

# 1st Thematic Seminar

“Recycling in textile and waste disposal”

**Textile blankets made from plastic bottles wastes**  
**CITEVE - Maria José Carvalho**

**Alcoi, 20th Oct. 2016**  
@Ágora - Plaça Ramón i Cajal, 6

Event organised with the collaboration of



# Textile blankets made from plastic bottles wastes

CITEVE brief presentation



## CITEVE - textile technology campus



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## CITEVE – main areas of activity



- Laboratorial Testing



- Product & Process Certification



- Technology & Engineering



- Sustainable Production



- Design & Fashion Intelligence



- Training & Coaching



- R&D + Innovation
- Standardisation
- Clusterisation and intercluster cross-fertilisation
- Industry 4.0 & Shop of the Future
- International consultancy

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## CITEVE – some figures



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## CITEVE - Worldwide



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## CITEVE – Committed people



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# Textile blankets made from plastic bottles wastes

The stakeholder



## Têxteis Penedo, S.A. company

- Portuguese textile company, located in Guimarães (north of Portugal)
- Founded on 11 December 1975/ begun activity in January 1976
- Production of home and hotel textile products
- Quality management system (ISO 9001), certified since 2000
- Research, development and innovation management systems (NP 4457), certified since 2013
- In process of STeP by Oeko-Tex® (sustainable textile production) certification
- Website: <http://www.tpenedo.pt/en/home>

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# Textile blankets made from plastic bottles wastes

The idea



## Têxteis Penedo, S.A. idea

The idea was motivated by two key factors:

- the company interest in explore new and sustainable fibres and
- a client challenger to use recycled fibres



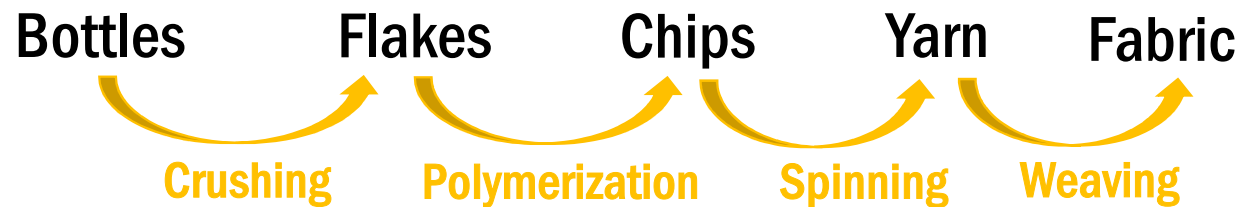
**textile blanket using polyester recycled from plastic bottles (PET), from the urban wastes circuit (post-consumer).**



