SUSTAINABILITY: RECYCLING

Recycling fibres and fabric is far from a new idea, but current times and the global economic situation are combining to spark new initiatives and give extra impetus to existing ones.



Proof that the story is more than a yarn

Reduce, reuse, recycle… the mantra remains in place and is making an impact, albeit more slowly than many waste disposal proponents would like. Recent figures from the European Commission suggest that each consumer in the 27 European Union countries produced more than 500 kilos of municipal waste in 2010. It calculates that, on average, 25% of this material was recycled, although the figure is higher for countries with high levels of awareness of environmental issues, such as Germany (45% of waste treated), Belgium (40%), Slovenia (39%), Sweden (36%), Ireland (35%) and the Netherlands (33%).

Italy's figure for recycling waste is lower than the those of the top European performers listed above, an estimated 21%, but the country has a stronger tradition than many others for recycling yarns and fabrics. Warp-knit fabric manufacturers Jersey Lomellina and Carvico are two companies in the Italian textile industry that have joined forces to promote sustainability. Called the LCC project (standing for Life Cycle Control), the initiative is based on Carvico and Jersey Lomellina using recycled raw materials and reducing waste in manufacturing their fabric collections, which are specially designed for swimwear, underwear, sportswear and outerwear.

In one year, Carvico and Jersey Lomellina

By 2015, Miroglio intends to bring all its yarns into the NewLife programme, which means it will no longer work with virgin polyester.

Miroglio

have been able to use 20 million litres of harvested rainwater, save 300,000 kilowatt-hours of energy and 135,000 cubic-metres of methane, while reducing carbon emissions by 20% for each kilo of fabric produced compared to the relevant figures for production ten years ago. The companies claim to have reduced emissions to values ten times lower than those set by current legislation. In addition, they have recently tested a heat-recovery system, aimed at reusing the heat coming from the production process to heat offices, dyeing and knitting departments, laboratories and maintenance workshops. Recycled raw material developments have included Econyl, developed in partnership with synthetic fibre manufacturer Aquafil. It is a recycled hollow polyamide derived from post-consumer, discarded products such as fishing nets and carpets.

Way of life

Elsewhere in Italy, Roberto Luchetti, sales director of performance fabric manufacturer Tessile Fiorentina, insists that the idea of using recycled material in the textile industry is far from new. He says the tradition has been part of life in Prato, where his company is based, for at least 50 years, first with wool and later with other fibres. "In the 1950s, it was an economic question rather than an ecological one," he explains. "The approach to and mentality surrounding recycled wool has changed. To produce fabric out of virgin wool was very expensive then. Now it's more about taking an ecological approach and strategies to use less energy and emit less carbon dioxide."

In terms of recycling clothes, he says it's a different story when fibres other than wool are involved. Regenerating new polyester out of a polyester garment is a problem for his company in its role as a manufacturer of fleece material. "We've been using polyester recycled from bottles for 25 years," he explains. "You make the chips first and that way you can make fine fabrics. Transforming reclaimed garments is more difficult. We are looking for a new technique, but bearing in mind that we are trying not to generate more pollution, it's technically very hard to give a new use to old polyester. You have to de-colourise it, which involves using solvents that can cause more pollution. We have to go on thinking, and maybe we'll have a solution one day." Some light fleece fabrics in his company's Activa range emphasise the point. They contain 50% recycled wool, 30% recycled polyester and 20% polyamide. But the wool is recycled from garments, while the polyester is recycled from bottles.



One of the new range of Eco Swim swimsuits from Aqua Green, with fabric made from Unifi's Repreve.

Unifi

Hand it back

The industry as a whole needs to find a solution to this recycled polyester problem as programmes to gather up unwanted post-consumer finished apparel gather momentum. Jennifer Decker, an area manager of the clothing programme at an initiative called Waste And Resource Action Programme, set up in the UK in 2000 (and funded by government), insists that collecting used clothes can reduce the resources the textile and apparel sectors consume and, therefore, reduce costs. She insists that this is having an impact on apparel designers, that they are working much harder these days to design longevity into garments, partly by making them long-lasting in the first instance, but also to make them more recyclable.

This seems to fly in the face of the whole fast fashion vibe, in which consumers have been encouraged to buy cheap items, wear them once or twice and then throw them away. "No," says Ms Decker. "Fast fashion retailers are involved. They will take clothes back. H&M is doing this already. And if you can give a used garment to a recycling programme, you're not throwing it away."

