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(Photo attached)

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MATTRESS TEXTILES COULD BE USED TO MAKE TOMORROW'S EV BATTERIES

Electrodes in the lithium batteries that will power tomorrow's electric vehicles could be made from recycled mattress textiles.

In a three-year study at the National Institute for Materials Advancement at Pittsburg State University (PSU) in Kansas, researchers led by Dr. Ram Gupta developed a process that transformed mattress textiles into conductive carbon materials used to make the anodes and cathodes in lithium-sulfur rechargeable batteries. These next-generation, lithium-sulfur batteries have 2-3 times more energy storage capacity than conventional lithium-ion batteries.

In the project, funded by the Mattress Recycling Council (MRC), researchers converted and tested coconut fibers, shoddy pad (which is a felt-like product already made of recycled fabrics), and cotton fibers in battery applications. These are materials that today are difficult to recycle. Dr. Gupta's team found cotton was the best material for building these new batteries. Preliminary results indicate the experimental rechargeable batteries both perform equal to or better than conventional batteries and do not require scarce metals such as nickel, manganese and cobalt, which are found in many of today's lithium batteries.

This research is significant for several reasons. We face a global shortage of suitable carbon feedstocks for making electrodes, which are needed to satisfy the growing demand for rechargeable batteries. Textiles – and not just from mattresses – are challenging to recycle, but could provide an inexpensive, clean, and abundant feedstock that can fill current and emerging needs. Sourcing feedstocks from recycled materials means they have a much lower environmental footprint relative to conventional sources.

MRC operates statewide mattress recycling programs in California, Connecticut and Rhode Island. Collectively, these programs have recycled over 12 million mattresses. MRC has documented that mattress recycling reduces greenhouse gas emissions and lowers energy and water consumption. By weight, about 75 percent of each mattress is recycled. The battery project with PSU is one of a series of MRC-funded research projects designed to find new markets for recycled mattress materials (including

textiles) and increase both the percentage of each mattress that can be recycled and the environmental benefits of mattress recycling.

The PSU research team is exploring the potential for commercializing these positive results.

The full report is on the MRC's website - https://mattressrecyclingcouncil.org/rechargeable-batteries-can-use-mattress-materials/

About the Mattress Recycling Council

The Mattress Recycling Council (MRC) is a nonprofit organization that operates recycling programs in states that have passed mattress recycling laws: California, Connecticut and Rhode Island. MRC was founded by the bedding industry and recycles nearly 2 million mattresses each year. To inform residents and businesses about the availability and importance of mattress recycling, MRC created a public education campaign branded Bye Bye Mattress. For more information about MRC, go to MattressRecyclingCouncil.org. To learn how to recycle your mattress or to find a collection location or event near you, visit ByeByeMattress.com.

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