



# NONWOVENS FOR TECHNICAL APPLICATIONS (FROM TEXTILE WASTES)

Oscar Calvo

R&D Group on Textile  
Finishing, Health and  
Environment



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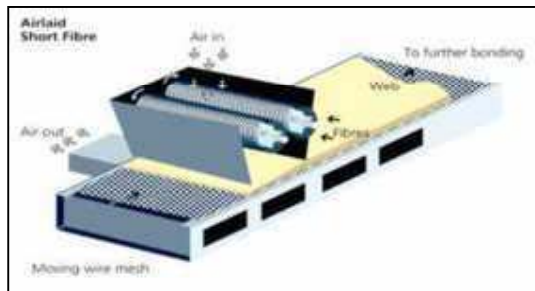
*RESET project seminar. Innovating for T&C  
Sustainability. 17<sup>th</sup> May, 2016. Prato (Italy)*

# 1. INTRODUCTION TO AITEX'S RESOURCES ON NW TECHNOLOGIES

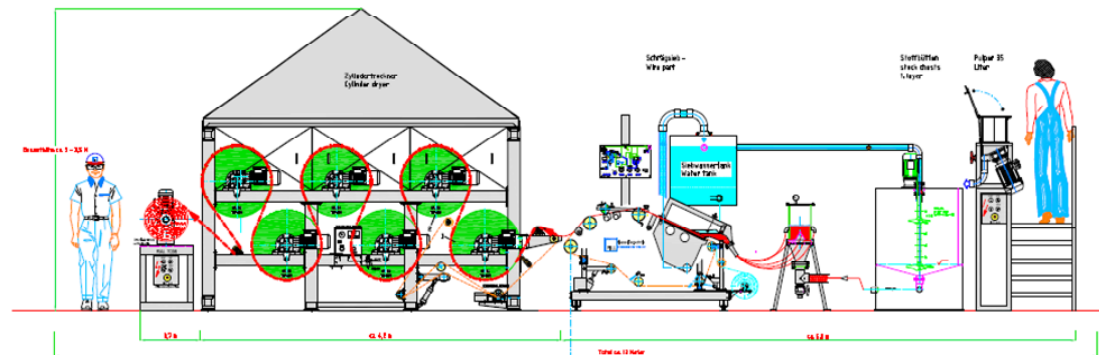
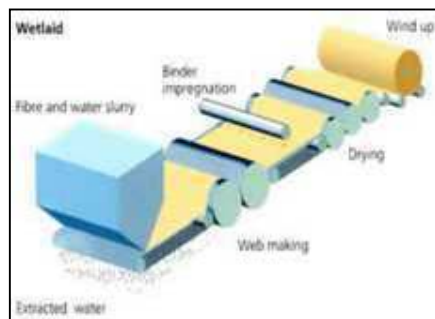
## Nonwoven production (lab scale)

