



THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY

WELCOME

to today's Expert Talks Live Webinar Series

**“THE CURRENT TEXTILE APPROACHES AND GARMENT
CONCEPT OPTIONS IN CIRCULARITY“**

created for „THE LOOP“

by PERFORMANCE DAYS & FUNCTIONAL FABRIC FAIR

July 06, 2021

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

INTRODUCTION



Today I will guide through new circularity options we discovered during the Jury days of the PERFORMANCE FORUM.

I will speak about following TOPICS:

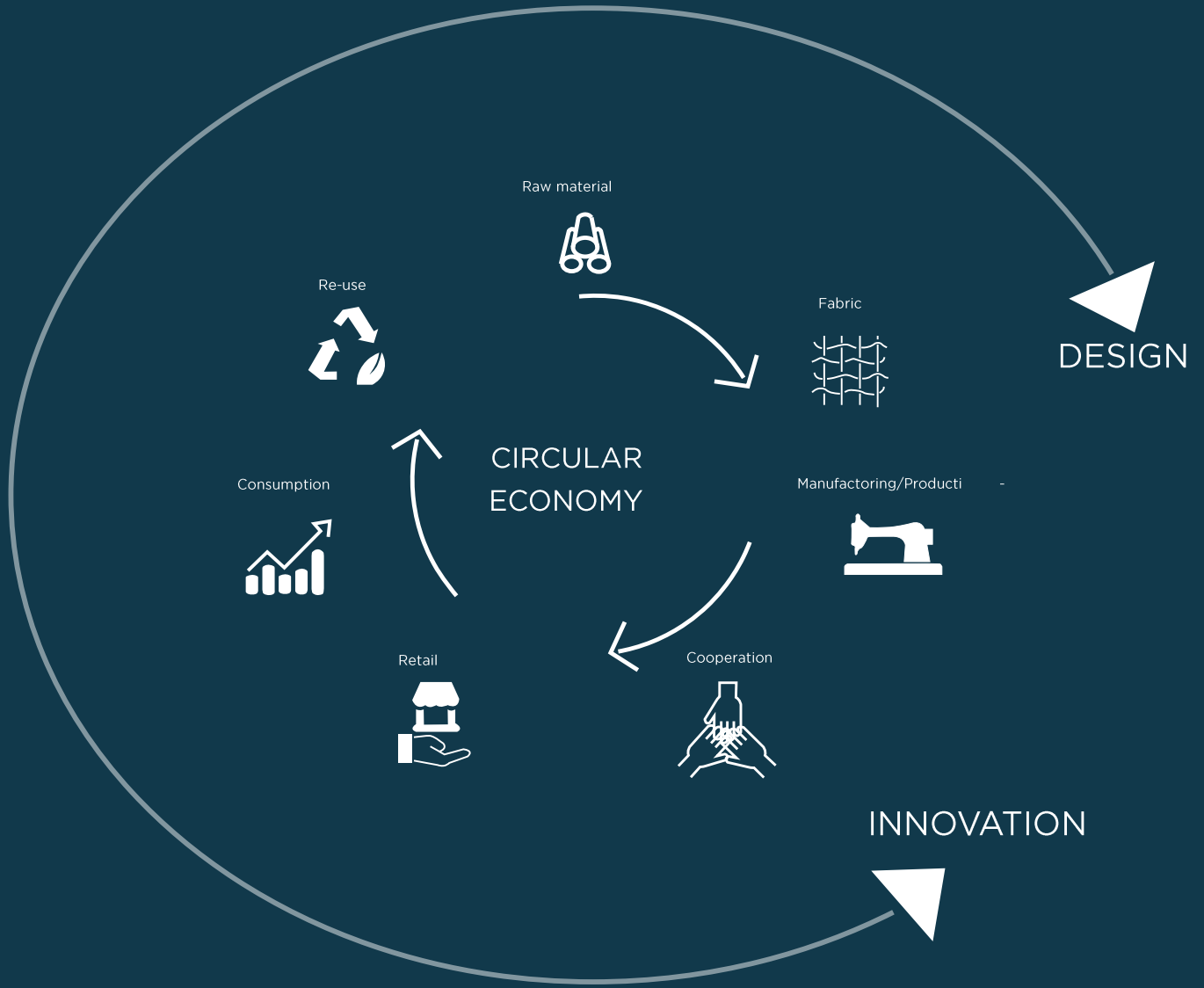
- **100% Polypropylene Outerwear**
- **100% Nylon insulated Outerwear**
- **100% Polyester through all Layers**
- **Biobased and Biodegradable Synthetics**

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



OVERVIEW

Before we start,
let's get back shortly to the
TOPIC in general
and then look at
optional solutions from some
players along the supply chain.



“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



TOPIC – INFORMATION PROVIDED BY PERFORMANCE DAYS FOCUS TOPIC – CLOSING THE LOOP

THE CIRCLE OF LIFE. A (NEVER-)ENDING STORY?

The life-cycle of a product starts with its concept or design, and is followed by production, sales, use (with or without maintenance to make it more durable / longer in use)... Somewhere along the life cycle of the products, it loses its value for the user and ends up as waste (on an official disposal site or in nature). If the product remains unused, it is called a ‘lose end’ whereas the end can also be a new beginning if the loop is closed.

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TOPIC – INFORMATION PROVIDED BY PERFORMANCE DAYS FOCUS TOPIC – CLOSING THE LOOP

THE CIRCLE OF LIFE. A (NEVER-)ENDING STORY?

To compost, biodegrade and recycle a material, there are different ways to keep it in use and thereby extend the life-cycle/loop. But not all three options are relevant for all kinds of materials in the same way.

In addition to the close loop principle, "Cradle-to-Cradle" is a specific term used to describe clothing in a cycle. Instead of afterwards considering the options of how the material can be recycled at the end of its use, the best composition of the material is considered in advance in order to return it to the closed loop .

The materials are thus spared of any unnecessary recycling processes.

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



TOPIC – INFORMATION PROVIDED BY PERFORMANCE DAYS FOCUS TOPIC – CLOSING THE LOOP

PRE-SORTED BY CONSTRUCTION. MONO-COMPONENTS

Consequently, to reduce time and costs, another approach is to design garments in a way that one garment is designed by only one material. Thereby only mixed-component garments needed to be sorted.

If an entire piece consists of only one substance, it can be called: **Mono-component/material.**

Mono-Components can be recycled easier and with less effort as no fibers need to be separated from each other.

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TOPIC – INFORMATION PROVIDED BY PERFORMANCE DAYS FOCUS TOPIC – CLOSING THE LOOP

PRE-SORTED BY CONSTRUCTION. MONO-COMPONENTS

Down feathers retain a relatively constant quality. Fibres become shorter during fibre recycling and thereby limit the options, as the quality might drop to such an extent where the reuse might no longer be possible. Polyester and polyamide can be recycled almost endlessly, but the colouring processing is like all other fibres difficult. It might not be rational or possible to bleach recycled fibres. The original colour remains often (part of) the new recycled material or it will be superimposed with a darker colour – black in most cases. For the same reason, colourful blue or green PET bottles will not turn to a lighter colour, but only a darker one.

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TOPIC – INFORMATION PROVIDED BY PERFORMANCE DAYS FOCUS TOPIC – CLOSING THE LOOP

“CIRCULARITY – A RECURRING RECYCLING CYCLE OF RAW MATERIALS, WHICH IDEALLY NEVER ENDS.”

Closed-Loop

From a product the same product is produced again

Open-Loop

From a product another product is made

In order that a used PET bottle becomes a bottle again or a fibre is recycled to a fibre again, each industry needs to close the cycle of their products internally, But in reality, a product doesn't always end up where it was produced.

60% of the UK used textiles are collected and exported for the reuse and recycling in foreign countries (41% Sub-Saharan Africa (19% Ghana), 25% Europe (10% Poland), 14% Asia and Oceania (12% Pakistan), 11% Non-EU Eastern Europe (10% Ukraine), 7% Middle East and North Africa (4% UAE), 2% Others).

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“CIRCULARITY – A RECURRING RECYCLING CYCLE OF RAW MATERIALS, WHICH IDEALLY NEVER ENDS.”

In Germany approximately 50% of the [716,00 tons/year] recovered textiles are recycled as second hand clothing (re-use). Almost 18% (mostly blends) of the unwearable items is processed for seat stuffing for the automotive and furniture industries, whereas 16% is used to make cleaning cloths (downcycling). Only about 5% can be used to produce new fibres and fabrics (cradle-to-cradle principle). Pure polyester and polyamide garments can be recycled again into textiles. The pure wools and cottons can be “pulled” into the condition of fibre and re-spun into yarn, however, these yarns are of a lower quality in comparison to new fibres because of the shorter staple (fibre) lengths.



