

Fibre to fibre recycling of textiles



Rijkswaterstaat
Ministry of Infrastructure and the
Environment



Project supported by LIFE funding

Company: Suitsupply
Product or service: Menswear retailer
Pilot: Re-Suit

Key Facts

- In the pilot men's jackets with recycled wool were produced.
- Take-back of worn-out blue and grey suits to feed into a circular product line was organised.
- The main material of the suits and jackets is merino wool, the interlining and other inside parts are made of other materials.
- The composition of the main yarn and fabric consisted of 5% post-consumer wool from discarded Suitsupply suits, 10% industrial textile waste (wool) and 85% virgin merino wool.

Results

- The recycling of raw materials in this pilot achieved positive environmental impact. An indication of the results in 2019 is:
 - Water savings: 21 m3
 - Energy savings: 3,542 kWh
 - CO₂ reduction: 2.1 tonnes
- In 2019 for the small pilot production 29 kg of discarded suits were saved from incineration.

Key Learnings

- Suits are a high quality garment. People are attached to them and won't throw them away easily.
- The quality of recovered wool is high.
- Our supplier was willing to think broader and use knowledge and expertise for other brands to have a wider impact.
- Collaboration and knowledge exchange with other brands and retailers is key and can bring circularity forward.

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Case
study:

SUITSUPPLY

Overview of the company

Introduction

Suitsupply is a privately held European tailoring company and has a strong international presence with +90 stores on 3 continents. Suitsupply acts as an innovator and disruptor in a very traditional segment: high-end menswear tailoring. By offering high quality products, Italian fabrics and personal online and offline service, Suitsupply's customers can get their hands on carefully crafted garments for a fraction of the price that other major suit brands are offering. Working with vertically integrated supply chains and personal relationships with suppliers, has turned this engagement into a unique market defining brand concept.

Mission and vision

'Craftmanship with flair, made in a way we are proud of' is a key pillar in the overarching company strategy. Suitsupply values long term partnerships with its suppliers. Being proud of suppliers also means a high level of transparency to stakeholders and customers; unlike most brands Suitsupply publishes all CMT factories in their annual sustainability report.

Corporate social responsibility

Suitsupply has joined the Global Fashion Agenda initiative and is keen on creating a true impact. From this perspective the focus is on the supply chains and products that are the most substantial and implementation within the already existing supply chains. Within the GFA Suitsupply has committed itself by 2020 to have a recycling take-back scheme in all shops available and collect 25,000 kg of post-consumer products. All labels in Suitsupply products will be made with recycled post-consumer polyester yarns.

Co-operation with suppliers and other stakeholders

Suitsupply values long term partnerships with their suppliers. The suppliers are carefully selected for their knowledge and eye for detail. Most suppliers have grown with the business and know the quality standards, service levels and other requirements that make Suitsupply the brand it is. On one side, suppliers are spinning and weaving mills, often established names with a reputation for quality materials. On the other hand are the CMT factories, which turn these materials into comfortable and immaculate items. Suitsupply values craftsmen and women who translate fabric into products. The relationship with these apparel companies and their workers is very strong and long lasting. As our business has grown at a rapid pace, Suitsupply needs consistency and it is perceived beneficial to be loyal to high quality partners, instead of shopping for better prices and 'race to the bottom' practices.

Why ECAP?

ECAP – the European Clothing Action Plan – is a project funded by the EU LIFE programme. The project aims to achieve waste prevention, a reduction in water and energy use and a reduction in CO2 emissions in the textile chain. ECAP uses F2F pilots to support businesses in their commitment to circular textiles and the reduction in the use of virgin materials. The pilots are intended to develop knowledge and insight into the use of recycled textile material in new clothing. For Suitsupply this came down to an acceleration and an implementation of the circular strategy of the company's Global Fashion Agenda commitment.

Recycling of high luxury suits

The aim of the pilot was to push the boundaries of recycled content in high luxury fabrics, using suits that were returned by customers in the shops of Suitsupply as part of their recycling programme and recycling these suits back into the company's own supply chain.

“ Recycling for us is about extending life and use, something close to our values, by making high quality products that last. “

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What we did

The main highlight was the behavior change within the supply chain and the partnership with the company's main supplier for this project. The supplier started off hesitant and skeptical, but ended up driving the project forward to the very end. Next to developing the pilot with Suitsupply, the supplier took the new knowledge and went ahead to develop a whole new line of fabrics with recycled content (their own industrial waste).

For Suitsupply this made us most proud - the supply chain partners using the knowledge and taking the next step by making materials available, ready for the other fashion brands to implement in their collections. In this way the pilot caused a more industry wide change- since until now, no one had been using recycled content in the men's luxury segment.

The following activities were carried out:

Mapping

The first activity was to map the space and supply chain solutions needed for the shredding/ pulling stages in Italy.

Reverse logistics

To receive materials to be recycled, take-back of blue and grey suits was organised. Developing a reverse logistics network was needed for the collecting of the 'new' raw material within the pilot.

