



UNIVERSITY
OF BORÅS

The Swedish School of textiles

Nawar Kadi, Professor

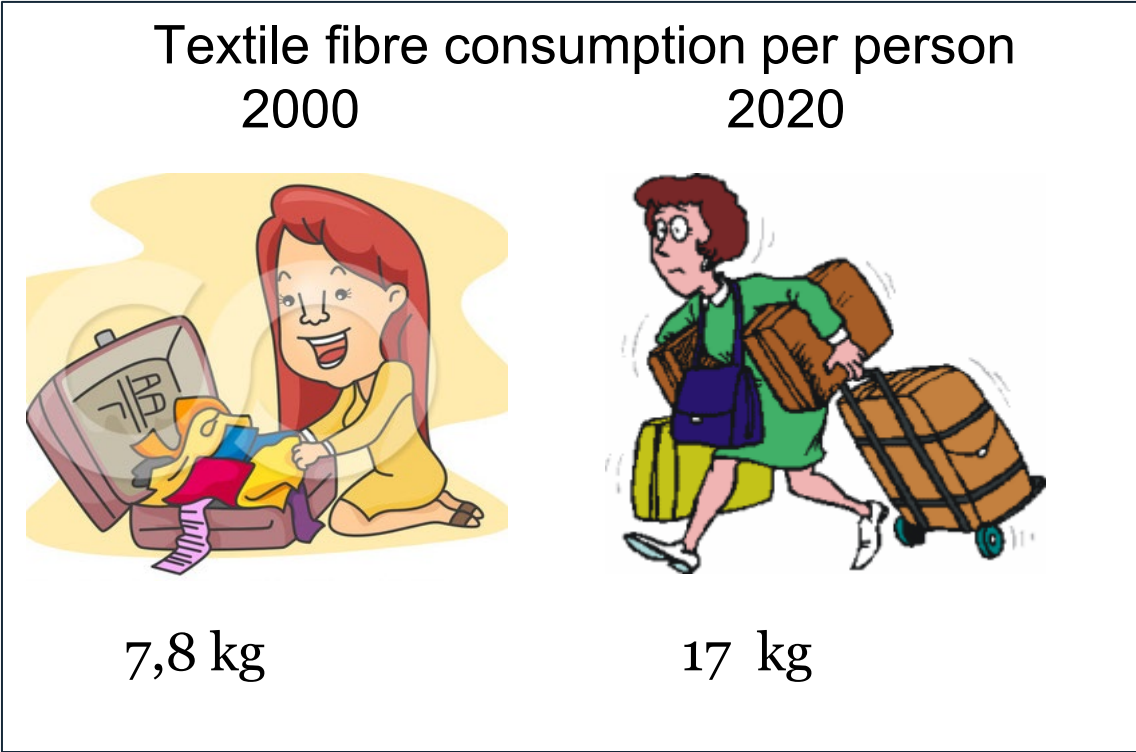
Director of Textile Lads,

Leader of Textile and Fashion Research Area.