A FEW GLOBAL SOLUTION PROVIDERS

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

I:COLLECT

A Leading Global Solutions Provider

I:CO, short for I:Collect, is a respected global solutions provider and innovator for collection, reuse and recycling of used clothing and shoes. The scale of I:CO's worldwide take-back system and logistics network is unique in the textile industry. We collect in our partner locations around the world, carefully sort the items and either reuse or recycle them ensuring maximum reutilization of these valuable materials. Our product end-of-life service represents a win-win for all involved. At present, we collect clothing and shoes in more than 60 countries.

Step By Step Towards Our Goal



*<https://www.ico-spirit.com/en/company/>

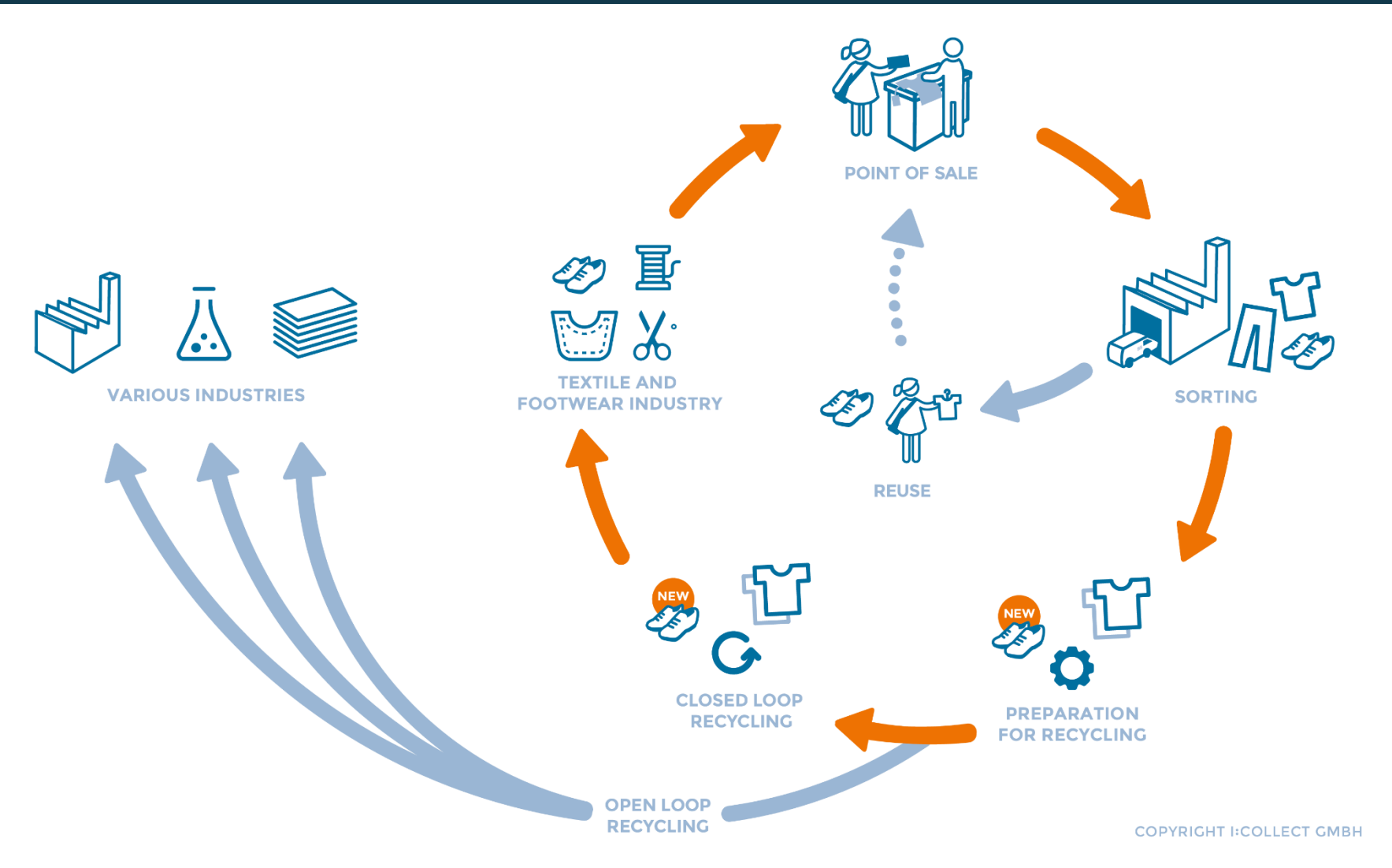
“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

I:COLLECT CLOSES LOOPS

At I:CO, we take great care to close the loop. The take-back system offers a resource-efficient and economical solution and is as simple as it is effective. Fashion houses and retailers collect pre-loved clothing and shoes from their customers in their stores or online. I:CO then helps organise the logistics, sorting and transfer of the items to the various recycling loops.



*<https://www.ico-spirit.com/en/services/>

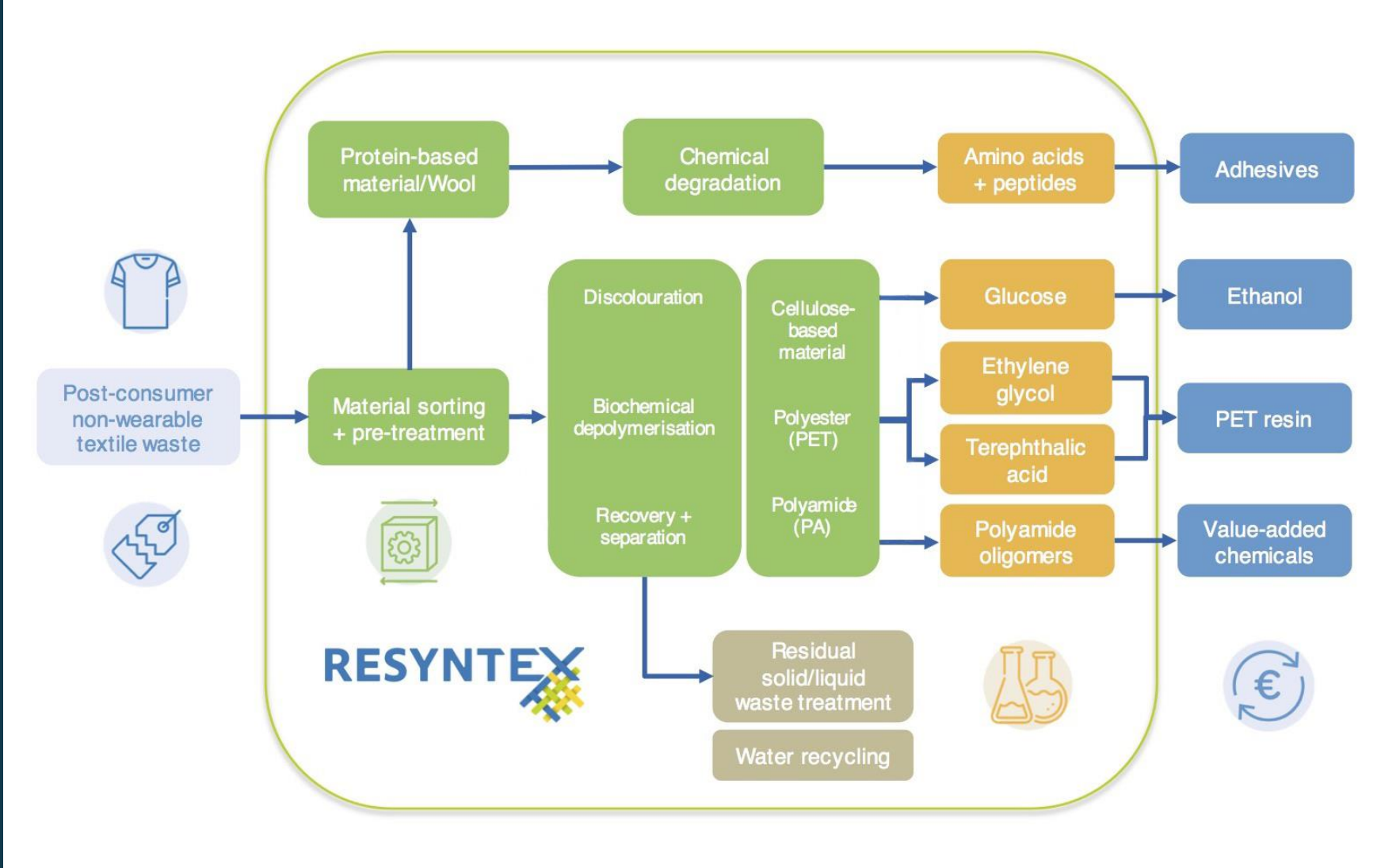
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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

RESYNTEX & I:COLLECT (by SOEX)

RESYNTEX is a research project which aims to create a new circular economy concept for the textile and chemical industries. Using industrial symbiosis, it aims to produce secondary raw materials from unwearable textile waste.



