Woven vs. Needled Permeability

Woven .vs. Needled: Moisture pick-up

The structure of a poliester needled felt features a microporous surface granting a better moisture entrapment and release without adsorbtion by the fibers with consequent negative wetting of the felt.

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Tests have been run comparing woven and needled felts: samples have been exposed to moisture under different conditions of:

- Temperature (from 20 °C to 100°C)
- Time (from 2 to 600 sec)

Moisture pick-up has been measured as % weight increase between wet sample and dry sample (%MC).

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The results may be summarized as:

- All the factors considered are significant to the result
- The mathematical model obtained explains 98,8% of the results

  - Woven MC% = 4.327 + 0.057 * Temp (°C) + 0.046 * Time (sec)
  - Needled MC% = 19.171 + 0.057 * Temp (°C) + 0.046 * Time (sec)

For example, assuming Temp = 80°C and Time = 3 sec

  - Woven MC% = 9.025
  - Needled MC% = 23.869

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The results show that at 80°C for 3 seconds the moisture pick-up is:

- Woven belt = 9.025%
- Needled felt = 23.869%

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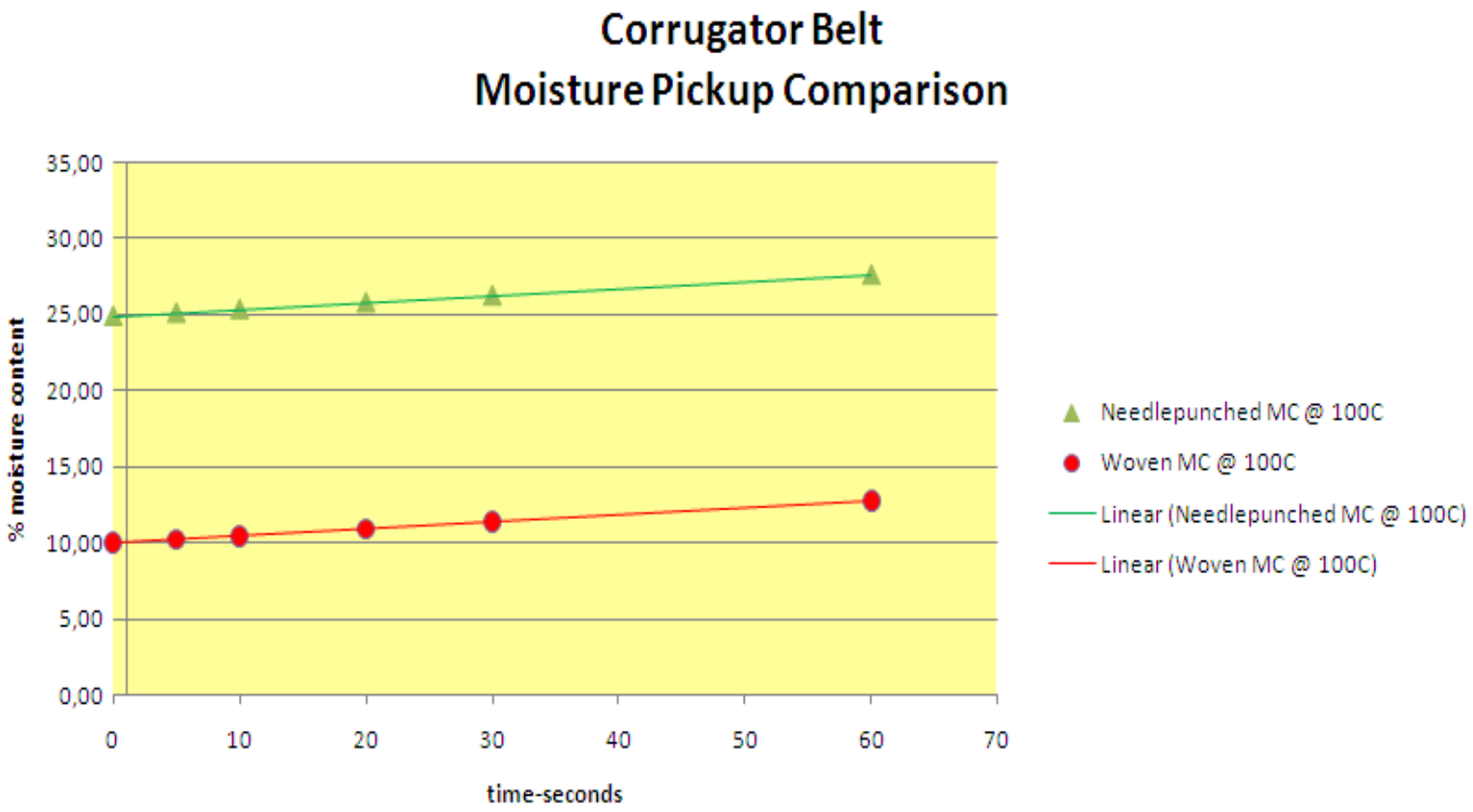