Swimsuit swap

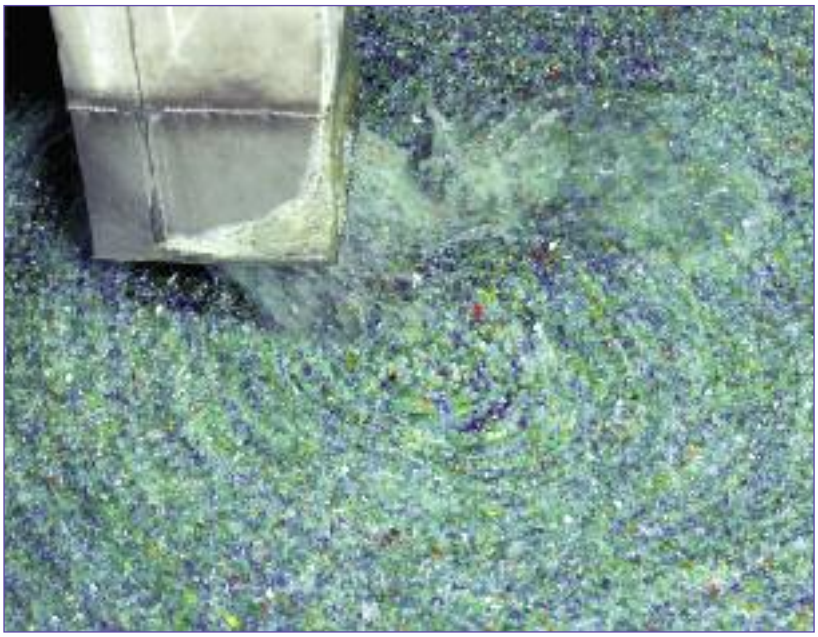
Europe is far from alone in pushing ahead with these initiatives. In the US, yarn producer Unifi has become one of the best known players in the recycled polyester sector thanks to its Repreve range of fibres. It has been recycling fabrics back into fibres for more than a year, partnering with performance fabrics brand Polartec last year to take polyester cut-waste and turn it back into Repreve.

Developments in 2012 have included putting Repreve into new eco-swimsuits. Pennsylvania-based sports brand Aqua Green has launched a collection called Eco Swim, made from Repreve. A fourth-generation family business that insists on keeping its manufacturing in the US, Aqua Green describes its mission as providing fashionable, high-quality swimwear that is also planet-friendly. It's confident enough in Eco Swim's ability to tick all the boxes that it is using the phrase, "reduce your carbon footprint in the sand" in its marketing campaign. In addition, Aqua Green members of staff have spent spring 2012 working on beach clean-up projects. Eco Swim costumes contain at least 80% Repreve nylon and the brand says its new fabrics feel, stretch and perform as well, if not better, than the fabrics it has used in the past.

Message in a bottle

To return to Italy, it seems to be common knowledge there that the local population consumes more bottled mineral water than any other. What happens to the bottles is of great concern to Demap, a small industrial company with its base in Beinasco on the outskirts of Turin. It collects from all over the Piedmont region waste that consumers have already tried to separate out (in recycling containers at home) and sorts it properly. It's a high-tech operation, the result of a €10 million investment, using conveyors and a sophisticated infrared system to separate clear, blue and multicoloured bottles into different lots. As we shall see, one of these, the lots with the clear bottles, is making an impact on the sports and activewear supply chain.





(Top) Workers at Demap near Turin sort through recycled materials from domestic waste collection looking for plastic bottles.

(Bottom) From Demap, the bottles move to Dentis in nearby Cuneo were they are washed thoroughly and made into PET flakes.

Gabriele Saluci / Dentis

"Demap treats 40,000 tonnes of waste a year," explains operations director, Michele Rizzello. "People are still learning about what we can and cannot recycle, so we still receive quite a lot of material that should not be there. I would say it's down now to around 20% that has to go [elsewhere] for incineration in the end, but it's also worth pointing out that we have a good set-

up in Italy for turning incinerated waste into energy for domestic consumption, so even that is not really waste."

He emphasises that Demap is a mechanical recycling company that views mechanical processes as the best for adding value to the material that crosses its path. Piedmont is a wealthy region and a mature consumer society and the 40,000 tonnes of material that Demap processes each year represents an average of 20 kilos each year for every man, woman and child in the region. It's a lot of waste, Mr Rizzello points out, but a high number points to a high level of awareness across the community of the need to recycle. Piedmont has pushed hard to improve its management of post-consumer waste and people can be fined for failing to carry out the requirements properly. The question is not only the quantity of material collected, of course, but also the quality. The higher the quality a sorting centre such as Demap can achieve, the more value you can add to it as it moves along the chain. For our story, we are going to follow a proportion of Demap's output that represents 500 tonnes a year at the moment, but can be more if demand picks up among sports and other clothing brands for what the Demap waste is being transformed into.