*www.resyntex.eu/the-project

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

RESYNTAX & I:COLLECT (by SOEX)



Photo credit: SOEX Group

*www.resyntex.eu/the-project

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN



FIRST FULLY AUTOMATED TEXTILE SORTING PLANT IN MALMÖ/SWEDEN

Sorting textiles according to the various types of fibers they contain requires a high degree of precision. It is currently done manually, but the result doesn't meet the requirements of recycling companies and the fashion industry. As a result, only a small quantity of discarded textiles is recycled and the potential for increasing it is enormous. The SIPTex project is exploring how to achieve the required quality through automation.

The automated textile sorting plant in Malmö has a capacity of up to 4.5 t/h in one line. The incoming material is delivered in bales, typically weighting 350 to 500 kg. It includes pre- and post-consumer waste.

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

FIRST FULLY AUTOMATED TEXTILE SORTING PLANT IN MALMÖ/SWEDEN

The former consists of dry, industrial waste from textile producers such as clippings, yarn and rejects. The latter is made up of clothing and household textiles, which include unsorted material from separate collection from sources such as recycling centers, and manually pre-sorted and industrial waste from textile leasing and rental services. The material is sorted whole and may contain buttons, zippers and other non-textile parts.

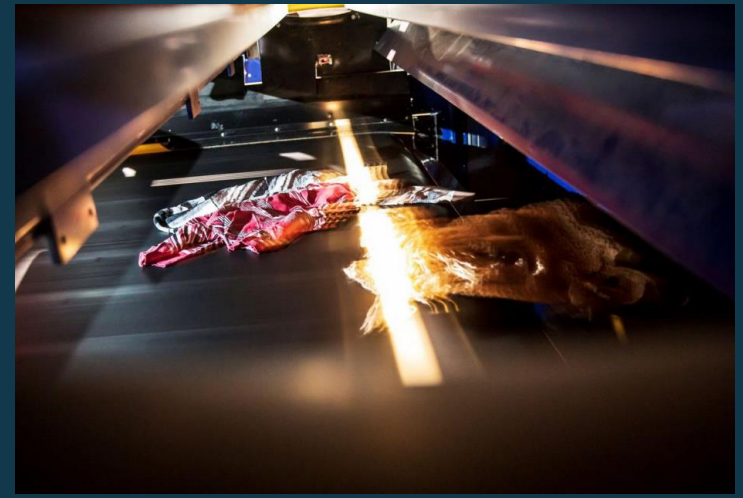
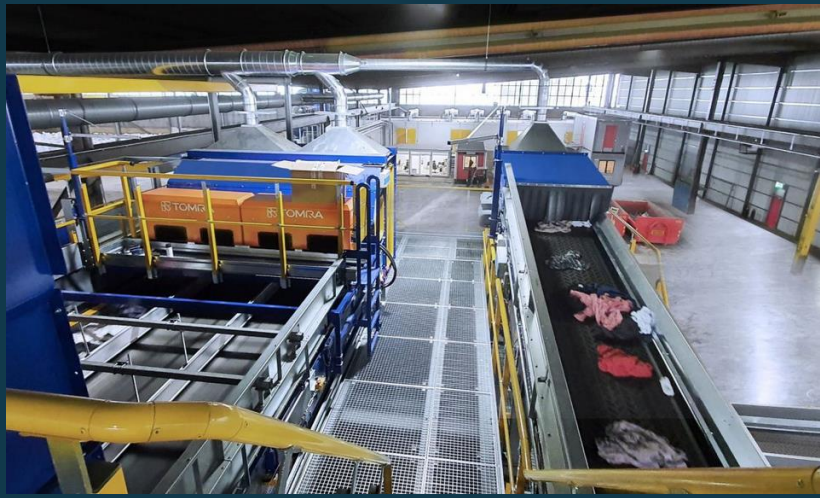
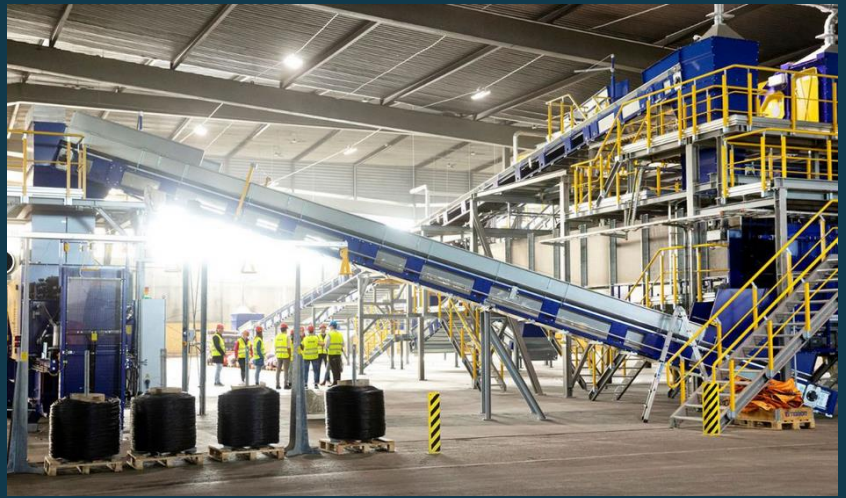
“In order to be effective in sorting of pre- and post-consumer non-wearable textiles for recycling purposes, automated sensor-based sorting is the key. In this project, our technology has proved efficient in separating different textile fractions by material type and color.” states László Székely, VP Head of Plastic Applications at TOMRA.

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

FIRST FULLY AUTOMATED TEXTILE SORTING PLANT IN MALMÖ/SWEDEN



*https://www.recovery-worldwide.com/en/artikel/first-fully-automated-textile-sorting-plant-in-malmoesweden_3646617.html

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

wear2wear™

“WORKING TOGETHER TO CLOSE THE TEXTILE LOOP”

Our vision is to manufacture high-quality textile products from 100 percent recycled textiles

wear2wear™ is an innovative partnership between companies that have committed to running their businesses in a sustainable and environmentally-friendly manner.

Behind wear2wear™ are renowned European companies that have taken on the task of manufacturing new textiles solely from recyclable and single-origin materials. Each company makes an individual contribution in a specific phase of the textile recycling process.



*<https://www.wear2wear.org/en/>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

RE:newcell

Renewcell’s business rests on a unique and patent-protected process technology developed by world-leading cellulose chemistry researchers.

The process

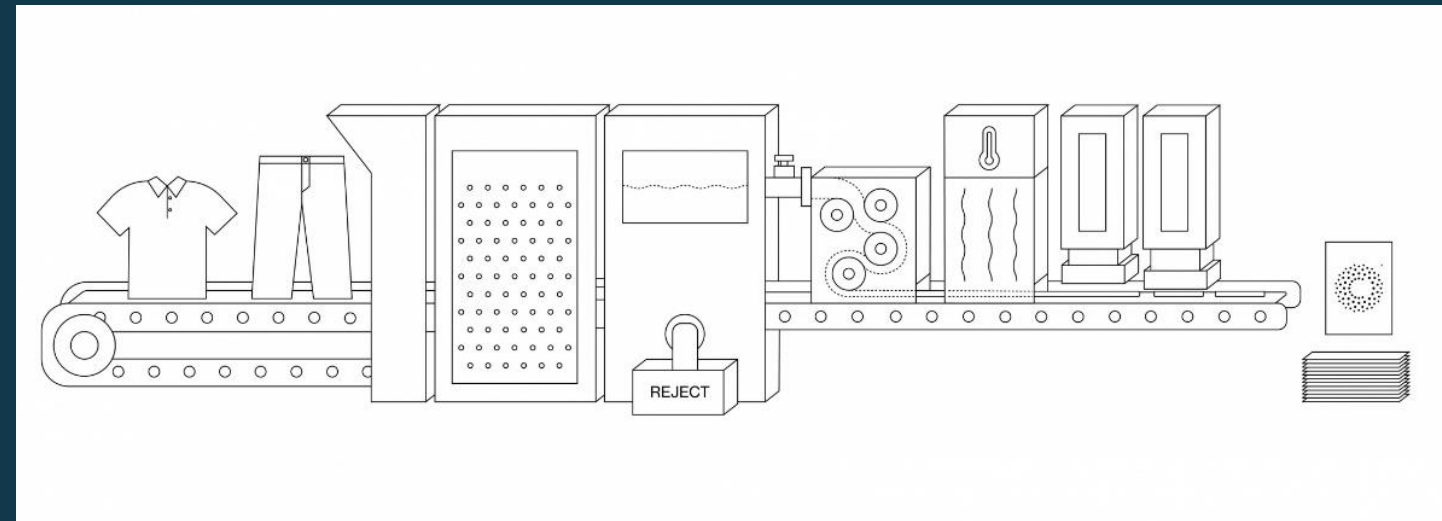
We receive used garments and textile production waste with high cellulosic content, like cotton or viscose.