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Woven vs. Needled Permeability

Woven .vs. Needled: Permeability

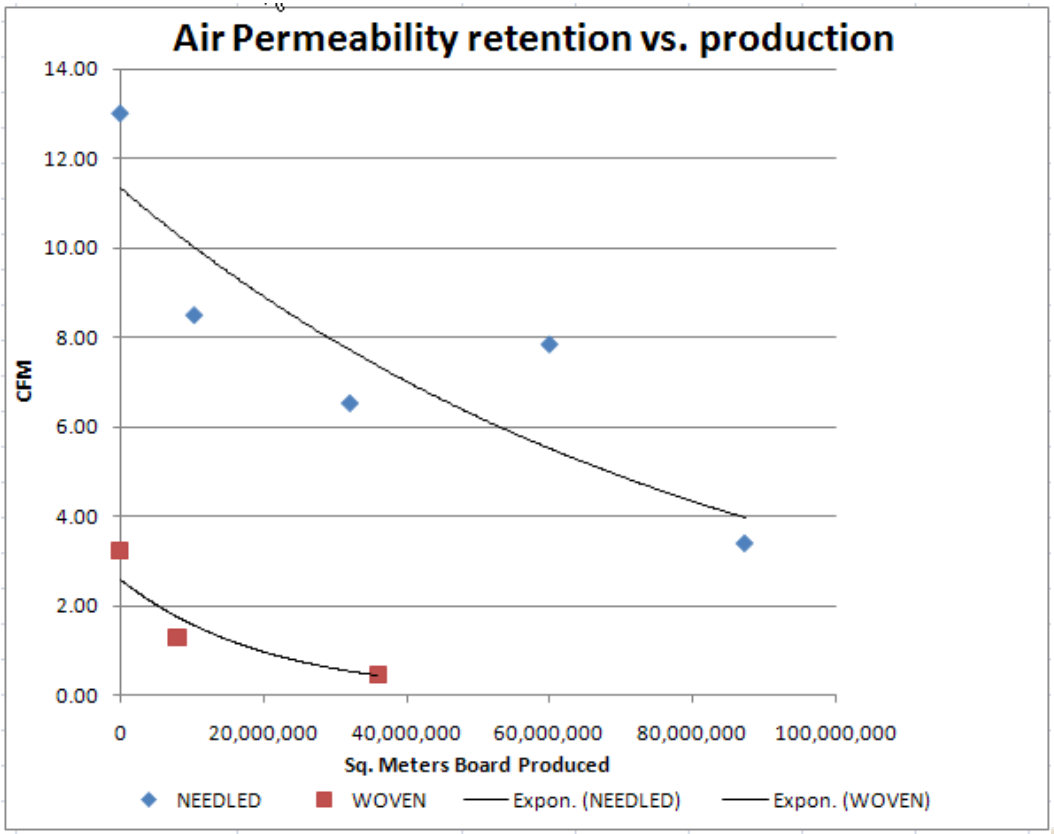
Even though the permeability decreases significantly during the first weeks of operation both for needled felts and woven belts:

- The material and construction of the needled felt assure good uncompressibility

- The material and construction of the needled felt assure an optimal distributed microporosity

Woven vs. Needled Permeability

Long term operational comparison: Needlepunched vs. woven air permeability



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