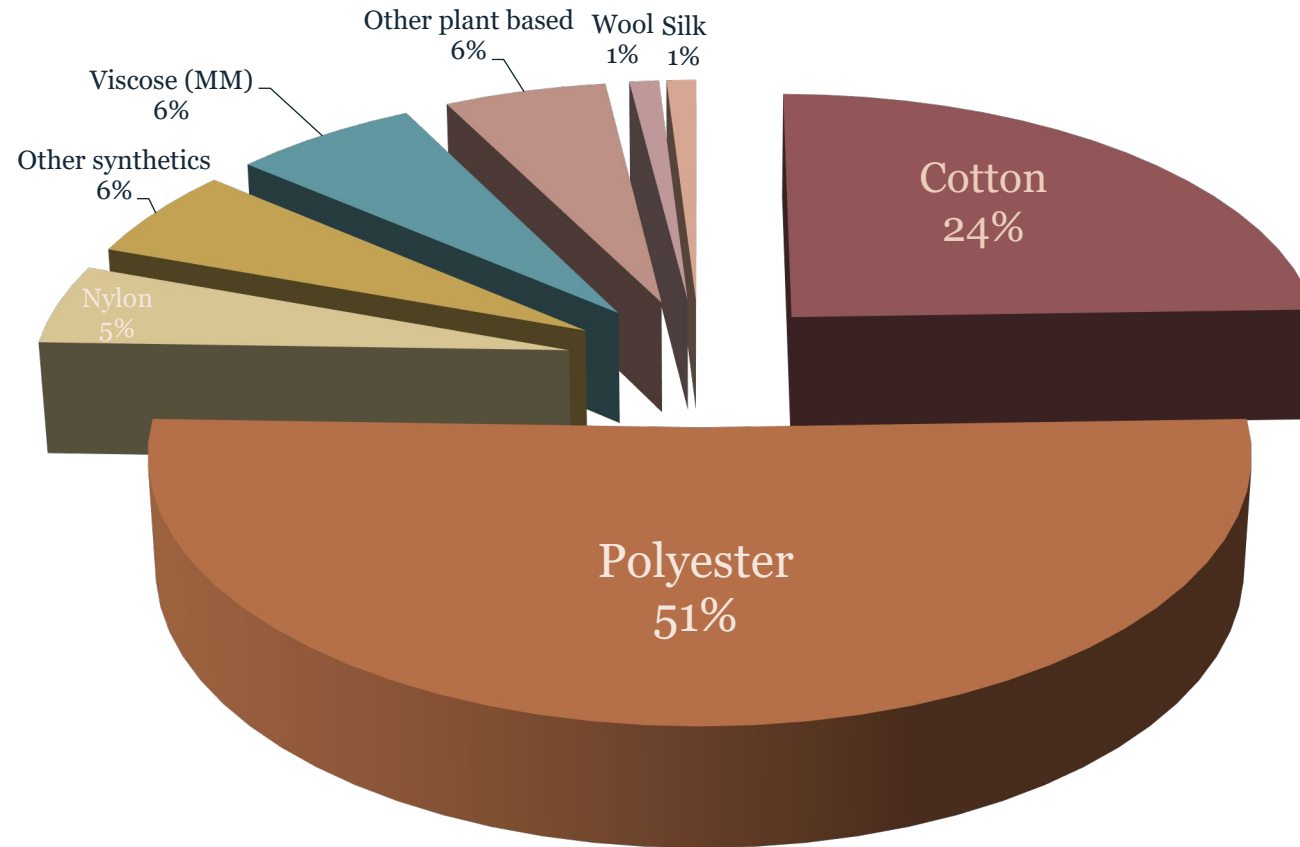
Leader of Advanced Textile Structures Research Group

The Swedish School of Textiles, University of Borås, Sweden

Over-consumption



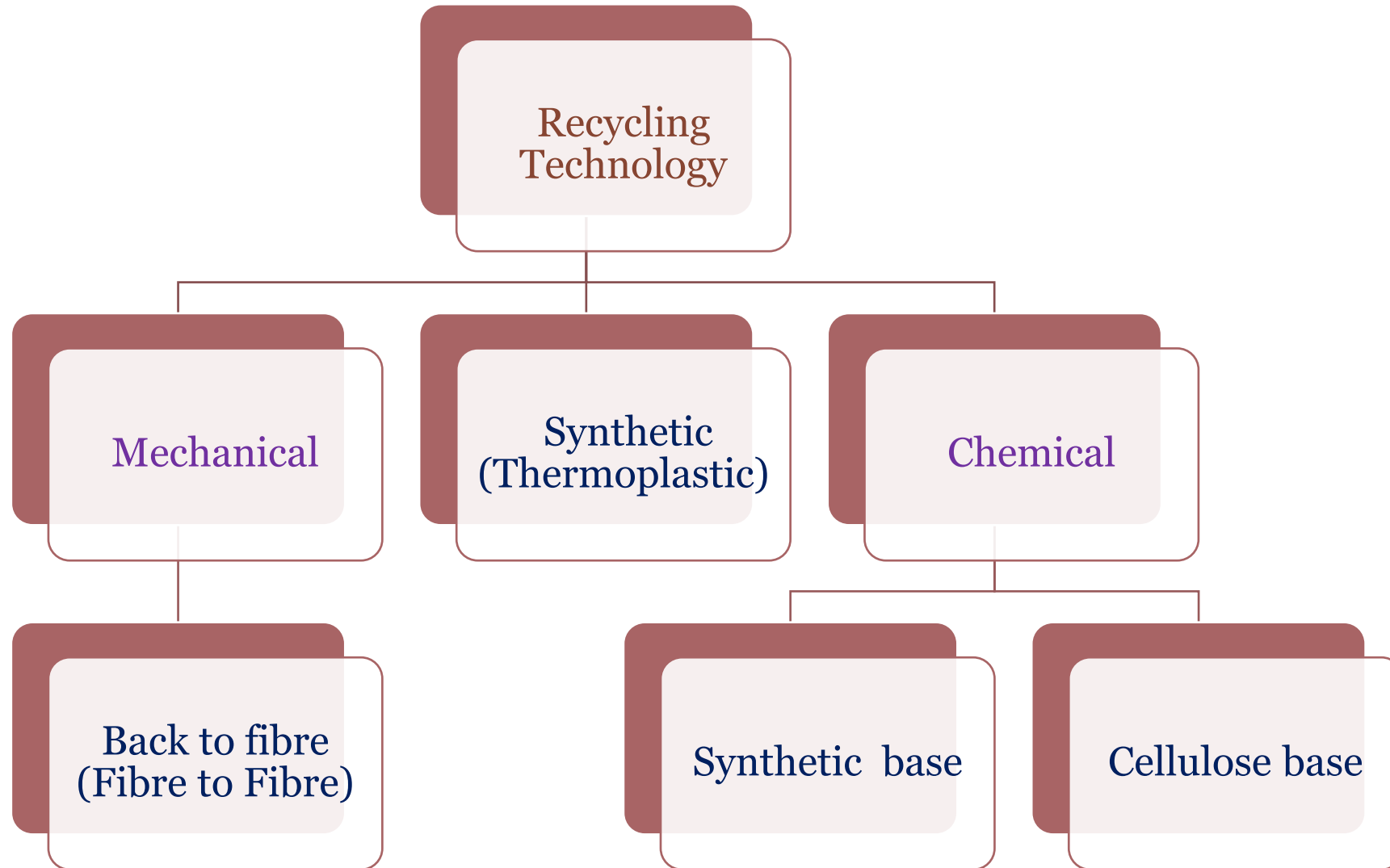
Global production of GLOBAL FIBER PRODUCTION IN 2017 textile fibres 2017.