The textiles are shredded, de-buttoned, de-zipped, de-colored and turned into a slurry.

Contaminants and other non-cellulosic content are separated from the slurry.

The slurry is dried to produce a pure, natural Circulose® branded dissolving pulp made from 100% recycled textiles.

"Circular cellulose"



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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

RE:newcell

"Circular cellulose"

Circulose® is a branded dissolving pulp product that Renewcell makes from 100% textile waste, such as worn-out jeans and production scraps.

Dissolving pulp cellulose is what the textile industry uses to make viscose, lyocell, modal, acetate other types of regenerated fibers (also called 'man-made cellulosic fibers'). The only difference with Circulose® is that it's made from textile waste instead of wood. Cellulose is the most abundant organic polymer in the world. It's what makes up the cell walls of most plants and trees. The purest cellulose found in nature is cotton.

The sheets of Circulose® are finally packaged into bales and fed back into the textile production value chain as a replacement for virgin materials like cotton, oil and wood.

If one kilo of clothing is recycled instead of being produced from virgin cotton, oil or wood, it saves thousands of liters of water and decreases land use, waste, plastic pollution and emissions of both CO2 and chemicals. It helps brands deliver on their promises to reduce their negative impact.

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

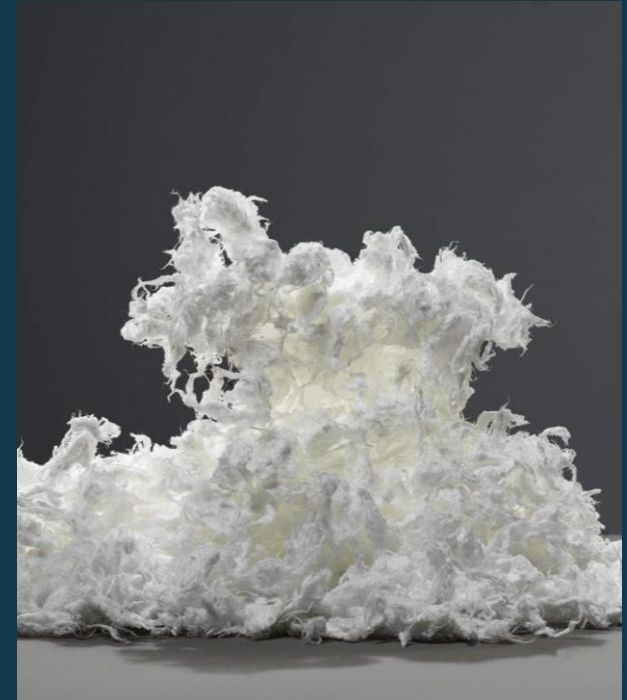
RE:newcell - Circulose®



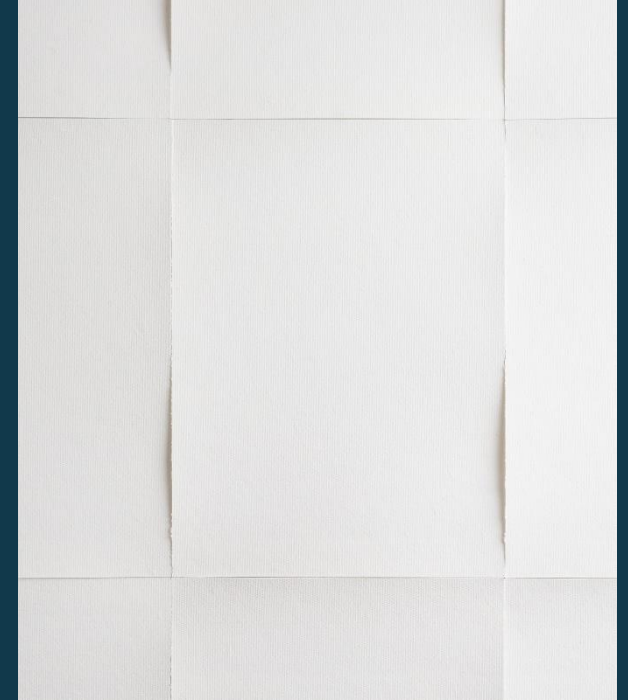
Shredded textile waste



Pulp in progress



Circulose® pulp



Sheets of Circulose®

* <https://www.renewcell.com/en/image-bank/>

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

RECOVER™

Recover™ transforms textile waste into high quality recycled fibers, closing to loop on fashion.



We use textile waste as a raw material resource, diverting it from landfill and incineration. We become less dependent on virgin materials, we don't use water or chemicals and we reduce our CO2 emissions and energy usage.

Recover™ Recycled Cotton Fiber is one of the most sustainable cotton solution available today according to the **Higg MSI Index**.

1 kg of Recover™ RCotton saves up to

Water	liters 14 927
Pollutants	kg 1.1
CO2 emissions	kg 23
Energy	kWh 56
Land use	m2 10.5

LCA study verified by AITEX, Universitat de València and UNESCO

Source: <https://www.recovertext.com/>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN

RECOVER™

A CIRCULAR SYSTEM

Recover™ allows for a closed-loop and truly sustainable fashion industry. Textiles made from Recover™ Fiber can flow through the recycling process for many life-cycles. Recover™ creates long-lasting, high-value products in each successive generation.



Source: <https://www.recovertext.com/>

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OPTIONAL SOLUTIONS ALONG THE SUPPLY CHAIN



RECOVER™

Recover™ offers two families of high-quality low-impact recycled fiber products, R-COTTON and R-COLORBLEND, for all types of fashion, accessories and home textiles.

A family of Recover™ fiber products made from unblended recycled cotton fiber, suitable for overdyeing.

A family of Recover™ fiber products that have undergone our proprietary ColorBlend Process to achieve the perfect combination of performance and color matching accuracy.



**LET ME NOW INTRODUCE YOU
TO THE MOST INTERESTING CONCEPTS
OF THE PERFORMANCE FORUM**

CIRCULAR POLYPROPYLENE

**CIRCULAR POLYPROPYLENE OUTERWEAR CONCEPT 2L AND 3L INCLUDING
MEMBRANE, FABRIC, TAPE AND ZIPS**

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

CIRCULAR POLYPROPYLENE



Trenchant Textiles has worked together with a global leader in polypropylene recycling to develop an end-of-life process flow for garments made with our PP³ collection of 100%-polypropylene zippers, seam tapes, and fabrics made with our PFC-free, solvent-free, nano-porous Intrepid PP membrane.

They have validated both mechanical and chemical recycling processes, with the latter processing the polypropylene into pyrolysis oil. TT's PP³ suite of fabrics and trims can help brands close the loop and achieve circularity by providing a fully-recyclable, mono-material solution for technical outerwear.

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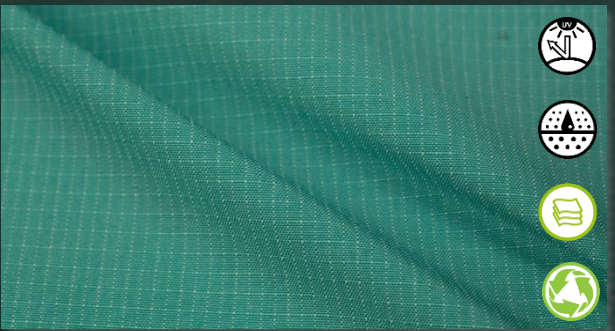
CIRCULAR POLYPROPYLENE



TRENCHANT TEXTILES
MONO-MATERIAL PP RECYCLING
PROCESS FLOW
 2.5 & 3Layer
 208 g/sm
 100% Polypropylene

100%-polypropylene qualities made with our PFC-free, solvent-free, nano-porous Intrepid PP membrane. Our durable PP³ fabrics leverage the natural hydrophobicity of PP to achieve water repellency without DWR, and can be repeatedly washed using normal laundry detergent without suffering a breakdown in performance.

