

Future Batteries via... Packing Peanuts?

Written by Marco Attard
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According to Purdue University researchers packing peanuts are more than an annoyance getting in the way of recent acquisitions-- the bits of foam might actually be key to next generation rechargeable batteries.



As we all know, batteries consist of two electrodes, the anode and cathode, with the anode being generally made of graphite. The research shows packing peanuts can replace the graphite in anode production, specifically with carbon-nanoparticle and microsheet anodes from polystyrene and starch-based packing peanuts.

Creating the anodes is a fairly straightforward process-- one needs to heat the peanuts at 500-900 degrees Celsius in a furnace under inert atmosphere in the presence or absence of a "transition metal salt catalyst." The result not only provides cheap and simple means of recycling the peanuts, but also promises faster charging times and higher "specific capacity" to current graphite anodes.

How come? The peanut-based carbon anodes are thinner than graphite anodes, allowing better contact with the liquid electrolyte in the batteries.

"Long-term electrochemical performances of these carbon electrodes are very stable," the researchers say. "We cycled it 300 times without significant capacity loss. These carbonaceous electrodes are also promising for rechargeable sodium-ion batteries. Future work will include steps to potentially improve performance by further activation to increase the surface area and pore size to improve the electrochemical performance."

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