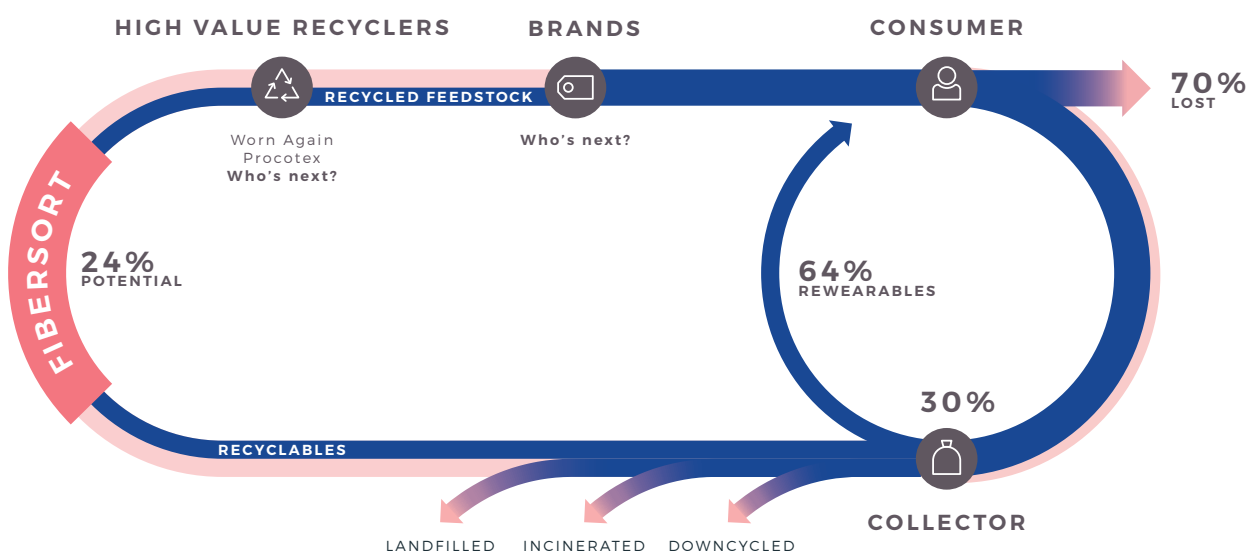


FIBERSORT FACT SHEET

The opportunity

A circular textile industry keeps textiles or fibres functioning at their highest potential so that they are not wasted, but re-entered into a system that creates value again and again.

The Fibersort is a key technology that enables textile resources to cycle repeatedly through the supply chain. It automatically sorts large volumes of mixed post-consumer textiles by fibre composition. Once sorted, these materials become reliable, consistent input for textile-to-textile recyclers.



For details on calculations: Interreg NWE, Fibersort, 2018. Industry Reference Sheet.
<https://www.circle-economy.com/fibersort-industry-reference-sheet>

Today, more than 70% of textiles are lost to landfill or incineration at their end-of-use. From the textiles which are currently collected, 24% already have the potential to be Fibersorted and re-enter the textile-to-textile recycling flow. These are currently also being downcycled, landfilled or incinerated.

The Technology

The Fibersort works on a near-infrared (NIR) scanner with algorithms developed by Valvan Baling Systems. These algorithms can predict the fibre concentration in each textile that is put on the scanner, including fibre blends. The technology can also sort based on the colour of textiles. The amount and type of sorting categories of the Fibersort can be customised when the machine is developed to fit to the end-market needs of a certain facility.

Capacity

Up to 1 piece per second. At 90% machine efficiency a throughput of 1080 kg/h can be obtained (3 garments in average per kg). An automated feed-in system is currently being developed to enable this capacity.

Sorting Accuracy

During March 2019, the Fibersort consortium of partners sent Centexbel samples from Fibersorted textiles, shredded, opened and colour sorted by Procotex, to assess the sorting accuracy according to the established fractions in the current setup of the machine.

Fraction (%)	Threshold (%)	Composition (%)
Cotton 100	>95	98.5
Cotton 65 ; Polyester 35	>55 ; >20	74 ; 26
Cotton 50 ; Polyester 50	>40 ; >40	54 ; 46
Cotton 35 ; Polyester 65	>20 ; >55	44 ; 56
Cotton 50 ; Acrylic 50	>40 ; >40	52 ; 48
Acrylic 100	>95	97
Wool 50 ; Acrylic 50	>40 ; >40	42 ; 58
Wool 30 ; Acrylic 70	>20 ; >60	27 ; 73
Wool 70 ; Polyamide 30	>70 ; >10	51 ; 49
Polyamide 100	>80	61
Viscose 80 ; Polyamide 20	>60 ; >10	72 ; 28
Viscose 100	>95	90
Polyester 100	>95	82

Overview of Fibersort sorting accuracy, according to the Centexbel material composition results, against the established thresholds for each fraction in the current Fibersort setup. These thresholds are the minimum required percentage of material to be present in the textile scanned.

The accuracy and capacity description in this fact sheet should be regarded as indicative, as it may differ based on specific cases.

The outcomes of the Centexbel study show the Fibersort is very reliable for most fractions, for both pure and blended mono-materials. Technology needs

further adjustment to increase reliability on polyamide and viscose. Further polyester testing has already been conducted and performance has been adjusted accordingly.

Want to join the Fibersort network?

Fibersort is an Interreg funded project based in NWE. The project is led by the social enterprise Circle Economy and the partners include Leger des Heils ReShare, Procotex Corporation S.A., Smart Fibersorting, Valvan Baling Systems, and Worn Again. Collectively, the team represents every step of the textile recycling chain.

Creating a circular textile industry is a massive undertaking, and our success depends on collaboration across multiple sectors. Stakeholders involved in the project are the first to access our research and updates. Your company insights and data can help develop future research. It's not too late to become a stakeholder. Want to help advance circular textiles by collaborating as a stakeholder?

[Sign up here](#) or contact us at natalia@circle-economy.com

www.nweurope.eu/fibersort