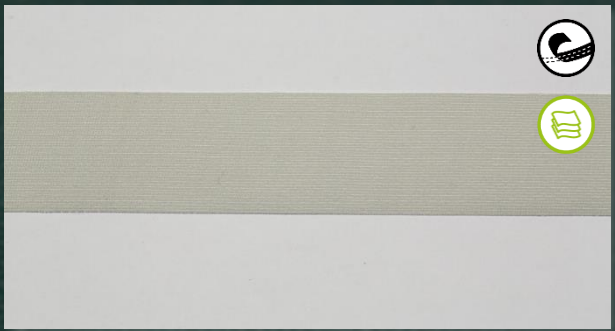
<https://www.performancedays.com/product-detail/22940.html>



TAIWAN AXROMA TECHNICAL TEXTILE
Outdoor Tech Ripstop
 Safety, Health & Durability
 180 g/sm
 100% Polypropylene

Outdoor Tech Ripstop. Patented Mackintosh Inside (TM) technology activates this timeless ripstop to resist shower from inside out. Crispy solids. Naturally fits in various outdoor conditions and applications. Easy to carry on. Mono component, longevity colorfastness and water resistance by purely woven in Olefin.

<https://www.performancedays.com/product-detail/23136.html>



TRENCHANT TEXTILES
POLYPROPYLENE SEAMTAPE
 Seamtape
 100% Polypropylene

Trenchant Textiles presents Polypropylene (PP) seamtape – Designed for our 3-layer.

<https://www.performancedays.com/product-detail/22943.html>



TRENCHANT TEXTILES
MONO-MATERIAL PP ZIPPERS
 Zipper
 100% Polypropylene

Trenchant Textiles presents Polypropylene (PP) zippers for use in conjunction with our 3-layer.

<https://www.performancedays.com/product-detail/22946.html>

CIRCULAR NYLON

CIRCULAR NYLON OUTERWEAR CONCEPT 2L AND 3L AS WELL AS MIDLAYER,
PUFFER, AND HYBRID INCLUDING FOR THE FIRST TIME NYLON 6
INSULATION AND OF CAUSE MEMBRANE, ZIPS AND SO ON

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

CIRCULAR NYLON



RECYCLED NYLON – no virgin nylon was present in the Digital Fair in May

RECYCLED NYLON can be made of:

- waste nylon yarn
- pre-consumer recycled yarns
- pre-consumer waste
- regenerated raw materials
- fishing nets
- fabric scraps
- carpet flooring
- industrial plastic
- old car tires

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

CIRCULAR NYLON



RECYCLED NYLON – some brands that offer RECYCLED NYLON are:

ECONYL® <https://www.econyl.com/>

REPREVE® Nylon 6 <https://unifi.com/products/repreve-nylon-6>

Q-NOVA® by FULGAR® <https://www.fulgar.com/eng/products/q-nova>

Meryl® by INVISTA™ <https://www.nylstar.com/2020/08/20/nylstar-introduces-yarn-made-from-Invista-recycled-nylon-6-6-polymer-with-global-recycled-standard-grs-certification/>

RENYCLE® - Trademark of the RADICI GROUP for recycled nylon 6 <https://www.radicigroup.com/en/products/fibres-and-nw/polyamide-pa6-renycle>

and many more

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



CIRCULAR NYLON



A PLUS CHAN CHIA
19125248

Baselayer
120 g/sm
100% recycl. Polyamide

Recycled Nylon is made as soft as conventional nylon. The special structure gives the fabric stretch, without spandex. Fabric can be totally recycled after consumed.

<https://www.performancedays.com/product-detail/22045.html>



PONTETORTO
9155/BIO

Midlayer
108 g/sm
100% Polyamide

Pontetorto developed new biodegradable fleeces using Sensil BioCare echnology Sensil Biocare Nylon is specially engineered to create more sustainable fabrics with the highest quality, durability, and aesthetics.

<https://www.performancedays.com/product-detail/21760.html>



HO YU TEXTILE
40158+A001

Lightweight & Downproof
80 g/sm
100% ECONYL® Regenerated Nylon

ECONYL® Regenerated Nylon Fine woven made from 100% ECONYL® regenerated nylon, ECONYL® regenerated nylon is a product of Aquafil, which is made from waste such as fishing nets from the oceans and aquaculture, fabric scraps from mills, and carpets destined for landfill.

<https://www.performancedays.com/product-detail/22302.html>



LONG ADVANCE
LN66R-21001-44A

Lightweight & Downproof
51 g/sm
100% recycl. Polyamide

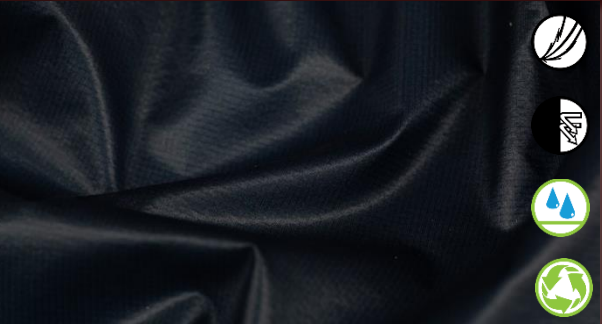
Use 100% recycled nylon 66 with the material of 20 denier which produce ultra light weight packable fabrics with excellent durability in fabric performance, light coating to achieve downproof and windproof, also dry touch handfeel. Crinkle effect add the nature look.

<https://www.performancedays.com/product-detail/22730.html>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



CIRCULAR NYLON



SILKYTEX BY KOREA SILKROAD
RTOG-10103

Lightweight & Downproof
21 g/sm
100% recycl. Polyamide (Nylon)

RTOG-10103 is a Recycled Nylon Ripstop and extreme light weight. This is a downproof fabric with High Tenacity finishing and soft handfeel that is workable for down jacket & packable windbreaker.

<https://www.performancedays.com/product-detail/22244.html>



FLYING TEXTILE
FY2016-5

2Layer
85 g/sm
100% recycl. Polyamide (Nylon)

100% recycle Nylon ripstop.

<https://www.performancedays.com/product-detail/22080.html>



GREEN THREADS
LPH1223NR10

2.5 & 3Layer
81 g/sm
100% recycl. Polyamide (Nylon)

100% GRS certified Recycled PA (Nylon) mechanical stretch waterproof breathable 3layer fabric. Face : 100% Recycled PA (Nylon) False twisted 20denier mechanical stretch ripstop Membrane.

<https://www.performancedays.com/product-detail/22026.html>



ECOSENSOR by AsahiKASEI
ESS1-0630-H2.5L

2.5 & 3Layer
97 g/sm
100% recycl. Polyamide

This fabric used with recycled nylon 66 has super stretch by textured yarn without spandex. This function makes you comfortable on extreme exertion. The yarn certified by GRS and finishing under OEKO-TEX standard 100. WP 20K and MVP 20K.

<https://www.performancedays.com/product-detail/23211.html>

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CIRCULAR NYLON



FREUDENBERG
COMFORTEMP® HO 806

Insulation
150 g/sm
100% Polyamide 6

Superior soft polyamide thermal insulation wadding with C2C gold level health certification. Ideal for many kind of sustainable sportswear and outdoor applications. Made of 100% Polyamide 6, infinitely recyclable for a continuous "circular economy".

<https://www.performancedays.com/product-detail/22725.html>



WASA SWEDEN AB
WASA RECYCLED NYLON SNAP

Snap Button

100% recycl. Polyamide (Nylon)

<https://www.performancedays.com/product-detail/22398.html>



SHIMADA SHOJI
P352SL-TN300

Cord Stopper

100% recycl. Polyamide (Nylon)

FRS recycled nylon stopper.

<https://www.performancedays.com/product-detail/22024.html>



DURAFLEX HONG KONG
G.ECO SNAP 13MM

Snap Button
1.06 g/sm

100% recycl. Polyamide (Nylon)

<https://www.performancedays.com/product-detail/21968.html>

CIRCULAR POLYESTER

CIRCULAR POLYESTER CONCEPTS FOR ALL LAYERS

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

CIRCULAR POLYESTER



RECYCLED POLYESTER

RECYCLED POLYESTER can be made of:

- PET bottles
- plastic waste from seabeds
- plastic marine litter
- recycled oyster shell waste
- recycled coffee grounds
- recycled plastics from household or commercial
- scrapes of polyester fabric
- wastage yarn and cloth
- wasted and used fabric
- old textiles
- post-industrial waste from the textile chain

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CIRCULAR POLYESTER



RECYCLED POLYESTER – some brands that offer RECYCLED POLYESTER are:

SEAQUAL® <https://www.seaqual.org/>

YNVIRON™ https://antex.net/wp-content/uploads/2020/03/Antex_Ynviron_Brochure_Ed112019_Digital.pdf

REPREVE® Polyester <https://unifi.com/products/repreve>

RENU™ (by Itochu) https://renu-project.com/wp-content/uploads/2020/11/RENU_2006_v08_EN.pdf

Cyclepet – Trademark of HOYU for recycled PET bottles <http://www2.hoyu.com.tw:8088/en-global/Product/product/SubList/59/44/1>

Parley Ocean Plastic™ <https://www.parley.tv/#fortheoceans>

and many more

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



CIRCULAR POLYESTER



EVERTEX FABRIONOLOGY
Bulky Stretch™ – KN7051S

Baselayer
95 g/sm
100% recycl. Polyester

Inspired by hot and humid climates we have come up with a fabric that is not only superlight weight but protects the wearer from mosquitoes and UV light. By using a unique knit construction, we have made this fabric mechanical-mosquito repellent not by using any chemical finish. The mono-material makes it 100% recyclable and can be put in a closed-loop recycling thus striking a balance between functionality and sustainability.

