Researchers solve the sticky problem with carpet tiles

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A new adhesive for use in carpet tiles which has been developed at the University of York could help dramatically reduce their impact on the environment.

The powerful adhesives currently used to bind the layers of carpet tiles together make it challenging to recycle them. In Europe, around 70 million kilogrammes of carpet tile waste is incinerated or sent to landfill sites every year.

Researchers in the University of York's Green Chemistry Centre of Excellence have created a new starch-based alternative that allows the layers to be separated and recycled.

Testing has shown that the new adhesive is just as strong as established products, can withstand steam cleaning and is also highly flame retardant.

Professor James Clark, Director of the York Green Chemistry Centre of Excellence, said: "Carpet tiles are becoming increasingly popular so it is important we find ways of producing them in a more sustainable way.

"The results of our research provide a potential solution to a serious waste problem and also demonstrate in broader terms how end-of-life considerations can be incorporated into product design without sacrificing quality."

A key characteristic of the product developed in York is that its adhesive quality can be switched on or off using a chemical treatment that is inexpensive and does not damage the tile materials.

The research, which is published in the journal *Green Chemistry*, was conducted in collaboration with the UK-based operation of global carpet tile manufacturer InterfaceFLOR.

During the mid-1990s the company changed its business model to consider and reduce the environmental impact of every creative and manufacturing decision made. Now defined as Mission Zero, the company's drive to eliminate its impact on the environment by 2020 plays a central role in the innovation of its products, services and processes.

Miriam Turner, Innovations Project Manager at InterfaceFLOR, said: "We have been working with the Green Chemistry Centre of Excellence since 2004, when we began sponsoring a PhD to develop this innovative technology.

"With Technology Strategy Board funding, we have been able to keep this project going, thus bridging the gap between promising academic work and pilot scale industrialisation.

"We believe this new adhesive could play an important role in helping us to achieve our Mission Zero goal."

Provided by University of York