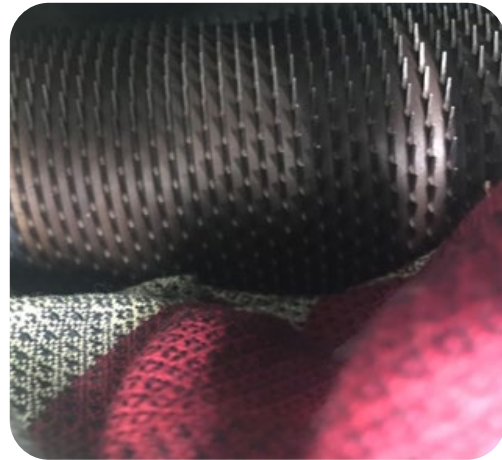
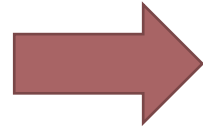
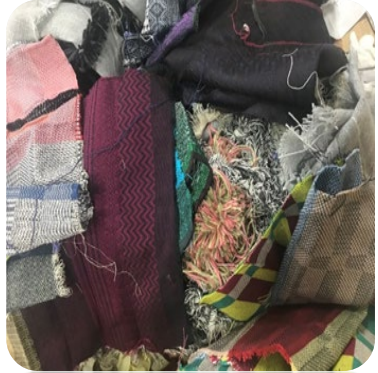
Source: Textile Exchange 2018



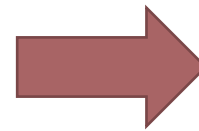
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Mechanical recycles Fibres properties



Tearing (shredding)