Production

Processing of the new raw material and working on and figuring out how to retain fibre quality, through testing different spinning and weaving techniques, was followed by weaving the fabric, performance testing, label design and development.

Communication

The new label on the product shows that it is recycled wool.

The jacket will go to the market in winter 2019/2020 since it's a winter quality. The supplier is using the example and developed a circular collection, which was presented at the Milano Unica Fair in July 2019.



Tip: Create strong relationships with the key suppliers in your supply chains - you will need them.

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Challenges

- A suit is a complex product with 400 different elements and numerous materials in one jacket. How to deal with contamination in recycling and raise the yield was a challenge!
- Customer take-back is difficult - suits last a lifetime and people are emotionally attached to them.
- Post-consumer wool can be used on a high quality level- but it can cause difficulties in reprocessing the wool. Fibres for example act differently when 'double dyed' and can have different properties than virgin wool. To avoid issues with stabilising, the blending with virgin became one of the most important processes in the new supply chain.

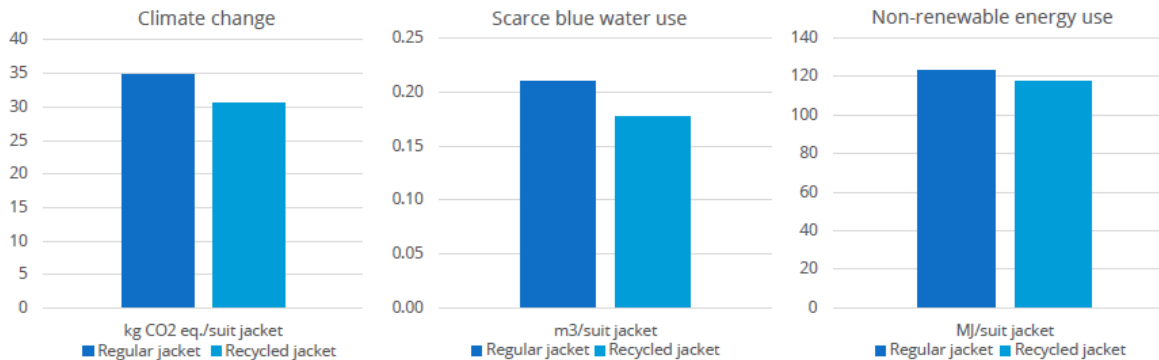
	Per kg	Total ECAP pilot
Water	108 litres	21 M3
CO2	10.9 kg	2.1 tonnes
Energy	18.4 kWh	3,542 kWh
Waste		28.9 kg post-consumer textiles

Results and impact

- 100% Woolen fabric in hopsac construction with 15% recycled content, added into the weft of the fabric in a 30% recycled yarn. It was impossible to use it in the warp due to loss of strength. We have now managed to add it in such a way that loss of fabric performance was very minimal compared to 100% virgin.
- The body lining is made from 100% recycled cotton linter (eco cupro) and is GRS certified.

Next steps - long-term strategy of Suitsupply

- We expect to bring the product to market in the 2020 summer season.
- We will try to upscale and increase the scope of the pilot.
- Post-production waste will definitely become a bigger focus.



Footprint of impacts for climate change, scarce water use and energy use per suit jacket for a regular jacket and a recycled jacket

Indication of environmental savings between a conventional and a recycled jacket (Source: Impact Institute)

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Success factors

- Create strong relationships with the key suppliers in the supply chain – you will need them.
- A focus on quality, efficient use of materials and time and the internal economic consequences will give a good start for reaching sustainability and circularity.
- To provide quality means investing in people working in the factories, since a lot of the work is still done manually.



Lessons learnt

- People are attached to their suits and won't throw them away easily. Therefore it's hard to raise the volume of collected suits.
- Suits are complex garments and consist of many components from different materials. Hence the risk of contamination is high and the yield of recycling is much lower than expected.
- There is a quality requirement of 100% mono material, which is the biggest obstacle for recycling.
- The quality of recovered wool is high.
- The loss of quality can be reduced if the use of recycled content is done in a 'smart' way, by picking the right construction, right type of yarn spinning and right fabric finishing.
- When starting with recycling you are actually starting a new supply chain. So you will need understanding and transparency to get insight into the environmental and social impact.
- The supplier is a vertically integrated company which wants to incorporate recycling in its own process. Right now this still costs a lot of time, but in the long term it will save time.
- Collaboration and knowledge exchange with other brands and retailers could help the development of circularity.

“ For us circularity is about keeping and retaining value, to create change beyond our own practices and deeper into our value chains, with engagement of suppliers, employees and customers. “

Joy Roeterdink (Suitsupply)

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ECAP is €3.6 million EU LIFE funded project which aims to reduce clothing waste across Europe and embed a circular economy approach.

ECAP mission

Cutting the environmental impact of clothing across the supply chain. Generating value for business through collaboration, measuring and sharing best practice

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Case studies were generated as a result of pilots carried out for ECAP by the Dutch Ministry of Infrastructure and the Environment and the specified organisations from 2016 to 2018.

