

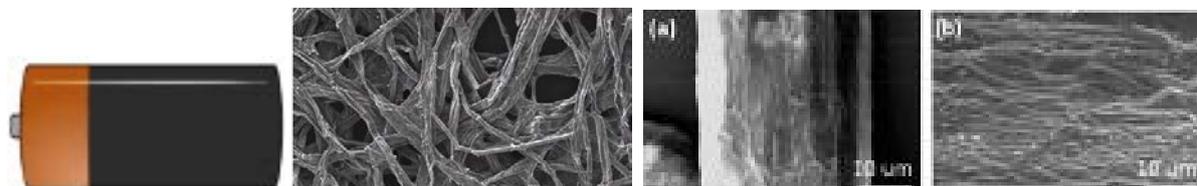
■ A BATTERY MADE OF WOOD?

Conventional batteries use stiff, non-flexible substrates, which are too brittle to withstand the swelling and shrinking that happens as Na ions flow through the battery between anode, and cathode.

The scientists at the University of Maryland developed a battery made from a sliver of wood coated 1,000 times thinner than a sheet of paper, that could be game changer as a long-lasting, efficient and environmentally friendly energy source. They saw that yellow pine fibers were supple and naturally designed to hold mineral-rich water, and so are ideal for storing liquid electrolytes, making them not only the base but an active part of the sodium-ion batteries.

After hundreds of times, the wood ended up wrinkled but intact. Computer models showed that the wrinkles effectively relax the stress in the battery during charging and recharging, so that the battery can survive many cycles. Na ions move via the fiber cell walls and by diffusion at the tin (Sn) film surface.

During lab experiments, the device performed successfully through 400 charge-discharge cycles, which put it among the longest lasting of all sodium-ion nano batteries. The batteries using the new technology would be best suited for large-scale energy storage applications, like wind farms or solar energy installations.



Source: <http://www.umdrightnow.umd.edu/news/battery-made-wood>

■ MAPLEX: REPURPOSED, BIODEGRADABLE PRESSED WOOD

Maplex is an environmentally responsible alternative to traditional wood building materials. Maplex P (Performance) is a high-density fiberboard with twice the bending and tensile strengths of birch plywood of the same thickness. Maplex C (Contour) is a medium-density board, ideal for forming and bending into smooth curves. Both types of Maplex can be machined, bent, rolled, formed, punched, and laminated, as well as stained, painted, printed, dyed, and coated with a wide variety of finishing products.

Maplex is made of 100% pressed thin plies of softwood tree fibers. These fibers undergo a unique process that increases their surface area, boosting their potential for hydrogen bonding. Heat and pressure are then applied, releasing moisture and creating a strong, pliable fiber matrix. Maplex is manufactured without the use of bleach, binders, formaldehyde, petroleum-based products, or other off-gassing chemicals. Because no resins are used, the formability and appearance of Maplex is superior to other fiberboard products. Now it is being reutilized as a furniture building material.



Source: <http://transmaterial.net/maplex/>

Edited by:
Prof.dr.ing. Teofil MIHĂILESCU