

# INSIDE TRACK

## ENVIRONMENT RECYCLING

# Carpet takes on a 'green' pattern

A US manufacturer plans to revolutionise an industry that wastes energy and resources, writes **Caspar Henderson**



Few people would consider starting the next industrial revolution with something as mundane as a commercial floor covering. But that is what Interface, the US company that is the world's largest manufacturer of carpet tiles, aims to do.

In an ever more crowded world where there are increasing pressures on the environment, say Interface and its allies, a priority should be radical reductions in the amount of matter and energy used to improve quality of life.

Interface has come up with a product called Solenium, designed to combine the best properties of carpeting and hard flooring. The US version, launched last July, uses at least a third less material and "embodied energy" than comparable carpet tiles. The European version, which is woven using 100 per cent renewable electricity and went on to the market last month, is close behind.

"Interface intends Solenium to be the first in a long line of more sustainably designed products, with the ultimate goal of products being 100 per cent recyclable or compostable," says Mike Bertolucci, president of Interface's research arm.

The carpet is being hailed by environment experts as a big step forward. "The company realised that not throwing more energy and money into holes in the ground represented a major business opportunity," says Amory Lovins, the US "green busi-

ness" guru. As a result, he believes, Interface is creating an archetype for industrial products of the future.

Ordinary broadloom carpet needs to be replaced every 10 years or so because it develops worn patches. It takes 2kg of fossil fuel to turn about 1kg of mainly petroleum-based feedstock into carpet and an additional amount to transport it to the customer and back to landfill, where it takes about 20,000 years to rot.

There are other costs, too. To replace a standard carpet an office must be shut down, furniture removed, carpet torn up and sent to landfill, new carpet laid, the office restored, operations resumed, and workers perhaps exposed to carpet-gluer fumes. But carpet tiles allow

**About 2.5m tonnes of the carpet now in landfills bore Interface's name**

the 10 or 20 per cent of the area that gets 80 or 90 per cent of the wear to be replaced with minimal disruption.

Unlike most such high-drum products, Solenium's high efficiency and environmental performance did not evolve through incremental improvement. Instead, following a Damascene conversion to environmental con-

cern in 1994 on the part of Ray Anderson, Interface's founder and chairman, it decided to try to redesign the product from scratch.

During the previous 20 years Interface had grown from small beginnings to become the world's largest commercial carpet manufacturer, with 29 plants around the world.

One of the reasons for its success had been highly effective exploitation of the carpet tile idea, which was pioneered in the UK in the 1960s but until now has had a rather tacky image.

In 1994, the US public's concerns about the environment caught up with Interface, and Mr Anderson decided he had no defence. Much carpet is literally toxic: petroleum is turned into nylon, which is then fastened into glass fibre and PVC, two known carcinogens.

Meanwhile, manufacturers flush their dye water - full of heavy metals and other toxins - into waste water streams and emit large amounts of carbon dioxide through their smokestacks, while old carpet ends up in landfills - an all but indestructible, hazardous waste. Interface estimated that about 2.5m tonnes of the carpet now in landfills bore its name.

Mr Anderson chose to take seriously the warnings of some scientists and environmentalists who said contemporary production methods and consumption patterns were causing climate destabilisation. He pledged to make the entire company "sustainable", placing the planet's ecological health at least on a par with production of goods and services.



Environmental warnings heeded: Ray Anderson pledged to make the entire company 'sustainable'

Interface undertook to ensure that, as soon as humanly possible, its products would take nothing from the earth's crust and add nothing harmful to the environment.

"Ultimately," says Mr Anderson, "the firm aims not to use another drop of oil". As for the company's past sins: "In the future, people like me will go to jail."

The key to Solenium is a new material called poly trimethylene terephthalate (PTT). Most carpet manufacturers are starting to "down-cycle" nylon-and-PVC-based carpet into lower quality uses such as backing for the next generation of product, but PTT can be recycled back into itself.

At present the costs of removing non-toxic dyes from PTT are prohibitive, and the material is re-used in an underlayer rather than

in the top weave, although there is no loss of quality in the material itself.

PTT, developed by Shell Chemical, has never been used before in a soft-surface commercial flooring. Interface claims it has exceptional stain resistance qualities and does not mildew. The PTT fibre on the upper side of Solenium is woven, creating textile flooring that is supported by a high density foam cushion backing.

Potential customers include hospitals, schools, airports, food stores and other commercial premises. "Over the past few months we have demonstrated Solenium to hundreds of end-use customers, particularly in the healthcare and education markets," says John Richardson, business manager for Solenium, "and they are very excited about it."

In its European manufacturing operation, based in

Shelf, West Yorkshire, the company does not yet have the technology to recycle the product totally because different backing is used, says Graham Sibley, director of marketing communications, Europe.

But Solenium in Europe is one step ahead of US manufacturing operations in that 100 per cent of the energy used in manufacture is from "renewable" or non-fossil sources.

One thing Interface does not aim to reduce is its profits. Rather, it believes it will benefit from substantial market needs with a new and highly profitable item. The idea is that many who currently use hard floors in buildings would like to have the benefits of better acoustics, comfort and other attributes of carpet without losing the hard-wearing performance of a hard floor.