

When recycling equates with quality raw materials

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Credit: Kheng Cheng TOH

Recycled materials are often of lower quality than the materials from which they were derived. Now the cradle-to-cradle recycling concept has been applied to carpets to deliver high-quality recycled material.

Twenty five years ago, the German chemist Michael Braungart developed a new approach to [recycling](#), now called "Cradle to Cradle" or "C2C" after the book, *Cradle to Cradle: Remaking the Way We Make Things*, which he and the American architect William McDonough published in 2002. Their basic idea is that the recycling process should start with the initial design of products. "We are trying to make sure that

the materials that are used for a product can be used again after the product has finished its useful life," says Wolfgang Schönknecht, a researcher at Environmental Protection Encouragement Agency (EPEA), based in Hamburg, Germany.

The EPEA, founded by Braungart in 1987, assists industry in the development of C2C compliant products. "We are looking for products that maintain their quality when recycled, rather than what we call the process of 'downcycling'," he explains. We are designing for the disassembly of the product parts that can then enter recycling processes and retain the quality of the original materials.

Carpets have proven to be one of the suitable C2C candidates. Europe produces about 400,000 tonnes of carpets per year, according to Desso, a carpet manufacturer based in Waalwijk, the Netherlands. Almost all of the used carpets end up in [landfills](#), or are incinerated. The company succeeded in developing C2C technology to produce and recycle carpets that are C2C compliant. "We developed the technology, and we started recycling locally, in Waalwijk and surroundings," says Rudi Daelmans, director of sustainability at Desso. "Now, we are implementing the C2C recycling in six countries," he tells youris.com. This was made possible by the creation of the Euro C2C Carpet Chain project, an EU-funded research project coordinated by Daelmans and which ended in June 2013.

The company set a target to recycle 4% of the total discarded carpets per year in Europe. This target proved difficult to reach. "We are still lagging behind, we found that industry is not prepared to pay more for the recycling, but favour incineration at a lower price," says Daelmans. Besides, the recycling of their own carpets did not prove difficult. But this was not the case with the recycling of carpets from other companies. "This is where we got into trouble, and we have to improve the [recycling process](#)," says Daelmans.

Currently the recycling is done in Affinity, the only pilot C2C plant in Europe for recycling carpets. Daelmans says that his company had plans for building a similar C2C recycling plant in the UK, but with the current economic climate, this proved not feasible.

However, a move from taxing the labour required for the recycling towards taxing the raw materials might encourage industry to increase recycling, says Daelmans. What is more, a different economic model, where one agrees to take back the material after use, might ease things. Daelmans reports that they have concluded such contracts with hotel chains. EPEA was instrumental in developing this concept. "It is just like leasing a car, you don't sell the product to a customer, you only sell the service," says Schönknecht.

The C2C concept is getting a stronger foothold in manufacturing, reports Ben Dezark, a certification officer at the Cradle to Cradle Products Innovation Institute in San Francisco, USA. It has certified Desso's carpets, and founded the Cradle to Cradle product certification training centre in Venlo, the Netherlands. "The impact of C2C on individual companies is not yet clear," says Dezark, who adds that the centre in Venlo has begun a study to find this out. "We are dealing with ten companies that have C2C certified products," says Dezark, adding: "And we are putting some more numbers on the impact on business and the environment—something we are very interested in." The report will be published in the fall of this year, but they already have evidence that the C2C approach works for companies. Dezark concludes: "We are seeing some successes, and there are large some companies that are interested in it."

Provided by Youris.com

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