SOLUTIONS FOR DISPOSABLE ABSORBENT HYGIENE PRODUCTS

Total Polypropylene grades for Nonwovens
Total Polyethylene grades for Films & Coating
WHAT TOTAL CAN OFFER

Solutions for film and nonwoven (NW)

Top sheet
- PP for spunbond NW (Ziegler-Natta, Lumicene®)
- PE for apertured film (LDPE, Lumicene®)

Back sheet
- LDPE and Lumicene® PE for film
- PP for spunbond and meltblown NW
- PE for bicomponent, soft spunbond NW

Lateral & frontal tapes
- PP heterophasic copolymer for « hook film »
- PP for NW frontal tape

Barrier leg cuff
- PP for spunbond and meltblown NW (Ziegler-Natta, Lumicene®)

Acquisition/distribution sub layer
- Lumicene® PP for bicomponent, bulky NW

Core cover
- PP for spunbond and meltblown NW
SPUNBOND

The challenge

Providing standard raw materials with high quality consistency for state-of-the-art spunlaid technology, as well as differentiated products as solution for downgauging, improved softness, finer filaments...

Total's answer.... .... A few examples

Total PPH 9099
Standard Ziegler-Natta, controlled rheology PP homopolymer. Its design evolved over time to maintain very good quality consistency and processability on successive state-of-the-art spunlaid technologies

Total Lumicene® MR 2001
Metallocene-based PP homopolymer, ideal for the production of fine denier, low basis weight nonwovens

Key features are: highest quality consistency, finer filaments (improved web coverage and softness), "peroxide-free", low VOC emissions, improved filament tenacity and nonwoven strength...
**The challenge**

Improving barrier properties of meltblown and spunmelt nonwovens.

**Total’s answer…**

**Total Europe : Lumicene® MH140CN0 + BASF Irgatec CR76 = outstanding barrier properties**

Combining Lumicene® MH140CN0 (metallocene PP homopolymer; MFI 140 g/10’; pellets) with Irgatec® CR76 masterbatch from BASF allows to obtain a very high proportion of sub-micron filaments in comparison to standard meltblown grades (and even to other PP raw materials + Irgatec®). Therefore outstanding hydrostatic head and air permeability results can be obtained.
The challenge

Meeting all requirements related to the production of the film and to its performance as backsheet: processability, drawability, low gel level, mechanical properties, calcium carbonate dispersion, etc…

Total’s answer…

**Lumicene® range**

Here are some of the features we can offer you:

- Densities from 0.918 to 0.960 to enable downgauging
- Low neck-in & excellent drawability at high speed
- Proper adhesion to PP nonwoven
- Good blendability with LDPE & LLDPE
- Good compatibility with CaCO₃
- Low extruder pressure
The challenge

Meeting all requirements related to the production of the film and to its performance as backsheet: processability, drawability, low gel level, mechanical properties, calcium carbonate dispersion, etc…

Total’s answer…

Lumicene Supertough® 33ST22

Here are some of the features we can offer you:

- Excellent processability
- High toughness-stiffness balance
- Boosted tear resistance
- Boosted dart drop
The challenge

Compounds are used to ensure the good breathability of backsheets, therefore the good dispersion of inorganic particles is critical. In addition, the compound should offer good blendability with other PE materials used for the production of backsheets.

Total’s answer….

Joint Venture with Polyblend GmbH

Total has acquired 68% stake in Polyblend in order to offer a complete solution for backsheets: resin for cast or blown and CaCO₃ compound.
Two production lines have been installed in Total’s Carling (FR) with a capacity of 30 kT.

Tailored breathability thanks to Lumicene Supertough®

Compounding at Polyblend based on Lumicene Supertough® 20ST20 and Lumicene® M6040 Blown extrusion and MDO in-line stretching at Windmöller & Hölscher (12 gsm)

<table>
<thead>
<tr>
<th>WVTR [g/m²d]</th>
<th>72% compound + 28% 22ST05</th>
<th>72% compound + 28% 32ST05</th>
<th>76% compound + 24% 32ST05</th>
<th>76% compound + 24% 32ST05*</th>
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