Introduction to more sustainable fibres: Recycled Polyester

The Sustainable Clothing Action Plan (SCAP) is a collaborative agreement to improve the environmental impact of clothing. See wrap.org.uk/scap2020

When looking at the environmental impact of clothing across its lifecycle, the fibres and materials used within the garment, account for a significant proportion of its overall impact.

Fibre selection is an area under a brand's control and therefore represents a key point in which it can shift to more sustainable alternatives.

The environmental issues related to conventional polyester

Polyester is a man-made fibre, produced from crude oil. Oil is a non-renewable resource and its use is associated with a range of environmental issues, such as the release of greenhouse gas emissions, which contribute to global issues such as climate change.

Polyester, like many other man-made fibres, is not biodegradable, however quite easily recyclable. For brands looking to shift to more sustainable forms of polyester, recycled polyester offers opportunities to reduce energy and waste impacts.

Recycled Polyester

What is it? Recycled polyester is commonly produced from plastic drinks bottles (PET bottles). These bottles are melted down and re-spun through a range of processes to create a new polyester material.

It is estimated that 19 PET bottles would be enough to produce fabric for one extra large t-shirt (NAPCOR), indicating the significant amounts of bottles that can be postponed from being sent to landfill or incineration.

Recycled polyester can be produced in two ways, either through mechanical or chemical recycling.

Mechanical recycling

The PET bottles are cleaned, cut and sorted by colour; they are then melted down and spun into yarn. Currently, mechanical recycling is the most common form of polyester recycling and can be readily sourced from countries such as China.

Mechanical recycling can produce shorter fibre lengths which can reduce its strength and therefore often needs to be blended with other fibres.

Chemical recycling

The PET bottles are cleaned and broken down by using a series of chemicals and then spun into a yarn. This process whilst more chemically and energy intensive compared to mechanical recycling, can create a polyester material that is reportedly of equal quality to conventional.

Whilst not widely available within the recycling market, there are a number of suppliers that can produce recycled polyester fabric through the chemical recycling process.

Chemical Closed Loop Recycling

Teijin Eco Circle™ recycled polyester is the world's first closed-loop recycling system that uses PET post-consumer garment in a closed loop (the use of waste consumer product as raw material for new product) chemical recycling process.

Claiming recycled polyester as a SCAP improvement option

It is possible for SCAP signatories to claim the usage of recycled polyester as an improvement option within the SCAP Footprint Calculator. To do this the brand would need to monitor and check the volumes of recycled polyester purchased.

What would I need to do?

For brands looking to source and communicate about their product's usage of recycled polyester, certification is a key consideration.

Once the polyester material has been broken down through either the mechanical or chemical recycling method, it is almost impossible to know the origin of these materials and whether they are from a recycled source. Sourcing recycled polyester in line with a certification scheme, provides further validation that the materials purchased are recycled.

There are a number of standards available in the market for brands to use; these include the Recycled Content Standard TE Recycled Claim Standard (RCS) and SCS Certified Recycled Content (SCS).

What are the environmental savings?

Using the SCAP Footprint Calculator, it is possible to calculate potential carbon, water and waste savings that could arise should a brand switch its conventional polyester usage to more sustainable alternative, recycled polyester.

	Carbon	Water
5% *	0.7%	0%
20%	3.1%	0%
50%	8.7%	0%
100%	20.7%	0%

* Percentage of recycled polyester integrated

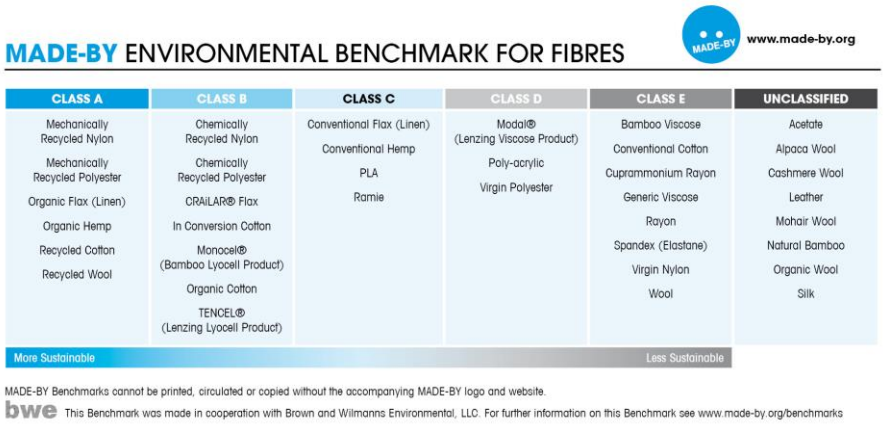
MADE-BY's Environmental Fibre Benchmark

According to MADE-BY's Fibre Benchmark mechanically recycled polyester is a Class A fibre. Chemically recycled polyester is Class B. The benchmark compares the environmental impact of the most commonly used fibres in the garment industry, supporting you to shift to more sustainable alternatives.

The benchmark ranks 28 fibres on six common parameters. The six parameters have been given different weights in terms of impact. Greenhouse gas emissions, human toxicity and eco-toxicity are weighted to 20% each, while energy, water and land use has been given a 13.33% weighting.

Based on these parameters, each fibre is scored and placed into one of five classifications: Class A (best) to Class E (less sustainable).

An additional category, 'Unclassified', is included. Fibres listed here are not (yet) part of the Benchmark due to a lack of available robust data.



View MADE-BY's publicly available Environmental Fibre Benchmark at made-by.org/benchmarks

WRAP's vision is a world where resources are used sustainably. It works in partnership with governments, businesses, trade bodies, local authorities, communities and individuals looking for practical advice to improve resource efficiency that delivers both economic and environmental benefits.

Our mission is to accelerate the move to a sustainable resource-efficient economy through:

- **re-inventing** how we design, produce and sell products;
- **re-thinking** how we use and consume products; and
- **re-defining** what is possible through recycling and re-use.