Recycled Fibre

**Post-consumer waste
textile fabric**

❑ **Fibre Length**

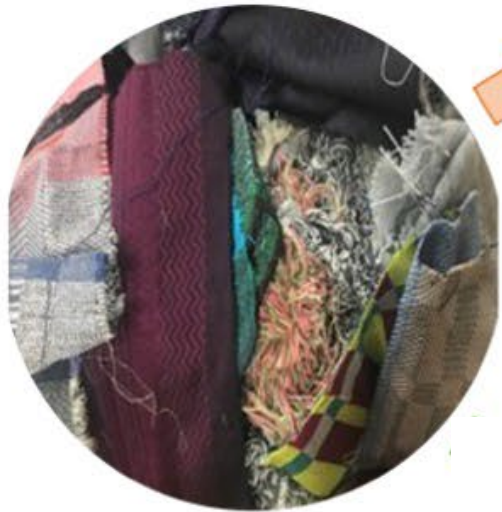
Short fibre

❑ **Fibre Mixing**

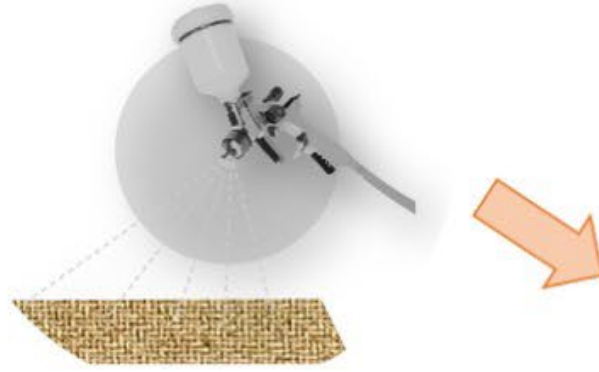
Different material



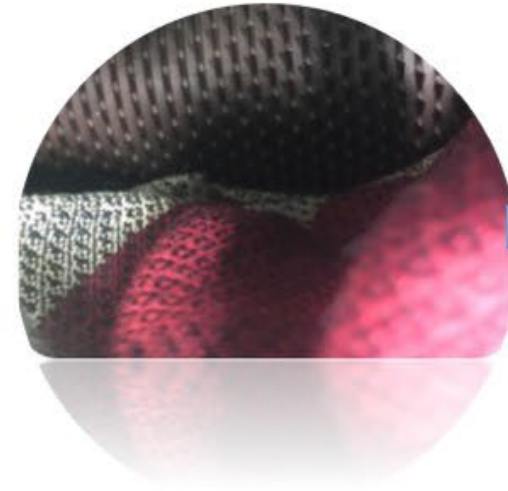
Pre-treatment



Post-consumer waste textile fabric



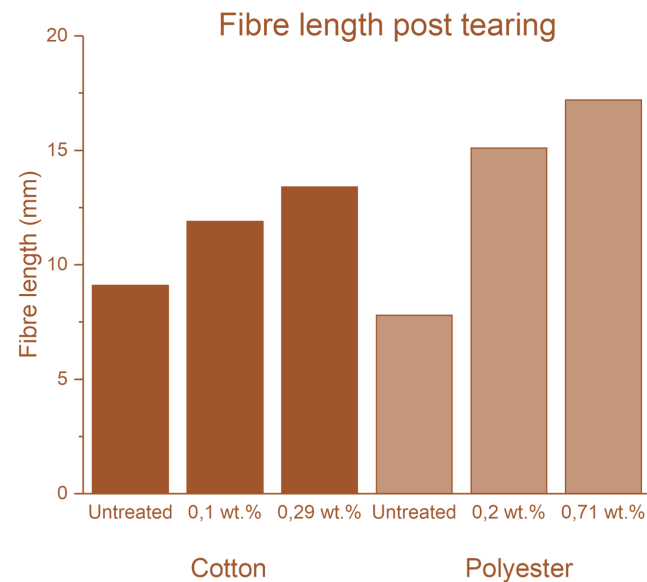
Lubricant pre-treatment



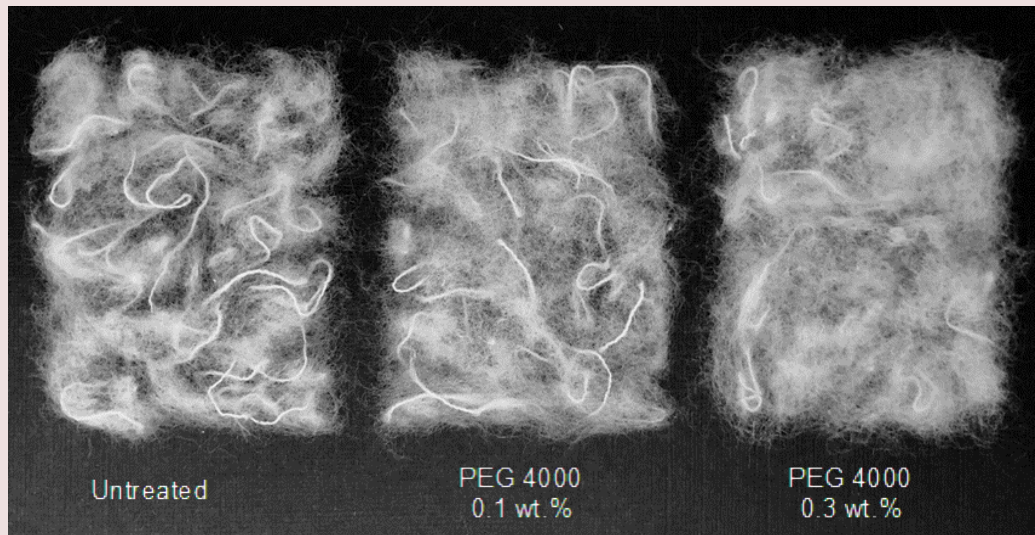
Tearing (shredding)



