

A Case Study—UV Processes and a Corporate-Wide Green Movement

By Tom Pearsall and
Chris Mirt

Columbia Forest Products, founded in 1957, is the largest producer of hardwood plywood and hardwood veneer in North America. It is headquartered in Greensboro, N.C., and operates 14 plants with 3,000 employees.

In 2006, Columbia Forest Products, in partnership with R & D Coatings, accepted the 2006 Presidential Emerging Technology Award for UV-curable wood stains at the 2006 RadTech Technology Conference and Expo in Chicago, Ill.

UV-curable stain is a 100% solids coating that contains no solvent, thus eliminating the need for volatile organic compound (VOC) emission regulations. This technology allows a company to focus on the environment and, therefore, is a selling feature to

end users who are also focused on environmental concerns. UV-coated panels, clear and stained, are among the fastest-growing segments of the hardwood plywood industry. The 100% solids UV-finishing process was considered a “great-fit” for Columbia due to the many advantages that it offers over the conventional counterpart. Some of these advantages include:

- Space requirements for a UV-finish line are more compact.
- Production bottlenecks are minimized due to the instantaneous cure of the wet coating. This enables packaging for immediate shipment off the finish line.
- UV finishes are non-flammable.
- 100% solids UV stain has a superior color consistency throughout a production run.
- UV finish is highly scratch, chemical and stain resistant.
- Nearly 100% of the coating is used due to the transfer efficiency of a roll coat application.
- Energy requirements are greatly diminished in that there is no need for the large drying ovens that a conventional system would require.

Columbia has an ongoing commitment to UV coatings and environmental preservation. In the last three years, the company has added a new UV-finishing line and has upgraded another UV-finish line. These additions bring the company’s total to four flat line UV-finishing facilities.

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Awards for innovative and new technologies ...

Awards for innovative and new technologies will once again be featured by RadTech for presentation at the RadTech UV&EB Technology Expo and Conference, May 4-7, 2008 McCormick Place, Chicago, Ill. Nominations are now open for the biennial UV&EB End User Emerging Technology Awards. Award winners in 2006 included: American Toyota, Columbia Forest Products, InPhase Technologies, Lithotype, and the SCAQMD. For a copy of the award submission form, please e-mail uveb@radtech.org or call 240-497-1242.



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The following steps are used in a flat line finish process:

1. Raw wood is sanded with a multi-head, wide-belt sander.
2. 100% solids UV-cured stain is applied using a differential roll coater.
3. Multiple in-line, brush-wiping stations are employed.

4. Coating is cured using UV lights.
5. 100% solids clear UV-cured filler is applied using a reverse roll fill machine.
6. Coating is cured using ultraviolet lights.
7. A 100% solids, clear UV-cured sanding sealer is applied using a differential roll coater.
8. The wood is sanded with a multi-head, wide-belt sander.
9. 100% solids clear UV-cured topcoat is applied using a differential roll coater.

Since UV stains offer many environmental advantages, it is used in Columbia's PureBond® hardwood plywood panels. These products are formaldehyde-free, cost-competitive, and carry the Forest Stewardship Council (FSC) mark. The FSC is the largest independent, third party, global forest management standard available today. FSC is readily recognized and specified by architects and designers for

compliance with many emerging green building programs such as the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) and Build It Green, who call for its platinum standard of forest certification.

As UV technology emerges in the wood and building products industry, Columbia Forest Products will continue to support the environmental movement from the tree to the finished panel. ▶

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