<https://www.performancedays.com/product-detail/21880.html>



ANTEX
P-1646

Midlayer
292 g/sm
100% recycl. Polyester

Large amounts of plastic waste are removed from the seabed and processed into a new, environmentally friendly polyester fibre. Seaqual® is a 100% recycled polyester yarn. The highlight of the process: A bicoloured fabric.

<https://www.performancedays.com/product-detail/16077.html>



EVEREST TEXTILE
LFS12472APNFLFB988

Softshell & Outer Midlayer
255 g/sm
100% recycl. Polyester

The fabrics used environmentally-friendly recycled PET bottles combined with biodegradable materials to develop an innovative product.

<https://www.performancedays.com/product-detail/22400.html>



ALIGN TEXTILE
ACTF17016

Pants Fabric
141 g/sm
100% recycl. Polyester

Mechanical Stretch made by 100% Recycle Polyester and it is GRS certified.

<https://www.performancedays.com/product-detail/22165.html>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



CIRCULAR POLYESTER



J&B INT'L HI-TECH TEXTILE & GARMENT SUPPLY CO
KOTP4031
2.5 & 3Layer
175 g/sm
100% recycl. Polyester

VENT-LITE is a membrane made of E-spinning without any PFCs. The fine fibers of the membrane are placed closely on top of each other which provides high waterproofness (15000mm), excellent moisture vapour breathability (20000 g/m²/24h) and maximum comfortness.

<https://www.performancedays.com/product-detail/21979.html>



SYMPATEX TECHNOLOGIES
L1617 STX Rome C0
2Layer
85 g/sm
100% recycl. Polyester, 25% biobased

The Sympatex Rome C0 is a 2-ply laminate made of 100% recycled PES. The special features of this laminate are the lightweight fabric combined with a satisfying functionality. Thanks to the fine yarns, the fabric has a smooth surface and a naturally soft handfeel, making it a perfect laminate for Fashion and Streetwear.

<https://www.performancedays.com/product-detail/22256.html>



HO YU TEXTILE CO., LTD.
30141-1+A001
Lightweight & Downproof
50 g/sm
100% recycl. Polyester

Ultra light weight woven fabric, soft hand feel, C0 water repellent make surface protection. This fabric's material comes from post-consumer PET container flakes, HOYU's trademark CYCPLEPET.

<https://www.performancedays.com/product-detail/22295.html>



THERMORE (FAR EAST)
ECODOWN FIBERS LOFT
Insulation
100% recycl. Polyester

Light, soft, puffy, warm: Ecodown Fibers are setting a new standard in their category of blown-in products and are designed to provide superior loft, warmth and recovery. Ecodown Fibers are animal free, featuring 100% recycled fibers and also protect the environment by means of avoiding the use of microfibers.

<https://www.performancedays.com/product-detail/23168.html>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



CIRCULAR POLYESTER



MAX ZIPPER CO., LTD.
SUSTAINABLE ZIPPER

Zipper

100% recycl. Polyester

This zipper tape is made of recycled PET yarn, teeth is made of recycled PET thread, stoppers is made of recycled PET injection and slider is made of recycled PET material. The whole zipper is made of one material and can be recycled completely.

<https://www.performancedays.com/product-detail/22408.html>



SHIMADA SHOJI
H20-6829R

Trims

100% recycl. Polyester

GRS recycled polyester Spliced cord puller with reflective dipping tip.

<https://www.performancedays.com/product-detail/22023.html>



RUDHOLM & HAAK AB
ISPO2111A-02-AS

Tapes

100% recycl. Polyester

Elastic Tape made from recycled polyester incl OEKOTEX100

<https://www.performancedays.com/product-detail/22422.html>



RUDHOLM & HAAK AB
ISPO2111-12-AS

Transfers

100% biobased Polyester

Bio Degradable Heat Transfer with OEKOTEX 100

<https://www.performancedays.com/product-detail/22420.html>

**“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS
IN CIRCULARITY”**



CIRCULAR NATURAL PERFORMANCE BLENDS

NATURALLY BIODEGRADABLE

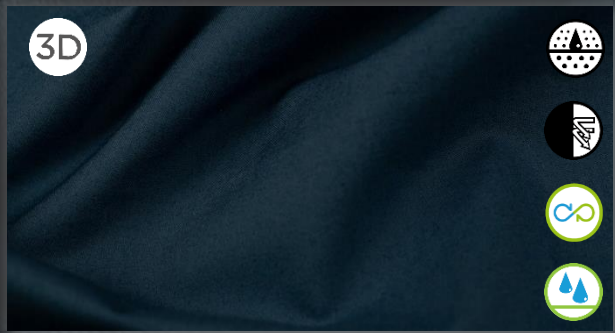
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CIRCULAR NATURAL PERFORMANCE BLENDS

ORGANIC COTTON

Cotton has a high moisture absorbent effect, which generates a cooling effect. But can also cause a chilling effect, because of low drying times. Organic cotton is hypoallergenic, which is ideal for sensitive skin.



STOTZ & CO AG VENTILE DRY 110 ORG

Highdensity Woven
110 g/sm
100% organic Cotton

- densely woven construction
- the fabric is windproof and offers good breathability
- It can also withstand a rain shower, because it is equipped with a PFC-free DWR

<https://www.performancedays.com/product-detail/22073.html>

HEMP

Hemp is inherently antimicrobial, in blends with cotton, it fully inhibits further bacteria growth.

Therefore hemp has many great properties: thermo-conductive, very light, strong, provides UV protection, partially hydrophobic fiber, naturally repels water, etc..

But Hemp also tends to wrinkles easily and can't carry the same color richness as it's organic alternatives.



UTENOS TRIKOTAZAS 2174R

Midlayer Fleece, brushed backside
310 g/sm
11% Hemp, 63% organic Cotton,
26% TENCEL™ Lyocell

Hemp has most exclusive eco properties such as requiring four times less water in the growing stage. In combination with an organic cotton (GOTS) and TENCEL™ this fabric ensures perfect thermal regulation.

<https://www.performancedays.com/product-detail/22299.html>

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CIRCULAR NATURAL PERFORMANCE BLENDS

KAPOK

Kapok is a natural, durable, strong and soft silky cellulosic fiber, with a significantly homogeneous hollow tube shape, offering great thermal insulation. It is naturally hypoallergenic, anti-microbial and dust mite-resistant.



LENZING AG

PYRATEx® tropic I

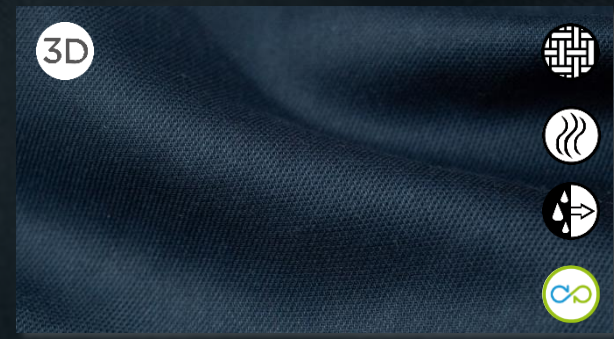
Double Knit Midlayer
170 g/sm
90% TENCEL™ Modal, 10% Kapok

PYRATEx® tropic I can be recycled into reusable wood pulp. Classified as a moisture management fabric, with the same values as conventional polyester/cellulosic blends.

<https://www.performancedays.com/product-detail/21691.html>

ABACA (MANILA HEMP/PAPER YARN)

Abaca is a leaf fiber belonging to the banana plant family. It is one of the strongest natural fibers. Therefore it is soft and very lightweight and has antibacterial, thermoregulation, moisture control and natural UVA and UVB protection properties.



SHINKONG TEXTILE

CX-P0011-1

Twill
120 g/sm
50% Cotton, 24% TENCEL™ Lyocell ,
26% Abacell®

- Paper-like feel and great tensile strength
- kind-to-skin benefits
- antimicrobial
- hypoallergenic
- odor-resistant

<https://www.performancedays.com/product-detail/21914.html>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



CIRCULAR NATURAL PERFORMANCE BLENDS

LINEN/FLAX

The main benefit of linen is the coolness it provides during hot weather. It can absorb 20% of its weight and yet still remain dry. The heat conductivity of linen is 5 times higher than wool and 18 times higher than silk. Linen has natural anti-odor, anti-allergenic and a natural resistance to fungi and bacteria properties.