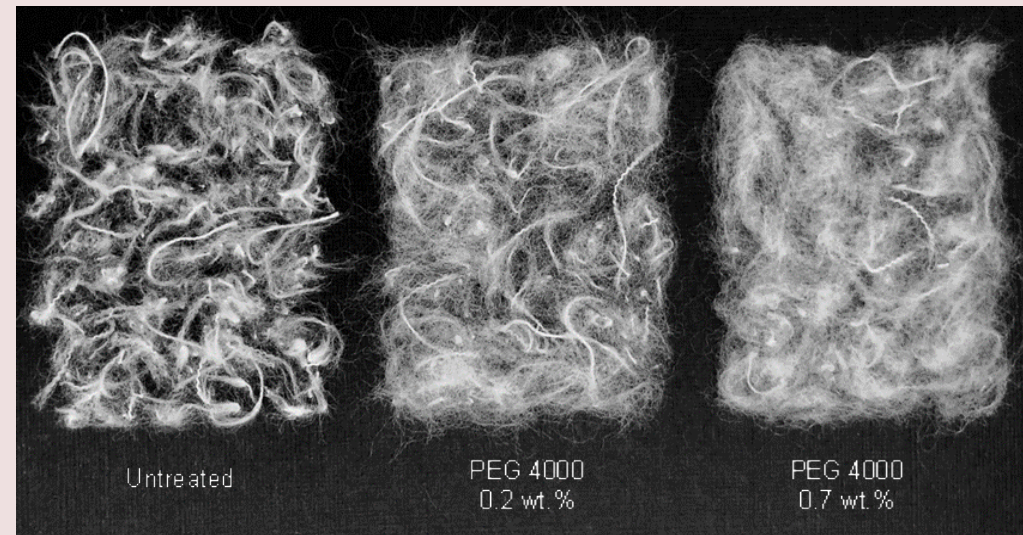
Recycled Fibre



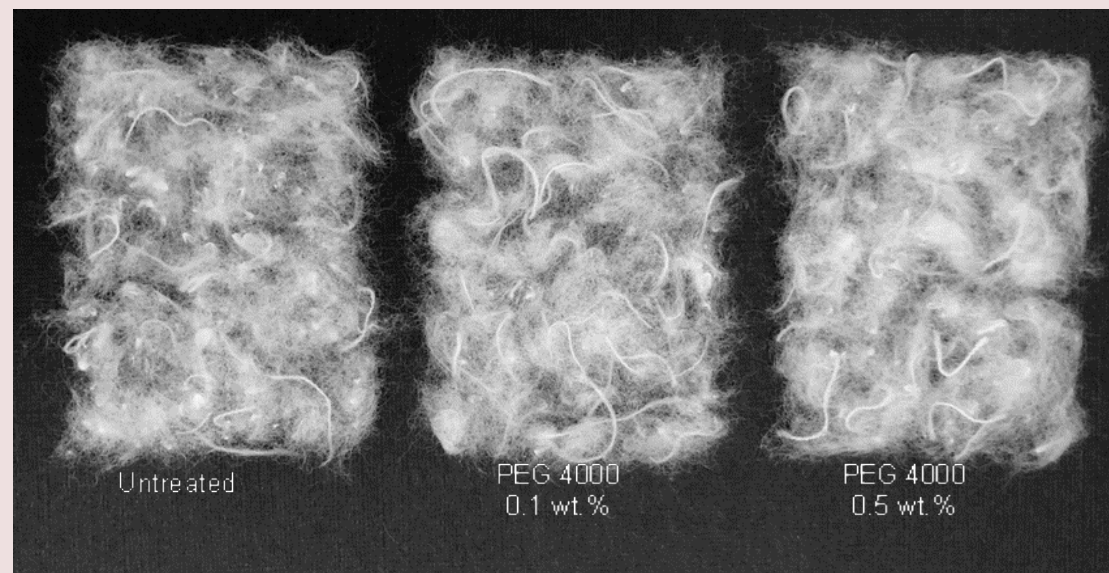
Cotton



Polyester



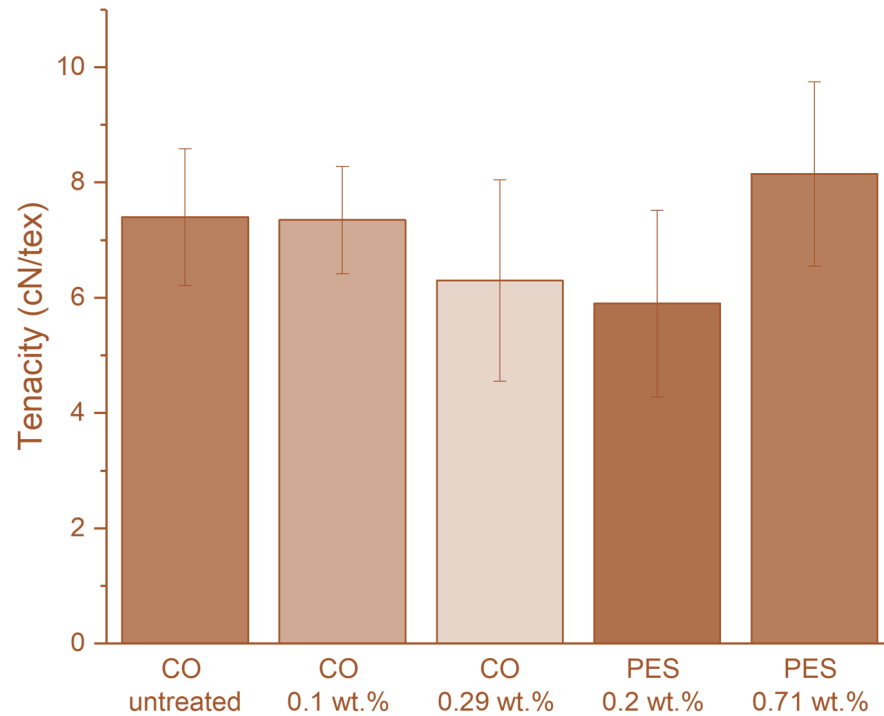
Polycotton