**2 main technologies** are available for lab trials and **testing of new fibers** for innovative nonwovens:

**Air-laid technology:** very short fiber material can be applied.



**Wet-laid technology:** dispersion of the short fibers using water.



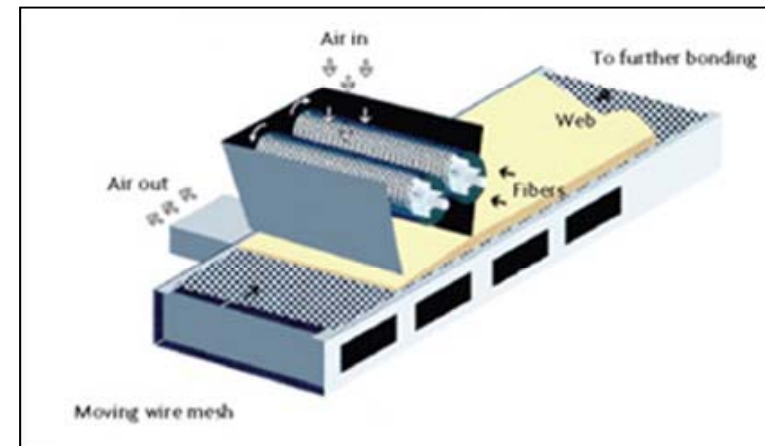
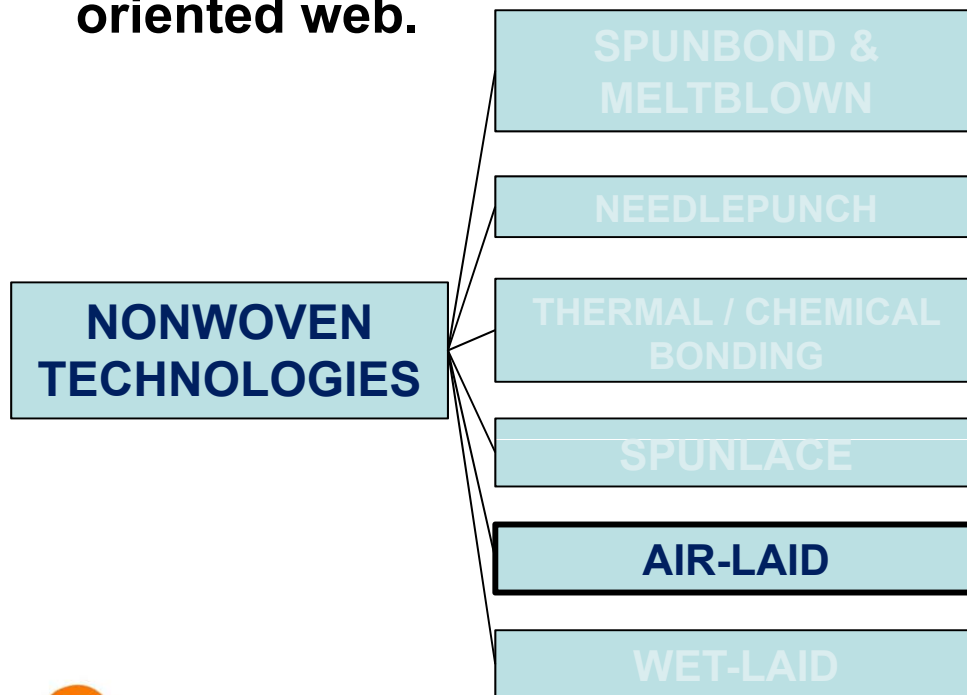
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## 2. NONWOVEN MANUFACTURING TECHNOLOGIES

### TECHNOLOGIES:

**Major advantage:** very short fiber material can be applied. This is of special interest for **recycled fiber material such as cotton waste** (e.g. from spinning and yarn material). The fibers are fed into an air stream and from there to a moving belt or perforated drum: they form a **randomly oriented web**.

