

Diffusion of Boron from Fused Boron Rods through Southern Pine, Douglas-Fir, Red Oak, and White Oak

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Abstract

This presentation reports the distribution of boron from fused boron rods (some containing copper) installed into 6-inch-square timbers of Douglas-fir, southern pine, red oak, white oak, and Douglas-fir poles. The boric acid equivalent was roughly monitored by the curcumin/salicylic acid color test and the presence of copper was detected by the chrome azurol-5 reagent. One year after installation of rods in timbers, movement of boron was determined by application of curcumin dye to increment cores removed at various distances from the site of boron rod installation. A portion of a sodium-borate-treated southern pine timber was also analyzed by spraying curcumin dye on saw longitudinal and transverse sections. At 2 through 4 years, 1-foot sections were

removed from all timber species, sawed longitudinally and transversely and boron and copper detection reagent was sprayed on the sawed surfaces. Movement of copper from rods in all timbers was virtually nil. Both transverse and longitudinal movement of boron from rods was greatest in southern pine, which also had the highest moisture content. Movement of boron was next greatest in red oak. There was little movement of boron away from the rods in white oak and Douglas-fir. Movement of boron generally reached its maximum at 2 years and the amount of boron in timbers decreased thereafter, particularly in pine. In Douglas-fir poles, movement of boron was variable, with areas in the poles remaining untreated and therefore susceptible to decay

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