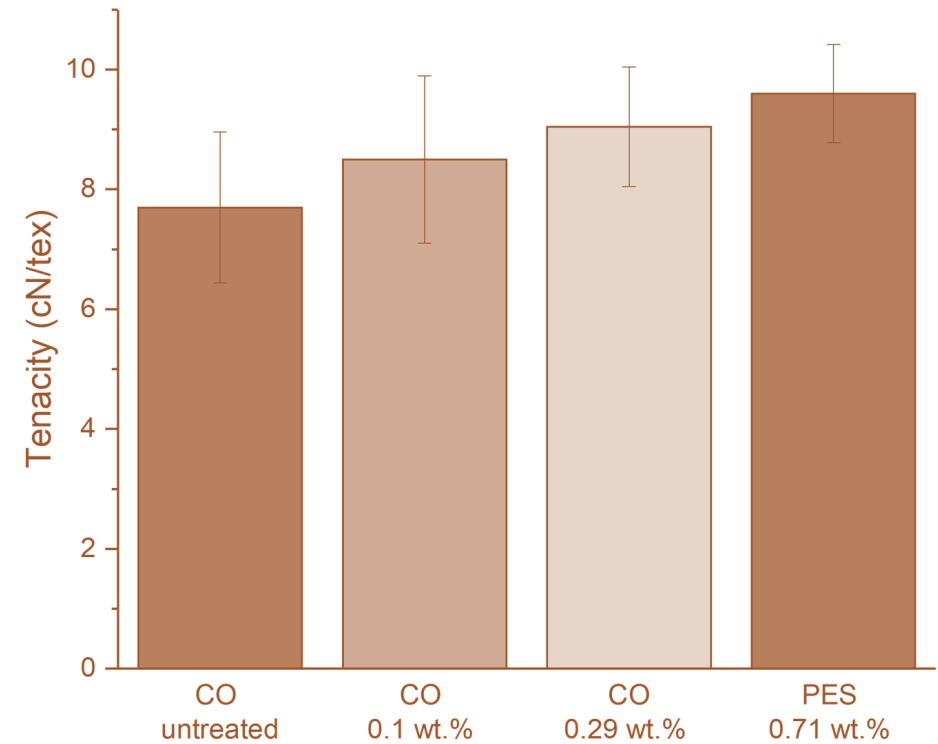
Result

Rotor spun yarn

Tenacity 100% Recycled Yarn



Tenacity 100% Recycled Washed Yarn



Fibers properties

☐ Fiber Length

☐ Flexibility

☐ Fiber Cohesion:

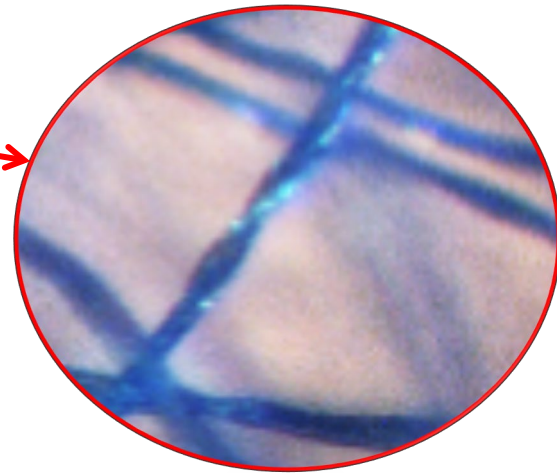
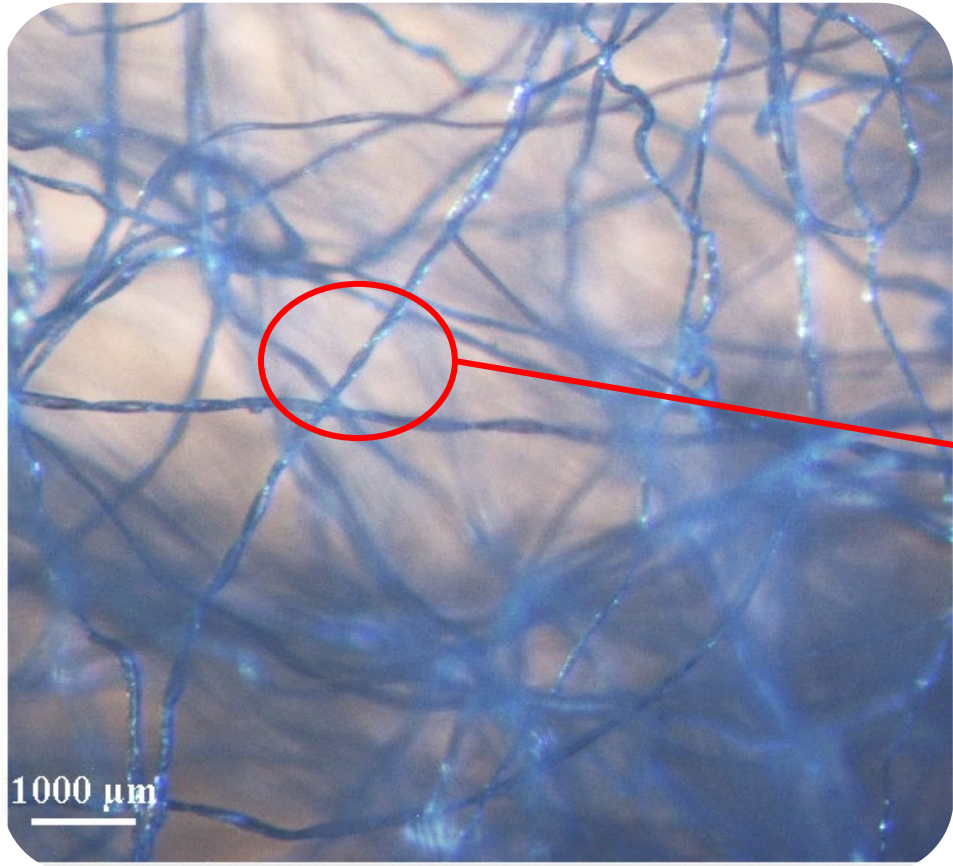
- ✓ Fiber shape (crimping)
- ✓ Fiber surface finishing



• Fiber Flexibility



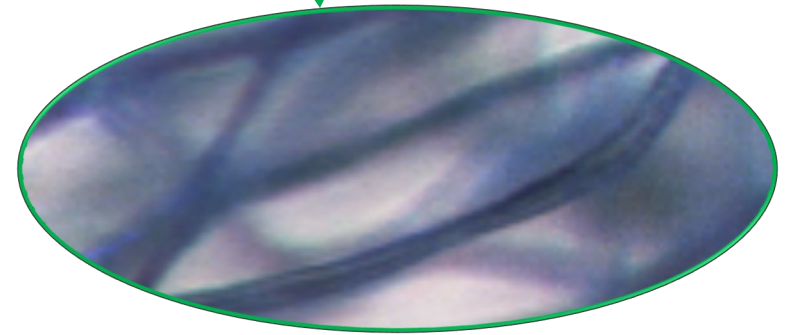
Fibre Cohesion and Flexibility



Virgin cotton fibre



Recycled cotton fibre





Innovative fiber blends and yarn spinning techniques (a part of CITEX)



HÖGSKOLAN
I BORÅS



TEXTILHÖGSKOLAN
HÖGSKOLAN I BORÅS



Med finansiering från:

