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International
Wool Textile
Organisation

Recycling & Wool

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Well-Suited for Recycling

As a natural fibre, wool offers many opportunities to keep a wool product in circulation for a relatively long period of time, thereby reducing the product's environmental footprint. Research by Textile Materials and Technology at Leeds University has shown that wool products have the potential for two or more uses or 'lives' and a total 'active life' of 20-30 years.^{1,2}

The same research shows that wool already is one of the most re-used of all fibres, accounting for up to 5% by weight of total clothing donated by consumers for recycling and re-use. This is substantially higher than wool's share of the virgin fibre supply, which is about 1.2%.^{1,2}

Wool is an excellent cradle to cradle material.

Wool in the Circular Economy

Wool, with a recycling history dating back over 200 years, fits well into the circular economy production model.

The circular economy aims at using resources for longer and encouraging consumers to think twice before throwing away their used clothing and instead giving it for reuse or recycling.

Discarded clothing is a growing problem. In the UK, a 2016 survey conducted by a supermarket chain revealed that 75% of consumers throw away used garments, instead of reselling or recycling them.³ The U.S. Environmental Protection Agency estimates that more than 16 million tons of used textile waste is generated each year in the United States, and the amount has tripled over the last 25 years.⁴

But wool can help. Wool is readily recyclable and has been recycled for centuries.

Commercial Options

There are three commercial areas of wool recycling:

1. Closed loop system. This is a mechanical process through which garments are 'pulled' back into raw fibre state and re-used as a raw material to make yarn again, producing garments with a very high economic value. Wool knitwear is particularly well suited for this process and can yield yarn with which a new garment with all the natural beauty and performance qualities of virgin wool can be created.
2. Open loop system. Here the wool product becomes the basis for industrial products such as insulation or mattress padding. These products can also have a very long life
3. Garment collection. In-store recycling initiatives can also give a second life to wool garments (e.g. M&S' Shwop scheme).^{1,2}



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Prato - A Hub for Recycling Wool

The province of Prato in the north of Italy has been creating new textiles from used ones for centuries. The recycled yarns are produced from carding noils (scraps) or through the re-use of fibres obtained from recycled pre- and post-consumer textiles, both woven and knitted.⁵

Prato's 'Cardato Recycled' trademark certification system guarantees that its fabrics and yarns

- are produced in the Prato district
- are made with at least 65% recycled material (clothing or scraps)
- have measured the environmental impact of its entire production cycle taking into account three aspects: water, energy and CO2 consumption levels⁶

About IWTO

With a world-wide membership encompassing the wool pipeline from sheep to shop, the International Wool Textile Organisation represents the interests of the global wool trade. By facilitating research and development and maintaining textile industry standards, IWTO ensures a sustainable future for wool. To learn more about IWTO and its activities, visit www.iwto.org.



¹How old wool garments make new ones better: Prof. Stephen Russell, Director of Nonwovens Innovation and Research, Leeds University, United Kingdom. Presented at IWTO Congress in Harrogate, 2017, and A Second Life for Wool Clothing: Prof. Stephen Russell, Director of Nonwovens Innovation and Research, Leeds University, United Kingdom. Presented at IWTO Congress in Cape Town, 2014.

²Russell S., Swan P., Trebowicz M., Ireland A. (2016) Review of Wool Recycling and Reuse. In: Fanguero R., Rana S. (eds) Natural Fibres: Advances in Science and Technology Towards Industrial Applications. RILEM Bookseries, vol 12. Springer, Dordrecht https://doi.org/10.1007/978-94-017-7515-1_33

³Seven of 19 discarded items of clothing will not be recycled – Sainsbury survey: Sunday Post, 06 April 2017. www.sundaypost.com/fp/seven-of-19-discarded-items-of-clothing-will-not-be-recycled-survey/ (retrieved 14/11/2017)

⁴United States Environmental Protection Agency: Facts and Figures about Materials Waste and Recycling. <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/textiles-material-specific-data>

⁵Evolution of the Prato Textile District: Unione Industriale Pratese Confindustria Prato www.ui.prato.it/unionedigitale/v2/english/presentazioneidistrettoinglese.pdf (accessed 26/11/2018)

⁶"Cardato Recycled" Brand. <http://www.cardato.it/en/brand-cardato-recycled/> (accessed 26/11/2018)