OMNITEKSAS

Art. 3343 ENZ

Baselayer
195 g/sm
20% Hemp, 49% Linen, 3% organic Cotton,
28% long staple cotton

Unique composition of long staple cotton, organic cotton, hemp and linen ensures absolute natural material. Strength, soft hand feel and matt look makes this material innovative.

<https://www.performancedays.com/product-detail/23104.html>

MERINO WOOL

Wool is an excellent insulator and regulates the body's temperature, it is hygroscopic and hydrophobic at the same time. Merino wool offers superior stretch properties than coarser types of wool, creating an elasticity that always returns to its original natural shape. Merino wool naturally protects from UVA and UVB rays. It has natural anti-odor, self-cleaning and dirt neutralization properties. It retains its shape, is durable and wrinkle resistant.



OMNITEKSAS

Art. 5599S-1

Midlayer
230 g/sm
68% Wool Merino, 32% Eco Viscose

Wool fiber is constantly becoming more and more popular because of its superior performance of thermal regulation, non-allergenicity. While eco viscose is a sustainable alternative to cotton and polyester, but made using pulp from the renewable resource wood as raw material.

<https://www.performancedays.com/product-detail/23149.html>

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source: <https://www.performancedays.com/loop/focus-topic/2020-04-inspired-by-nature.html>

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CIRCULAR NATURAL PERFORMANCE BLENDS



IMBOTEX SRL
HEMP & NETTLE

Insulation
60 / 80 / 100 / 120 g/sm
40% Hemp, 40% Nettle,
20% Polyactide

Hemp provides all the warmth and softness of a natural textile, but with a superior durability compared to other materials. Nettle fiber is also a renewable resource, eco-friendly and sustainable. It is well known for properties such as fineness and very high breathability. This "active insulation" gives a high level of comfort and is cool in summer and warm in winter.

<https://www.performancedays.com/product-detail/22266.html>



BITZER + SINGLE GMBH
*BE NATURAL * WOOD FIBRE TAPE

Tapes2Layer
100% wood fibers

This trim is a biodegradable tape made of 100% wood fibers with water-based ink printing on one side. The ground material is available in more than 15 colors and 5 different widths between 6 and 25 mm.

<https://www.performancedays.com/product-detail/22230.html>



PROTECT ACCESSORY CO., LTD.
202103003

Trims
100% Straw Fiber + ABS

Nature material buckle: Straw Fiber+ABS
ABS: Acrylonitrile Butadiene Styrene,
this material is eco-friendly and
it's Bluesign approved

<https://www.performancedays.com/product-detail/22371.html>



WASA SWEDEN AB
WASA RECYCLED COTTON LABEL

Labels & Patches
100% Cotton

<https://www.performancedays.com/product-detail/22396.html>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



BIOBASED NYLONS AND POLYESTER

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIOBASED NYLONS & POLYESTER



WHAT ARE BIOSYNTHETICS?

A biosynthetic fiber consists of polymers made from renewable resources, either wholly or partly.

Biosynthetics are emerging as a potential alternative to conventional synthetic products. The main difference between biosynthetic fibers and conventional synthetic fibers lies in the raw materials used. Conventional synthetics, such as polyester, nylon and acrylic, use raw materials derived from fossil fuels - petroleum, natural gas and coal.

Biosynthetic fibers can be made from 100 percent biobased as well as partially biobased resources. Biosynthetic fibers that are commercially available today come from starches, sugars, and lipids derived from corn, sugar cane, sugar beets, and plant oils. These feedstocks are derived from crops and are sometimes called “1st generation”.

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIOBASED NYLONS & POLYESTER



WHAT ARE BIOSYNTHETICS?

Various technologies are under development to produce biosynthetic fibers from a broader range of raw materials including biomass and waste from agriculture, forestry, and even food waste.

There are also early examples of biosynthetics derived from biotechnology, sometimes referred to as novel feedstocks, such as algae, fungi, enzymes, and bacteria. While many of the alternative feedstocks have been piloted at concept level, they are not yet commercially available.

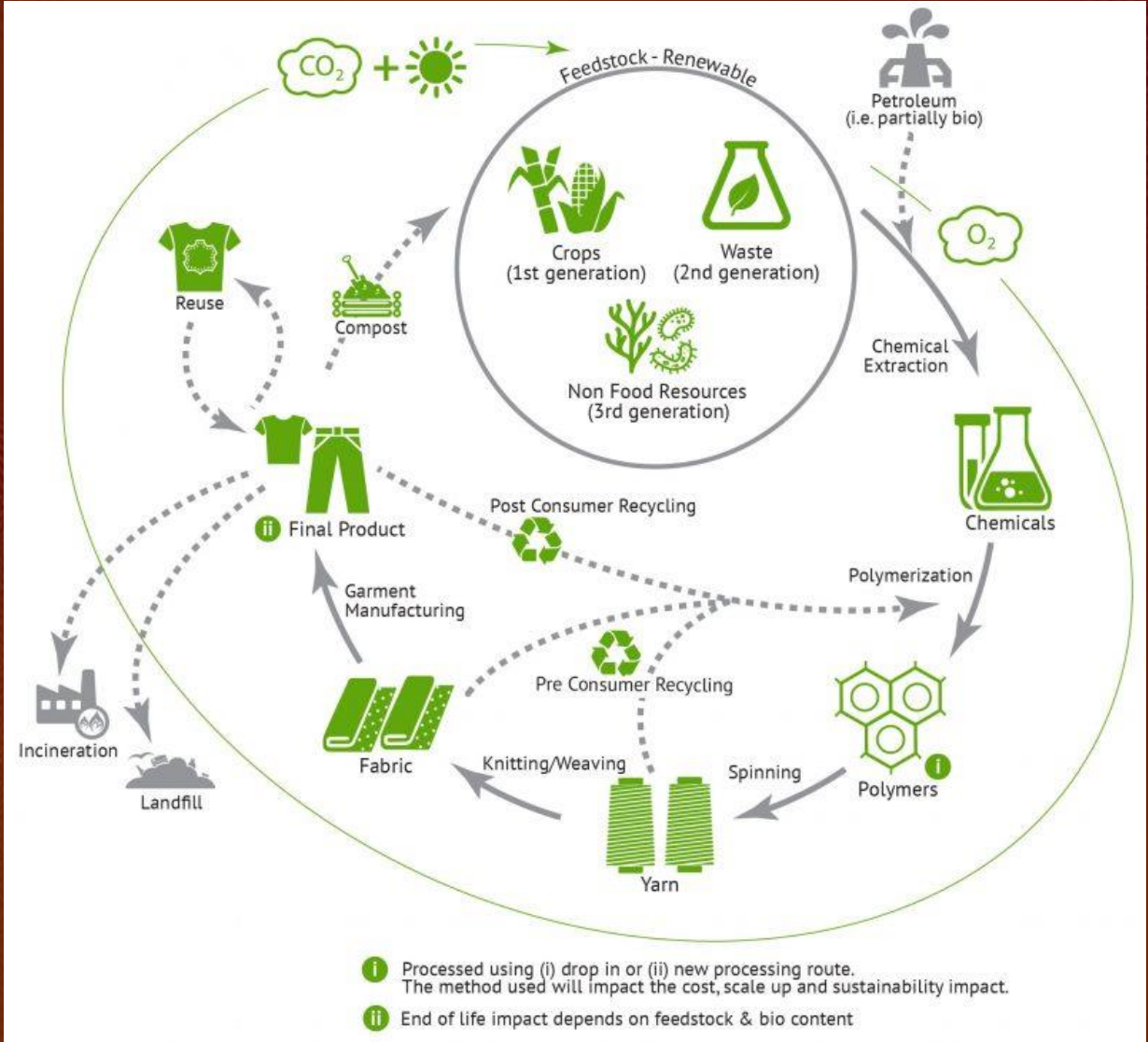
“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



BIOBASED NYLONS & POLYESTER

WHAT ARE BIOSYNTHETICS?