VINNOVA



UNIVERSITY
OF BORÅS

Increase the
spinnability of
Mechanical
recycled fibre



finishing to the recycled fibre.



using other natural fibre
(hemp)

Fibers properties

- ❑ Fiber Length

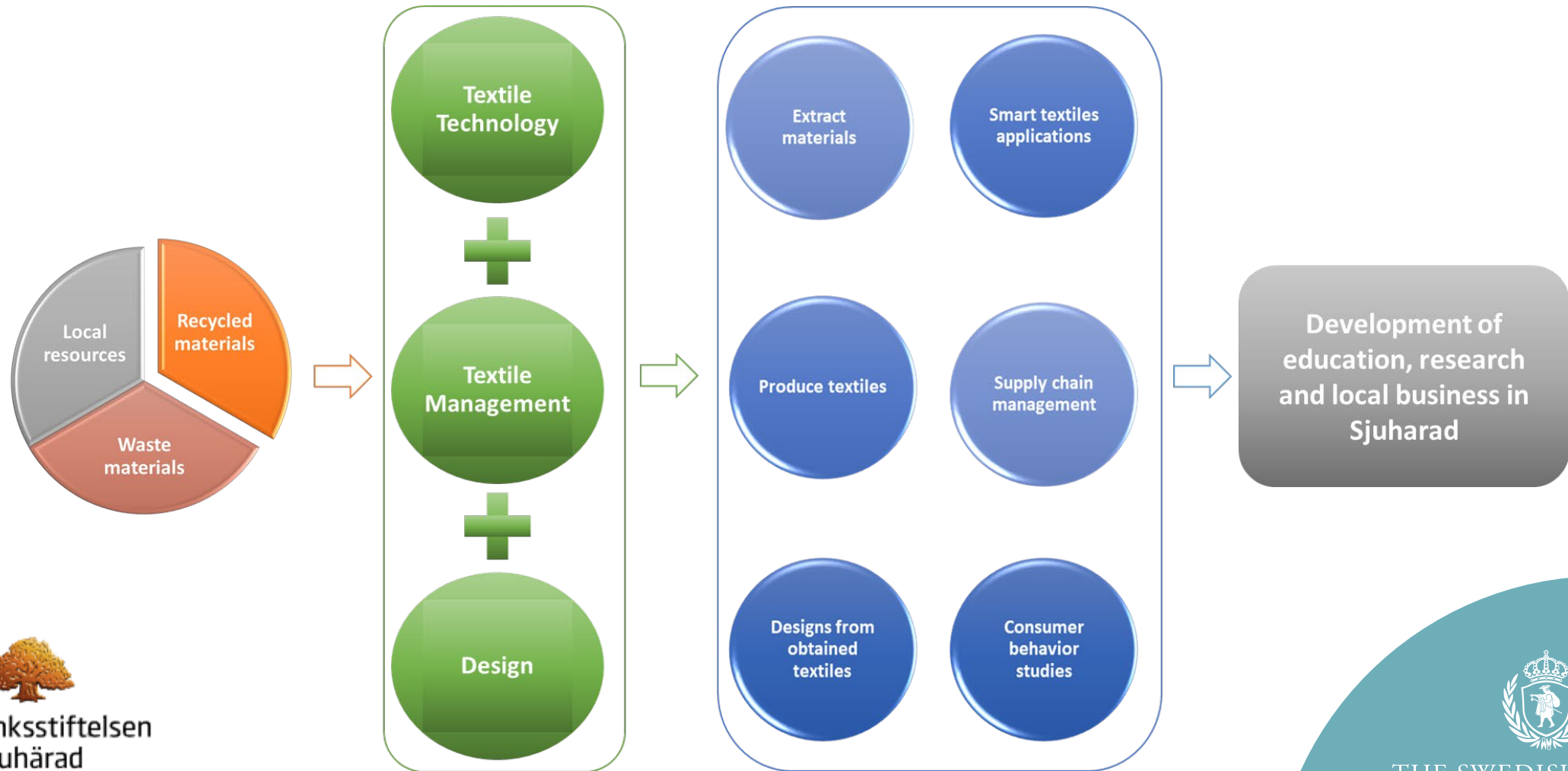
- ❑ Flexibility

- ❑ Fiber Cohesion:

- ✓ Fiber shape (crimping)
- ✓ Fiber surface finishing



Local Bio-Based Residual Streams with Potential Use in Textile and Fashion Industry (LBRSTex)



Spinnability Enhancement of Recycled Cotton for Energy Efficiency (SERcot)

- ✓ Fiber shape (crimping)
- ✓ Flexibility

Reiter funding



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Thanks