Chip off the old block

Four million PET bottles are processed every day at a plant run by Dentis, Demap's parent company, in Sant Albano Stura in the neighbouring province of Cuneo. They don't all come from Demap, but from similar waste management companies in other parts of Italy and several sources in France as well. Plant manager Gianni Sismondi says fully 60% of the bottles Dentis works with come from across the border; France is only 50 kilometres from the factory. Mr Sismondi's company uses the bottles to make, first, PET flakes (reducing impurities to around 60 parts per millions) that are later made into the more compact chips that a well known fibre manufacturer in this region, Filature Miroglio, will use to make recycled polyester yarns for its NewLife programme. Miroglio has said that by 2015, every yarn it produces will be NewLife, meaning it will no longer work with virgin polyester fibre to make its yarns.

Instead, it will work with chips from post-consumer bottles, drying them and melting them the way it always has done before spinning the molten polymer to produce its product range, which currently encompasses 150 different counts of yarn, from 25 dtex (grammes per 10,000 metres) to 2,000 dtex. Gianni Sismondi calculates that it takes 40 or 50 1.5-litre bottles to make a kilo of polymer. But in spite of the fact that the flakes and chips are also in demand in markets other than textiles, he insists



Perhaps the highest-profile application of NewLife yarns so far has been in the fabric for a dress that Giorgio Armani made for Livia Firth, sustainable apparel campaigner and wife of actor Colin Firth.

Miroglio

Miroglio's supply is secure. The popularity of drinks in PET bottles seems unrelenting and Dentis has plenty of space at Sant Albano (the site covers 68,000 square-metres) adjoining the land of a local farmer. Again, the operation is mechanical, using the same infrared technology as its upstream partner Demap. It's extremely serious about environmental good practice, subjecting itself to regular inspections from regional and national authorities covering everything from noise levels to water quality. "We use a large amount of water," Mr Sismondi explains, "but we treat the water on site and are able to discharge it through a pipe directly into the local river, the San Defendente, three kilometres away. Inspectors come unannounced to take samples." Even the sludge from the onsite treatment plant (two containers per week) stays in the local area, supplying raw material to a nearby fertiliser manufacturer.

Act locally

Miroglio press spokesperson, Giusy Bettoni, describes NewLife as a pioneering system precisely because it is so local in nature. The yarn manufacturer's chief executive, Stefano Cochis, devoted four years to the groundwork

for the programme, a large part of which was finding local partners he could work with and convince of the benefits, persuade to make the necessary capital investment and believe in the idea.

"A lot of projects start with a vision," the chief executive says now. "Italy has its tradition of textile districts and of chains of partnerships. This chain starts with the bottle. We had to find the right path and strong partners who were willing and able to invest. We have had to acknowledge that we could not achieve NewLife on our own, we have had to take advantage of our partners' skills and expertise and at the same time convince them that this was something that would enable them to grow; you have to be humble sometimes."

Star of the silver screen

He remains committed to the 2015 target and convinced that Miroglio will achieve it, but he is also happy with progress so far. Livia Firth, wife of actor Colin Firth, wore a dress from Armani to cinema industry award ceremonies in the early part of 2012. As she is an active supporter of the sustainable apparel movement, it was no surprise that the dress the Armani Style Department chose for Livia Firth to wear was of fabric made from NewLife yarn. "This was spectacular confirmation that the idea we had five years ago was correct," Stefano Cochis says. "Armani is the king of fashion and he chose the fabric from an aesthetic point of view. It proves that you don't have to relinquish anything if you want to have sustainable fashion; you can have the best using sustainable processes."

Examples from the sports apparel arena, in which Miroglio has always been active, include NewLife socks for the Liquigas-Cannondale Italian professional cycling team and ongoing interest from high-end French brand Lafuma.

The cycling socks, called Riattiva, also contain graduated compression fabric made from Lycra Energy fibre and are made by Verona-based brand Pieffe Sport, with the manufacturer claiming that the socks contribute to better blood circulation and elimination of lactic acid to improve cyclists' post-race recovery.

Lafuma representatives have been to Piedmont to see the whole process close up, visiting Demap and Dentis as well as Miroglio. The brand already has a NewLife collection on the market, but will enhance it now, Stefano Cochis says, because it has seen added possibilities. He explains: "You can read about traceability and hear about it, but when you see it from an industrial point of view and touch it with your hands, it's totally different." He goes on to make the point that retail groups he has heard speak on this subject, including Italy's COP, have said that, even in these times of cut-backs and government-imposed austerity in which so many families find it hard to make it to the end of the month, that consumption is down overall, but that their turnover in products with a sustainability label (food and cosmetics as well as clothes) is up. "I've read about this happening all over Europe," he continues. "Slowly, more and more companies are realising that they have to be able to tell a sustainability story. They have to have a narrative that they can put in front of customers, convincing them that the products on offer are good for the environment and that all the traceability is in place for the retailer to be able to prove it."

