

Back-to-the-future process yields 'miracle wood'

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A back-to-the-future technology, first used more than 100 years ago, has put a new form of wood on the market – a veritable "miracle wood" that resists the moisture-induced bowing, swelling, cupping, shrinking and cracking that have been downsides of natural wood for thousands of years. The new "acetylated wood" is the topic of a story in the current edition of *Chemical & Engineering News* (C&EN).

Alexander H. Tullo, C&EN senior editor, explains that production of acetylated wood relies on a process much different from pressure treatment, which infuses insect- and rot-resistant chemicals into wood. Instead, the acetylation process uses heat, pressure and a substance termed acetic anhydride to permanently expand the cell walls in wood into a fixed position that resists water absorption. That absorption of moisture from the air, ground or rainfall underpins the familiar bending, bowing, rotting and other problems with natural wood.

The article points out that acetylation technology has been available for more than a century, and acetylated wood pulp has been used to make photographic film, cigarette filters, coatings for playing cards and other products. It is getting a second life thanks to technological advances made since similar products failed to get off the ground in the 1930s. Manufacturers such as Eastman Chemical and Accsys Technologies attribute its new success to the growing desire for green products. The new wood has similar properties to modern construction materials like aluminum and PVC but a much smaller carbon footprint. And although it costs about three and a half times more than untreated wood,

Eastman's technology manager for acetylated [wood](#) says its durability makes it worth it for customers.

More information: "Modifying Wood To Last, With Chemistry"
[cen.acs.org/articles/90/i32/Ma ... ver-Acetylation.html](https://cen.acs.org/articles/90/i32/Ma...ver-Acetylation.html)

Provided by American Chemical Society

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