

■ TRANSPARENT WOOD COULD ONE DAY HELP BRIGHTEN HOMES AND BUILDINGS

When it comes to indoor lighting, nothing beats the sun's rays streaming in through windows. Soon, that natural light could be shining through walls, too. Scientists have developed transparent wood that could be used in building materials and could help home and building owners save money on their artificial lighting costs. Their material, reported in ACS' journal *Biomacromolecules*, also could find application in solar cell windows. Homeowners often search for ways to brighten up their living space. They choose light-colored paints, mirrors and lots of lamps and ceiling lights. But if the walls themselves were transparent, this would reduce the need for artificial lighting - and the associated energy costs. Recent work on making transparent paper from wood has led to the potential of making similar but stronger materials. Lars Berglund and colleagues wanted to pursue this possibility.

The researchers removed lignin from samples of commercial balsa wood. Lignin is a structural polymer in plants that blocks 80 to 95 percent of light from passing through. But the resulting material was still not transparent due to light scattering within it. To allow light to pass through the wood more directly, the researchers incorporated acrylic, often known as Plexiglass. The researchers could see through the resulting material, which was twice as strong as Plexiglass. Although the wood isn't as clear as glass, its haziness provides a possible advantage for solar cells. Specifically, because the material still traps some light, it might be used to boost the efficiency of these cells, the scientists note.



Source: [American Society](#)

■ CELLUFOAM, WOOD-BASED MATERIAL, MAY REPLACE STYROFOAM

This prototype bicycle helmet is made entirely from forest products: the outer layer is veneer, the straps are made from extra strong paper, and then the shock-absorbing foam is made from cellulose fibers.

CellutechStyrofoam is a wonder material developed in 1941 that absorbs shocks and insulates, and has found uses as diverse as for coffee cups and bicycle helmets. But it is also petroleum-based, and it is a synthetic material that takes at least 500 years to decompose.

Now a Swedish team conducted by professor Lars Wagberg from the KTH Royal Institute of Technology, along with other specialists from Stockholm University and the Wallenberg Wood Science Center (Sweden) has devised a similar material, called Cellufoam, made out of biodegradable wood-based material. Cellufoam is made with tiny wood cellulose fibers, which are blended with a foaming mix of water and air. The process of Pickering emulsion, which incorporate solids into the mix to prevent it from separating and coalescing, stabilizes the air bubbles in the material.

The Cellufoam material can be employed in uses beyond the bicycle helmet – including potential flame retardants and water filtration.



Photo:
CellutechStyrofoam

Source: <http://www.laboratoryequipment.com/news/2016/01/cellufoam-wood-based-material-may-replace-styrofoam>

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