Urea-formaldehyde (UF) resins are widely used throughout the world for bonding wood and wood-based composites. The development and use of UF resins has become more sophisticated in recent years as manufacturing processes have become more demanding and complex. Vast quantities of UF resin are used throughout North America in the manufacture of particleboard, medium density fiberboard and plywood, as well as in furniture and millwork operations.

Competition in the marketplace is tougher than ever. Operations and technical support personnel need to be well trained in order to consistently produce high quality products. A strong understanding of the wood substrate and adhesive, and how they interact with one another in the manufacturing process will help give you the edge you need to increase market share and keep customers satisfied. This course will focus on teaching participants about basic wood structure and behavior in the presence of UF resin. Academic and industry professionals will take course participants through topics ranging from how UF resin is produced and used, to how to improve its performance and the issue surrounding formaldehyde emissions. Emphasis will be placed on flat panel products in discussions of improving and measuring performance of UF adhesives.

Who Should Attend
This course is designed for individuals working in the forest products industry who wish to learn fundamental problem solving skills associated with the use of UF resin, including those working in:
• Quality assurance and technical support
• Machine-center operations affecting product quality and performance
• Adhesive sales or technical service
• Manufacturing management

Industry leaders considering the use of UF resin in their manufacturing process are also encouraged to attend. There are no prerequisites for participation.

Location
Hawthorn Suites
Blacksburg, Virginia

Lodging
You are responsible for making your own lodging reservations. A block of rooms has been reserved at the conference hotel, Hawthorn Suites, 1020 Plantation Road in Blacksburg, Virginia, at a special room rate of $74/single or double occupancy per night plus tax. Reservations can be made by calling (540) 552-5636. Be sure to mention your participation in the “Wood Adhesion” room block in order to receive the special...
About the Instructors

Robert (Bob) Bray is the Senior Technology Manager for Wood Adhesives for Georgia Pacific Resins in Decatur, Georgia. He has worked with GP Resins for 14 years and has been the technology manager for OSB, plywood and UF adhesives during this time.

Chip Freezer is a Professor in the Department of Wood Science and Forest Products at Virginia Tech and is the Director of the Wood-Based Composites Center. He specializes in adhesions, adhesion and the molecular properties of the wood-adhesive interphase.

Mark Gaylor is a Technical Service and Sales Representative for Dynea in Moncar, North Carolina. He works directly with composite panel plants throughout the Southeastern United States, specializing in UF resins.

Tom Hallaway is responsible for developing and coordinating strategic product development initiatives within Dynea’s Industrial Panel Markets. This includes product development and support of adhesive technology for Dynea’s North American MDF, Particleboard and Hardboard customers.

Earl Payton is North American Hardboard Sales Manager for Hexion Specialty Chemicals. He has been with Hexion for 12 years and directs technical service and product development for adhesive systems used primarily in the hardwood, plywood and engineered flooring industry.

Rick Rammon is currently R&D Program Manager for Georgia Pacific Resins. In his 28 years with Georgia Pacific he has had many roles including product development chemist, R&D Manager, and Technology Manager for UF Resins.

Chip Renneckar is an Assistant Professor in the Department of Wood Science and Forest Products at Virginia Tech. He specializes in cellulose and wood-based macromolecule interfaces to wood composites.

Joe Schmitz is with Hexion Specialty Chemicals.

Agenda

Wood Adhesion Problem Solving

Day One

8:00 a.m. Registration
8:30 a.m. Welcome and Introductions
8:45 a.m. Participant Introductions
9:00 a.m. Urea Formaldehyde Adhesives – An Overview
9:20 a.m. Introduction to Wood / Wood Anatomy
10:30 a.m. Break
10:45 a.m. The Development and Manufacture of UF Resin
11:30 a.m. Specifications and Properties of UF Adhesives
12:00 p.m. Lunch
1:00 p.m. Water and Wood Relationships
2:15 p.m. Why Things Stick: Introduction to Adhesion Science and Technology
3:30 p.m. Practical Exercises and Demonstrations
- Surface inactivation analysis
- Resin penetration and distribution
- Characteristics of UF adhesives (viscosity, gel time, solids)
4:45 p.m. Questions and Discussion

Day One Wrap-up

Day Two

8:00 a.m. Bonding Particulate Composites Using UF Adhesives
9:00 a.m. Bonding Veneer-Based Composites Using UF Adhesives
10:00 a.m. Break
10:15 a.m. Improving Performance – Particulate Composites
11:00 a.m. Improving Performance – Veneer-Based Composites
11:45 a.m. Lunch
1:00 p.m. Measuring Performance / Testing Bonded Wood
1:40 p.m. Formaldehyde Emissions
2:40 p.m. Break
3:00 p.m. Mill Experiences / Solutions Panel Discussion
4:40 p.m. Questions and Discussion

Course Evaluation and Wrap-up