# Textile blankets made from plastic bottles wastes

The process

## Recycled polyester from bottles

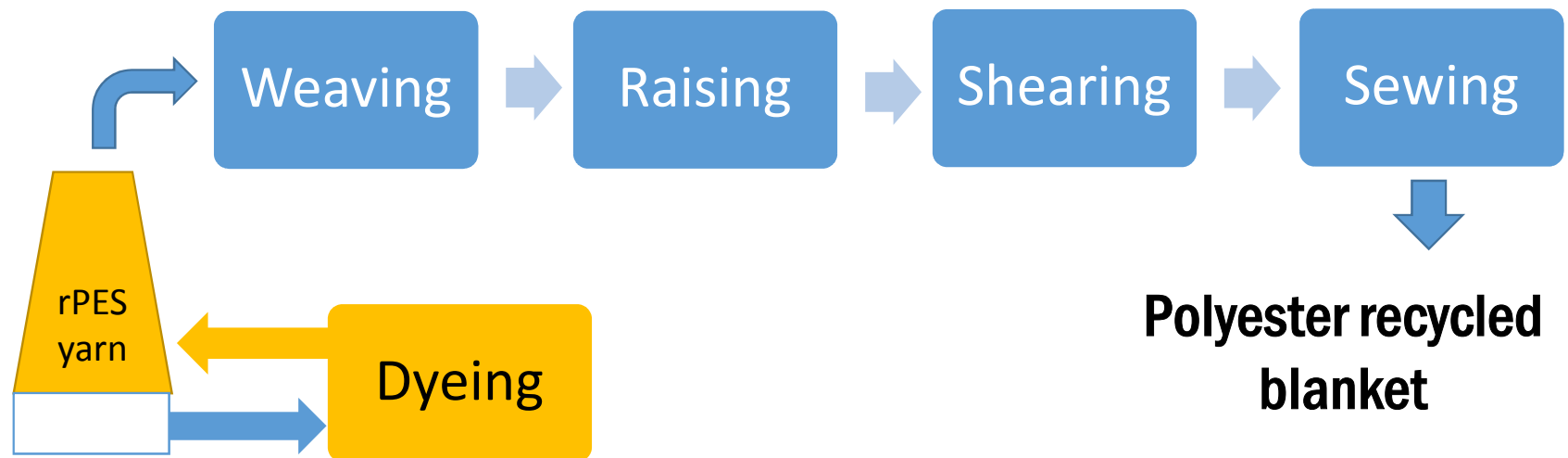


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The process



## Têxteis Penedo, S.A. process



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# Textile blankets made from plastic bottles wastes

The product

## Têxteis Penedo, S.A. product

Blanket made of recycled fibre (polyester)

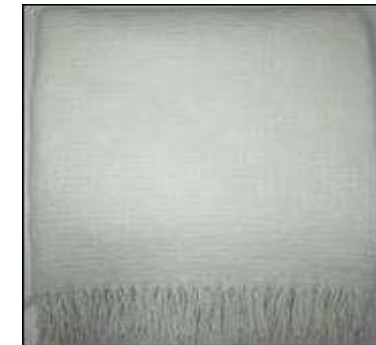
Improved since the initial development - process and products

Enlarged the variety of blankets produced

Very soft blanket, comfortable, with good washing and drying behaviours



Initial blanket



# Textile blankets made from plastic bottles wastes

The difficulties



## Têxteis Penedo, S.A. main difficulty

Finding the right textile process adjustments for work with the recycled polyester yarns, namely in the weaving and finishing processes, since the recycled fibres need more care, during production

Weaving

Raising

Shearing

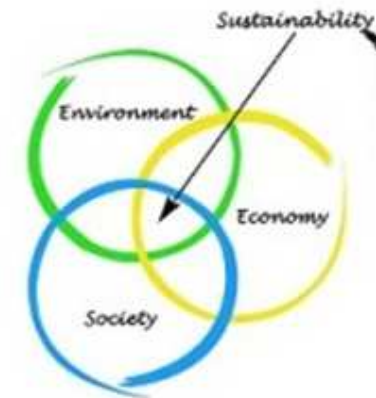
# Textile blankets made from plastic bottles wastes

The results



## Supply chain impact

The production of textile blankets made from plastic bottles wastes has an effective and direct added value, in economic, environment and social terms, for the company that developed the product and for the supply chain involved in all process, from the urban wastes bottles sorting, and collection to the client



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# Textile blankets made from plastic bottles wastes

The results



## Environmental impact

The use of recycled polyester, produced from PET post-consumer wastes, in comparison to virgin polyester has a positive environmental impact, because it means:

- Preservation of a non-renewable resources (petroleum)
- Less energy need to be produced: between 33% to 53% less energy
- Lower CO2 emissions during production : 54.6% fewer CO2 emissions

Source: <https://oecotextiles.wordpress.com/2009/07/14/why-is-recycled-polyester-considered-a-sustainable-textile/>

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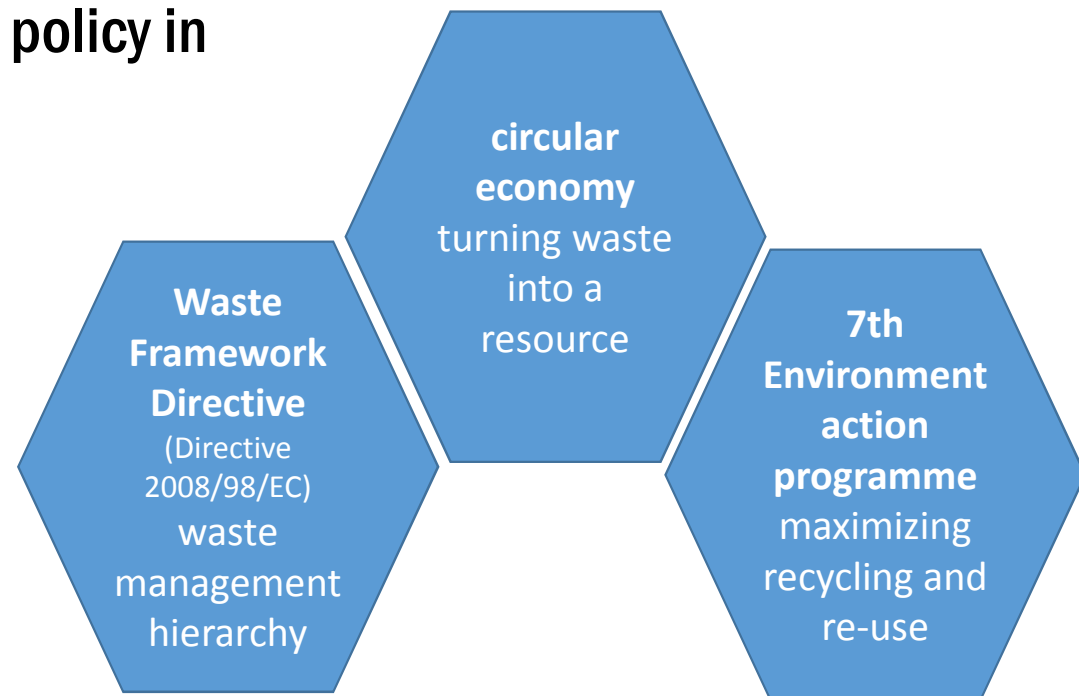
# Textile blankets made from plastic bottles wastes

