NONWOVENS FOR TECHNICAL APPLICATIONS (FROM TEXTILE WASTES)

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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.
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**.

**NONWOVEN TECHNOLOGIES**

- **SPUNBOND & MELTBLOWN**
- **NEEDLEPUNCH**
- **THERMAL / CHEMICAL BONDING**
- **SPUNLACE**
- **AIR-LAID**
- **WET-LAID**
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.

- SPUNBOND & MELTBLOWN
- NEEDLEPUNCH
- THERMAL / CHEMICAL BONDING
- SPUNLACE
- AIR-LAID
- WET-LAID

- 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.

Nonwovens for technical 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**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>Air intake filters, oil filters, car interior</td>
</tr>
<tr>
<td>Aerospace</td>
<td>Aeroplane interior, reinforcement of aeroplane body</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Plant pots, plant insulation</td>
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<tr>
<td>Construction</td>
<td>Roof sheeting, flooring material</td>
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<tr>
<td>Household</td>
<td>Wall paper, overlay paper for furniture, vacuum cleaner bags</td>
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<tr>
<td>Medical/hygiene</td>
<td>Biodegradable wipes</td>
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<tr>
<td>Others</td>
<td>Backing fabric for RO membranes, food packaging, teabags, coffee pads, battery and fuel cell separators</td>
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</tbody>
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Structural applications when combined with a conforming process!!!

Nonwovens for technical applications
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