



Denim recycling | Photo source Pixabay

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## RECYCLED DENIM IS REPURPOSED FOR JOINT RECONSTRUCTIONS

 MANUFACTURING

### Dissolved denim can be transformed into an aerogel.

Re-purposing unwanted items is a smart way to reduce the amount of waste the public is producing. Springwise have previously noted the various ways in which different reusable items and materials find further uses. In particular, plastic is a popular material to re-purpose given its detrimental impact on the environment, especially polluting the ocean. A [floating park](#) in the Netherlands has been created entirely by using recycled plastic. Elsewhere, discarded plastic bottles have also been repurposed as [building blocks](#) in the Philippines.

Researchers at [Deakin University](#) have had their own try at recycling unwanted items, working with denim. They have discovered how to dissolve denim and manipulate the remains into an aerogel. This is a low-density material with a range of uses including cartilage bioscaffolding, water filtration and use as a separator in advanced battery technology. Researchers believe the sticky nature of the denim cellulose solution was likely responsible for the unique aerogel structure, ideally suited for use as synthetic cartilage. The pore network structure of the aerogels and cartilage tissues are similar in terms of dimensions, orientations, and density distribution of pore channels. These therefore enable the materials to replicate a special type of 'weeping' lubrication mechanism found in cartilage to protect against wear and damage.

Researchers also found their denim recycling technique could also help contribute to the fight against textile waste. One of the main drawbacks of textile recycling efforts is that any advanced technique requires the use of chemicals. Such products can then make the procedure less effective,

however this team uses environmentally friendly chemicals. They are now entering pilot-scale trials and look to be at commercial scale within 3 to 5 years with industry support.

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### **Takeaway:**

Repurposing unwanted items is a crucial activity in the quest to become a less wasteful world. Researchers carry out invaluable work by exploring ways to achieve these goals. It is then businesses' turns to adopt these methods into their own operations. We all have our own role to play in building a more sustainable society. How could you support researchers working on such projects?