

Fibre to Fibre recovery trials: update

The fibre-to-fibre action of the European Clothing Action Plan (ECAP), is about working with fashion brands and workwear companies to trial the use of fibres from post-consumer textiles in new garments and learning from their experiences.

Nine trials are underway, and this document has been designed as an opportunity to share early insights.

Three of the trials are with workwear companies (TRICORP Workwear, Schijvens Corporate Fashion and HAVEP) one is a linen supplier (Blycolin Group International) and the rest are fashion (ASOS, Moodstreet, We Fashion, JBC and Suitsupply).

In June 2018, trial participants decided to discuss and share the first results of their pilots and exchange experiences. They focussed their discussions on different topics which are outlined below.

Those who participated in the meeting explained that the sharing of insight and learnings at this point in the work was valuable. Although participants were at different stages of the pilots sharing insights was useful.

So far, work has shown that it is possible to use post-consumer textiles in new garments, but it is not simple.



Early insights from participant discussions

Characteristics of the supply chain

Different organisations have different factors which need to be considered. For example, workwear companies serve business clients with corporate drivers, so they potentially have more pressure to adhere to sustainable production. Therefore, fibre to fibre may be an easier sell. This is not usually the case for retailers and brands where the fashion consumer does not generally demand clothing with sustainable credentials. However, some brands may already be in this space e.g. I AM (part of JBC), a brand that distinguishes itself with the use of sustainable materials. I AM are launching a denim collection which will partially consist of post-consumer material for the first time.

Fibre composition

The production of textile fibres from post-consumer textile involves major technical challenges, including those to do with pilling, fibre length and fibre strength. It is usually necessary to include other materials in the mixture, for example polyester (whether or not PET), viscose or Tencel.

Fibre strength

Schijvens developed a yarn that consists of 50% recycled textile, with 30% being post-consumer textile and 20% being textile waste. The other raw material of the yarn (50%) is recycled polyester from PET bottles, and this was important for the strength of the fibre. It allowed Schijvens to create a large product range with a limited yarn assortment.

Both HAVEP and Blycolin Textile Services confirmed the need for a fabric that has a great deal of strength. For HAVEP this is because of the robustness required in the product. In the trial HAVEP have developed a yarn with 10% postconsumer cotton content. They also had a successful trial to produce heavy duty work trousers based on a fabric of 100% old worn HAVEP overalls. These are cotton overalls recycled by a chemical process resulting in viscose.

For Blycolin, this is about ensuring a product lasts during a huge amount of intensive washing cycles. Blycolin developed a pilot fabric 15% of which consists of material from used sheets. This is why they process PET in it. But we try to minimise the percentage of new cotton in the fabric. This is only 20% in our pilot fabric.

Lead time and complexities of process

Moodstreet have developed a small children's collection where recycled denim, polyester cotton and polyester were used for the first time. It took a lot of time to find

a supplier who could provide a fabric with the right specifications and the right price. It's a challenge for a children's wear which doesn't need high volumes. Because of the longer lead time involved in the manufacturing of fabrics, the first samples with post-consumer material were late for the selling season to retailers. However, at the moment a jacket with 43% post-consumer polyester originating from textile material is now ready and is waiting for uptake from retailers to bring it on the market.

Reverse logistics

In their pilot, Schijvens recovered 100,000 items of worn workwear from clients which was then sorted in the Netherlands. It was shipped to Turkey where it was shredded, mixed with cutting waste and recycled PET to create a new yarn, and then went to Pakistan where new workwear was made. Therefore, there has been a fragmented and vast geographical process and production due to delivering cost efficiency. Clothing collection should be better organised and on a larger scale, to help with logistics.

Many of the participants acknowledged that this process therefore has an environmental impact due to the transportation required and the long supply chain, but this is needed due to lower labour costs.

Influence of price

Moodstreet reported that the incorporation of more recycled fibre into the new product would have made a 100% recycled jacket too expensive, so they reduced this down to 43%. The recycled fibre recovery into new products is currently costing more due to the cost of recovery of PET from the post-consumer textiles.

Cooperation

The pilot companies all emphasise the importance of cooperation in the supply chain. Businesses like the workwear companies that have a prolonged business relationship/partnership seems to have an advantage.

It is easier to do fibre to fibre when the engagement of suppliers is permanent and steady as it makes sustainable production easier and efficient.

Government support

Governments could do more to stimulate demand for sustainable clothing and could help by reducing or eliminating import tariffs on worn textile which contribute to the overall costs.

The PET needed in recycled yarn will contribute to microplastics in the ocean (plastic soup). There is a need for more clarity on the environmental tax on microplastics, which is connected to the use of viscose or PET, combined with the construction of the yarn and fabric. Yarns seem to be less of a source than soft shell. The latter results in far more microfibre loss than other products.

Other updates from trial participants

- Fashion brand ASOS had about 20,000 jeans made from yarn 17% of which consists of post-consumer denim.
- We Fashion has commissioned the development of yarn from cotton containing 50% post-consumer material.
- Suitsupply also recycles wool from suits they collect from clients. They only launched their pilot in early 2018 and so the percentage of recycled content was not yet known at the time of the participants' meeting.
- Tricorp Workwear works with the fabric 'infinity' (among other fabrics) for work trousers. 100% of it is recycled into new workwear via a deposit system, once again through shredding and the creation and weaving of new yarns currently on a lab scale.

Summary of pilot reused fibre content so far ...

	Fibres from post-consumer textile	Other recycled fibres (1)	New fibres
Tricorp, work trousers	^{(2), (3)} 100%	-	0%
WE Fashion, pullovers	50%	-	50%
Moodstreet, children's jackets	43%	-	57%
JBC, denim trousers/skirt	20%	-	80%
Asos, jeans	17%	-	83%
Blycolin, bed linen	⁽³⁾ 15%	35%	50%
Schijvens, workwear	⁽³⁾ 30%	70%	0%
Havep, fabric for workwear	10%	65%	25%
Tricorp, T-shirts	10%	90%	0%
Suitsupply, suits	^{(3), (4)} - - -	⁽⁴⁾ - - -	⁽⁴⁾ - - -
HAVEP, denim workwear	0%	66%	34%

- (1) PET bottles and/or industrial (cutting) waste
- (2) lab scale, production yet to start
- (3) (partially) from in-house production
- (4) percentage not yet known, pilot started in early 2018

Next steps:

The pilots will run until the end of 2018 when Rijkswaterstaat the Ministry of Infrastructure and Water Management managing the project's activity will gather and evaluate the results and learnings resulting in factsheets and detailed case studies of each pilot. A final event to present the results will be organised for the project in early 2019.

For now, it is important to focus attention on how these companies show commitment in terms of being at the front line in the application of recycled textile in their products, and to learn from their pioneering efforts.

To keep up to date on outcomes from the pilot activities, please go to ECAP's website / B8 page, and register to receive newsletter.

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