Preservative Treatment of Flakes Before Panel Assembly: Initial Properties and Long-Term Durability

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Currently, plywood is the only panel product that is treated with chromated-copper-arsenate (CCA) wood preservative for use in contact with the ground. Other panel products, such as particleboard and flakeboard, are excluded from this valuable market because their high resin content makes preservative treatment difficult. To overcome this problem, researchers are developing CCA-compatible resin systems that allow preservative treatment of flakes before pressing. However, there is little information about the long-term durability of panels

prepared from pretreated flakes. This forum presentation summarizes the initial mechanical properties and 20-year durability of CCA-treated flakeboard panels prepared in two ways: either by spray impregnation prior to panel fabrication (pre-treated) or by pressure impregnation of the completed panels (post-treated). Modulus of elasticity (MOE), modulus of rupture (MOR), and internal bond strength of specimens cut from the panels were determined with or without accelerated aging. Long-term durability of specimens cut from the panels was evaluated by exposure in ground contact at a test site near Gulfport, Miss. MOE and MOR of the pre-treated specimens were comparable to those of the post-treated specimens both before and after accelerated aging. although there appeared to be some decline in properties at the highest CCA retention (0.8 pcf). Internal bond strength of the panels, however, was greatly reduced by pre-treatment of the flakes with CCA. Despite their lower internal bond strength. the specimens fabricated from pre-treated flakes have performed well for 20 years in the harsh decay environment of the Mississippi test site. Their excellent durability bodes well for the future performance of panels fabricated using pre-treated flakes and CCA-compatible resins.

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