The results



## European waste policy

Effective contribute to waste policy in European Union



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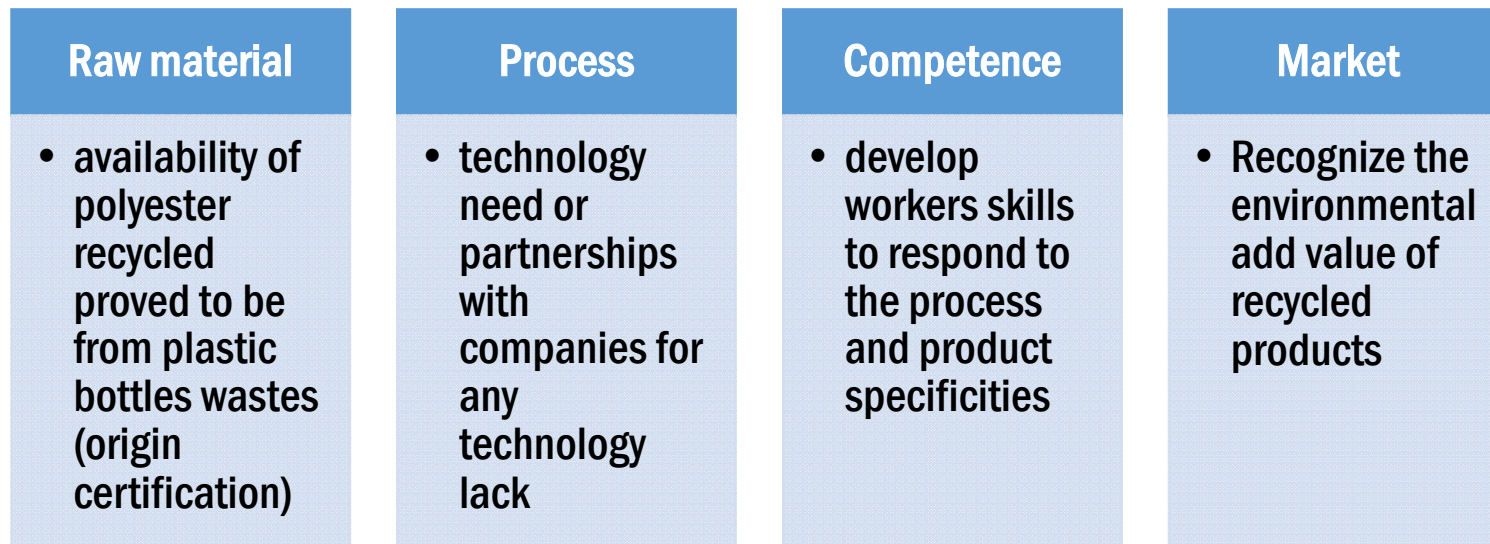
# Textile blankets made from plastic bottles wastes

The transferability



## Main conditions

The main conditions to an textile company implement the production of a textile article made from plastic bottles wastes are having:



# Textile blankets made from plastic bottles wastes

The transferability



## Replication

This good practices can be replicate by other textile companies, to produce the same kind of textile product or others

- **PET recycling to make fibres can increase, if more consumers recognize the interest to buy recycled textiles products**

## Textile blankets made from plastic bottles wastes



**Thank you for your attention**

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