The benefits to industry and society of a shift to biobased materials could be significant. Biosynthetic fibers have the potential to produce fewer greenhouse gases over their lifecycle than products made from fossil fuels.



source: <https://aboutbiosynthetics.org/>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIOBASED NYLONS & POLYESTER



BIOBASED NYLON can be made of:

- castor bean oil (Ultramid and others)

some brands that offer BIOBASED NYLON are:

EVO® by Fulgar® <https://www.fulgar.com/eng/products/evo>

DuPont® Sorona® <https://sorona.com/>

and many more

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIOBASED NYLONS & POLYESTER



BIOBASED POLYESTER can be made of:

- crop-based (corn or sugar cane)
- foodwaste biomass
- biomass or waste based (from the food, forest and farming industries)
- biotech based (i.e. fungi, algae, bacteria)

some brands that offer BIOBASED POLYESTER are:

S.Cafe® <https://scafefabrics.com/index.php?/en-global/home/index>

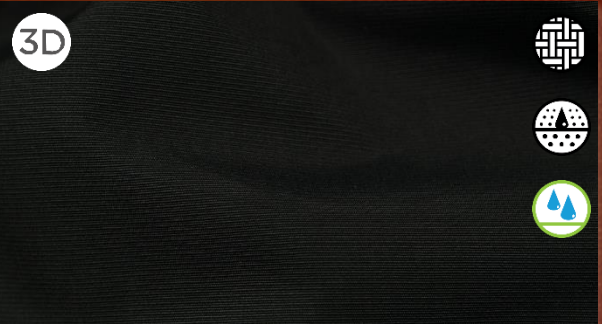
VIRENT® <https://www.virent.com/products/chemicals/textiles/>

and many more

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



BIOBASED NYLONS & POLYESTER



WIDEPLUS INTERNATIONAL
BWND0005-PR7F35

2Layer Woven
148 g/sm
100% bio-based Nylon

PFC-Free DWR alternative that is bio-based and hydrocarbon polymer-based chemistry.

<https://www.performancedays.com/product-detail/22147.html>

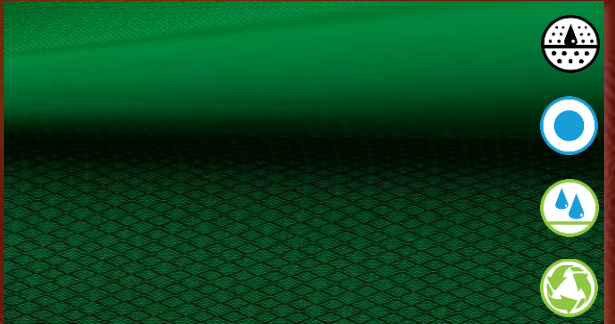


LONG ADVANCE
LNW-21001-10I

2Layer
88 g/sm
100% bio-based Nylon

Replacing fossil feedstock with renewable raw material while maintaining the same high-performance properties. The backing lamination with our latest developed membrane reach water column/breathability 30K/30K create a super fine fabric with light weight/soft hand feel.

<https://www.performancedays.com/product-detail/22731.html>



FLYING TEX
BP-RCPD0599AY08

2Layer
219 g/sm
60% biobased Polyester, 40% recycl. Polyester

The fabric is woven with 60% biomass derived PET and 40% recycled polyester to demonstrate a renewable and cost competitive PET fabric that is composed of bio plastics, recycled plastic bottles, and recycled polyester fabric waste.

<https://www.performancedays.com/product-detail/15509.html>



AESTHETICTEX INC.
LEK91212

Baselayer
g/sm
77% biobased Polyester, 23% Cotton

Eco double knit (CiCLO Bio-Degradable)

<https://www.performancedays.com/product-detail/24027.html>

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



BIODEGRADABLE NYLONS AND POLYESTER

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIODEGRADABLE NYLONS & POLYESTER



A product is **only biodegradable** when microorganisms can dissolve the material into its elementary components such as **carbon, oxygen, hydrogen and other minerals**. ... This means that, in principle, plastics made from fossil raw materials can also be **biodegradable**.

If organisms are not able to decompose the materials into their components, i.e. biodegrade them, the product disintegrates into ever smaller fragments.

This process is triggered by:

- Pressure
- UV Radiation
- salty water
- certain temperatures*

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIODEGRADABLE NYLONS & POLYESTER



BIODEGRADABLE NYLON – some brands that offer BIODEGRADABLE NYLON are:

SENSIL® BioCare <https://sensil.com/products/sensil-biocare/>

Amni® Soul Eco® <https://www.fulgar.com/eng/products/amni-soul-eco>

CiCLO® Additive Technology <https://www.ciclotextiles.com/ciclo-technology1>

and many more

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIODEGRADABLE NYLONS & POLYESTER



Example: AMNI® SOUL ECO® - NYLON

AMNI® SOUL ECO® IS ELIMINATED FROM THE PLANET IN ABOUT 5 YEARS

In anaerobic landfills, its unique composition allows bacteria to gain access to and digest the waste materials, thus accelerating the biodegradation process.

Amni Soul Eco® is eliminated from the planet in about 5 years, whilst other fibres take decades to decompose.

Like other biodegradable products, once it is in the landfill, Amni Soul Eco®, breaks down into organic matter (biomass) and biogas; both of these can then be exploited as new environmental resources as well as being used to cogenerate electricity.

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIODEGRADABLE NYLONS & POLYESTER



BIODEGRADABLE POLYESTER – some brands that offer BIODEGRADABLE POLYESTER are:

DuPont Apexa® <https://www.innovationintextiles.com/sustainable/new-biodegradable-polyester-fibre-for-apparel-solutions/>

Primaloft® BIO™ <https://www.primaloft.com/bio/>

CiCLO® Additive Technology <https://www.ciclotextiles.com/ciclo-technology1>

and many more

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

BIODEGRADABLE NYLONS & POLYESTER



Example: PrimaLoft® BIO™ - POLYESTER

PrimaLoft® Bio™ fibers break down at a highly-accelerated rate in landfills and oceans because we've optimized them to be more appetizing to the naturally-occurring microbes in the specific environments. These microbes allow synthetic insulation and fabric to return to natural elements: water, CO₂, methane, biomass and humus – a common, natural component of potting soil.

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



BIODEGRADABLE NYLONS & POLYESTER



TIARA TEXTILE
SP530

Woven with light crinkle
120 g/sm
100% biodegradable Nylon

SP530 can degrade in the environment by a combination of Oxidation and Biodegradation after land filled. Through catalyze breakdown to smaller micro piece under UV & O2 presence and then after digested by bacteria & fungi, returned to the environment finally. As demonstrated by laboratory biodegradation tests in accordance with ASTM D5338.

<https://www.performancedays.com/product-detail/22120.html>



WUJIANG FLYING TEXTILE CO.,LTD
FY20237-3

Lightweight & Downproof
41 g/sm
100% biodegradable Nylon

This is the biodegradable Nylon with downproof function.

<https://www.performancedays.com/product-detail/22081.html>

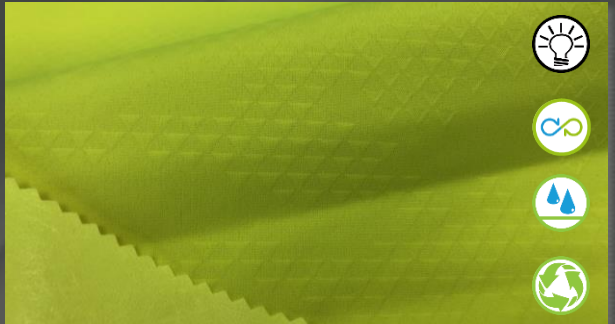


JIANGSU SUNFENG SPECIAL MATERIAL TECHNOLOGY LTD.

SUNFENG 990TM BIODEGRADABLE FABRIC
Highdensity Woven Fabric
78 g/sm
100% biodegradable Polyester

- 990TM contains organic additives
- integrated into polyester filaments to enhance the biodegradability
- lab test under ASTM D5511, 990TM polyester biodegradability is 40 times quicker than common polyester decomposition

<https://www.performancedays.com/product-detail/22216.html>



MERRYSON CORP.
T11381

2Layer
136 g/sm
100% recycl. biodegradable Polyester

- Bio Degradable Recycle PET(Sustainable material)
- 3D texture Jacquard
 - High Visual
- Bio Base membrane

• <https://www.performancedays.com/product-detail/16938.html>

“THE CURRENT APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”



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Closure:

I hope I could give you some useful information and inspiration for the journey of your company.

That's all the time we have for today.

Thank you very much for attending today's webinar:

“THE CURRENT TEXTILE APPROACHES AND GARMENT CONCEPT OPTIONS IN CIRCULARITY”

You should receive the recording of the webinar later on and if I did not get a chance to answer your questions, please don't hesitate to contact me via email at alexa.dehmel@active-sports-design.com or at www.active-sports-design.com.

If you wish to order some of the shown fabrics today, you can enter the article number in search and directly order the swatch at <https://www.performancedays.com/marketplace.html> after registering for free.

Thanks again and I look forward to connecting with you all again, very soon!