engineering and science researchers, faculty, and students to collaborate on solving challenges in energy-efficient design and infrastructure, air and water quality, advanced materials, and renewable biofuels and bioproducts.

For more information about CMEC visit: www.cmec.wsu.edu



APA – THE ENGINEERED WOOD ASSOCIATION

APA – The Engineered Wood Association is a North American nonprofit trade association that provides technical support, market development and third-party quality certification services to manufacturers of engineered wood products such as plywood, OSB, glulam, I-joists and LVL. APA member producers in the U.S. and Canada use the APA trademark for recognition of their products to U.S. and Canadian model building codes.

With a state-of-the-art research laboratory in Tacoma and a Technical Services staff of engineers, scientists and technicians, APA is uniquely qualified to provide technical support to engineered wood products manufacturers through research and testing, standards development and code acceptance. APA provides unparalleled market and regulatory support for engineered wood products. APA also provides international market access and standards recognition to overseas markets from its headquarters in Tacoma.

Find out more at www.apawood.org

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