

New Zealand Company Has Developed A Way to Recycle Worn-Out Carpets into Children's Bicycles

Source: theguardian.com

Published: January 23, 2015



Wishbone Design creates bikes from old carpets. Photograph: Wishbone

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A bike may not be the obvious product you'd think of if someone asked you what to do with worn-out carpet, but think again.

It may have fallen out of fashion in recent times, but carpet remains a wonderful way to warm a home. The catch, of course, is that it wears out. Thanks to its bulky nature and combination of different materials, which makes recycling tricky, it adds huge volumes to landfills. [Carpet America Recovery Effort](#) (Care) estimates that [5bn tonnes of carpet](#) – almost 1 tonne per person on the globe – ends up in landfill each year. Imagine if it could be put to better use.

Now it can. For the past several months, carpets have found a highly unconventional second life as bikes. Jenny McIver and her husband Rich – New Zealanders who have recently returned home after several years in New York City – run [Wishbone Design](#), a product design company. Together they have developed a technology that allows them to turn carpets into rigid tubular shapes and so form children's bikes. Not just that: the Wishbone Bike Recycled Edition can be expanded as the child grows, saving additional space in landfill.

“The nylon carpet fibres are shaved from the backing,” explains McIver. “Then both the nylon fibre and polypropylene backing are separately recycled via a proprietary process, which shreds, cleans and heats the raw material into liquid form. We add glass fibre for strength and rigidity.”

The result is engineered resin pellets that can be injection-moulded into strong organic forms. “But we don’t stop there,” says McIver. “This is the first bicycle ever to be made using gas-assisted injection moulding, which allows us to create complex, single-piece tubular forms that achieve very high strength and rigidity.”

The couple spent almost three years developing the technology and design, introducing the mass-produced bike last year – the world’s first bike made entirely from post-consumer recycled material. In concrete terms, that means nylon from used carpet – two kilos of it per bike. Customers particularly love the design aesthetic and the adjustable frame, says McIver, which fits children from 12 months to six years.

The Wishbone Bike Recycled Edition may be the most glamorous end for a worn-out floor covering, but it is not the only way to recycle a carpet. Particularly in the US, carpet recycling is advancing quickly. Thanks to Care, a partnership between the government and private companies, [30% of used carpet now returns to the market as carpet fibre, backings, new carpet, cushions and engineered resins](#), a common component in durable goods. Care reports that in 2012, the latest year surveyed, 1.6m tonnes of carpet was diverted from American landfills and recycled, the highest figure ever.

In the Netherlands, meanwhile, carpet giant [Desso](#) has a different approach to diverting carpet from landfill. Partnering with Dutch drinking-water companies, Desso has developed a pioneering technology that extracts chalk from water that can then be used as a stabiliser in Desso’s carpet tile backing. Desso’s [EcoBase backing](#) now contains on average 50% recycled content and can be recycled in Desso’s own production. A cradle-to-cradle carpet, as it were.

“The backing that is more commonly used is made from oil-residue material, but that material isn’t easily recyclable due to an inconsistent material composition,” says Anette Timmer, Desso’s communications director. “When disassembling carpet tiles as we do within our plant, it’s key to regain the pure material streams, which makes it more economically viable for use in the new life cycle.”

The problem is that recycling carpet costs money. Care warns would-be recyclers that they can’t just leave their rugs outside for collection. Transporting carpet is expensive and so is the complicated procedure of separating its components. If Desso carpet and Wishbone bikes are to become commonplace, consumers have to be ready to pay to have their carpet transported away, even when it’s much easier to put it in the bin. At the same time, while recycling rates have now reached an impressive [63% in Austria, 62% in Germany and 58% in Belgium, the EU average remains at 39%](#). If member states are to reach the [50% recycling target by 2020](#), they’d do well to facilitate easier salvaging of the bulky carpet.

For her part, Jenny McIver believes there are plenty of second carpet lives waiting to be discovered. This year Wishbone is launching a new model of the Recycled Edition Wishbone

Bike using both recycled nylon and polypropylene – carpet yarn. “We’re also designing a larger recycled bike,” she says. “Cycling is a lifestyle choice for the future. It’s a real joy creating truly innovative designs for such a passionate and growing community.”

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