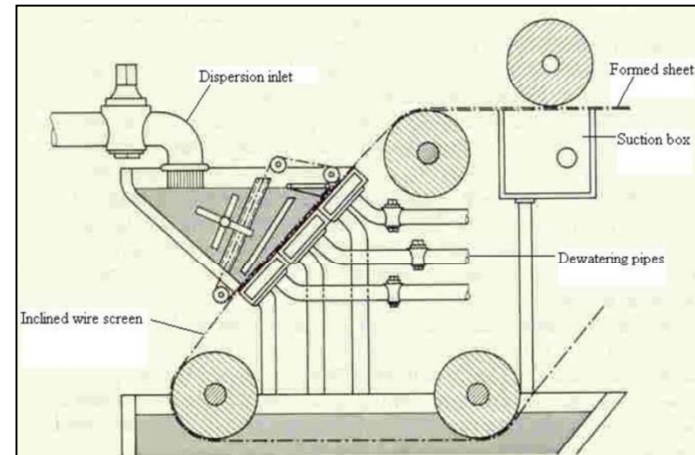
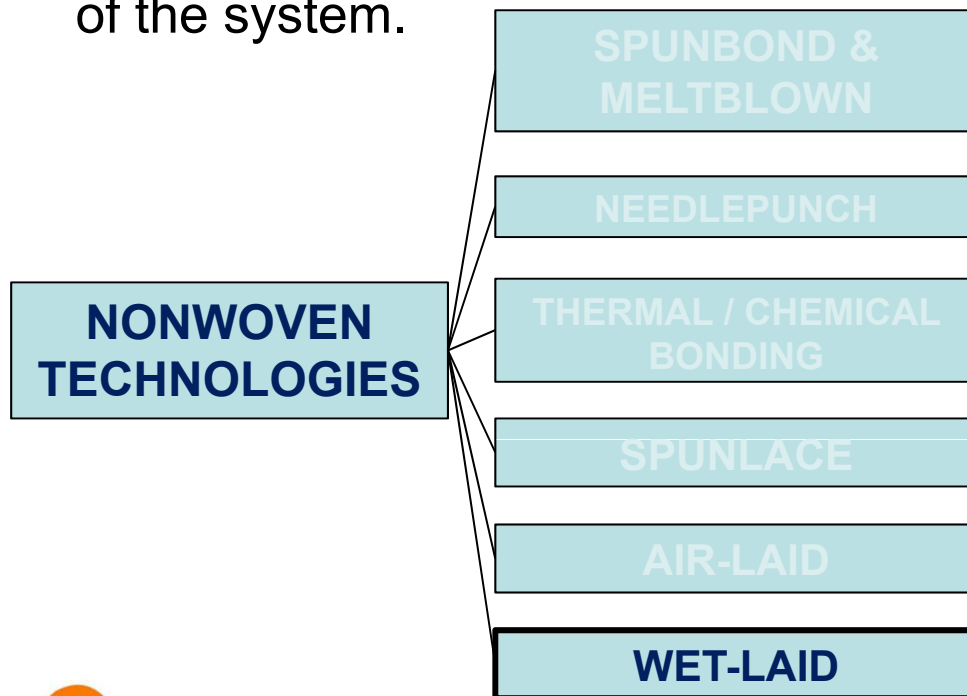


- Air-laid webs have a low density.
- Greater softness.
- Absence of laminar structure.
- Automotive and transport applications.
- Composites, geotextiles, agriculture...
- Roofing felts.

## 2. NONWOVEN MANUFACTURING TECHNOLOGIES

### TECHNOLOGIES:

It's a **modified papermaking process**. Main steps: 1) **Swelling and dispersion of the fiber** in water and transport of the suspension on a continuous traveling screen; 2) Continuous **web formation** on the screen as a result of filtration; 3) **Drying/bonding of the web**. Water recyclability of the system.



- Innovative technology (5 - 10% of NWs).
- Usually 2 - 30 mm fibers are used.
- Bonding by hot calender or chemicals.
- Composites, reinforcement materials...
- Roofing felts, filters, insulating uses...
- Sanitary and hygiene applications.

# 3. MARKET TRENDS FOR TECHNICAL APPLICATIONS OF NWs



Opportunities in **new products and applications** for different sectors:

## Wet-laid technology for advanced nonwoven-based products

Industry	Applications
Automotive	Air intake filters, oil filters, car interior
Aerospace	Aeroplane interior, reinforcement of aeroplane body
Agriculture	Plant pots, plant insulation
Construction	Roof sheeting, flooring material
Household	Wall paper, overlay paper for furniture, vaccum cleaner bags
Medical/hygiene	Biodegradable wipes
Others	Backing fabric for RO membranes, food packaging, teabags, coffee pads, battery and fuel cell separators



**Flexformtech® Non-wovens: PP + Natural Fiber**

**Structural applications when combined with a conforming process!!!**

*Nonwovens for technical applications*



**María Blanes** ([mblanes@aitex.es](mailto:mblanes@aitex.es)). Team leader of the R&D Group on Textile Finishing, Health and Environment.

**Oscar Calvo** ([ocalvo@aitex.es](mailto:ocalvo@aitex.es)). Researcher.

**R&D Group on Textile Finishing, Health and Environment @ LinkedIn:**

<https://www.linkedin.com/groups/R-D-Group-on-Textile-8102442/about>

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