

# Geotextiles – invisible, but indispensable

Geotextile nonwoven products provide critical functionality such as drainage, separation, reinforcement and penetration protection. They increase the load bearing capacity of the base aggregate in the path, road and rail construction as well as help in securing dams and waste disposable sites.

Geo-nonwovens are voluminous thereby can easily absorb tension. In road construction, this can considerably reduce the amount of the mineral substructure. In addition to other performance characteristics, the tenacity of the nonwovens is hugely important to such industrial applications. They need to be extremely tear resistant and often simultaneously very extensible.

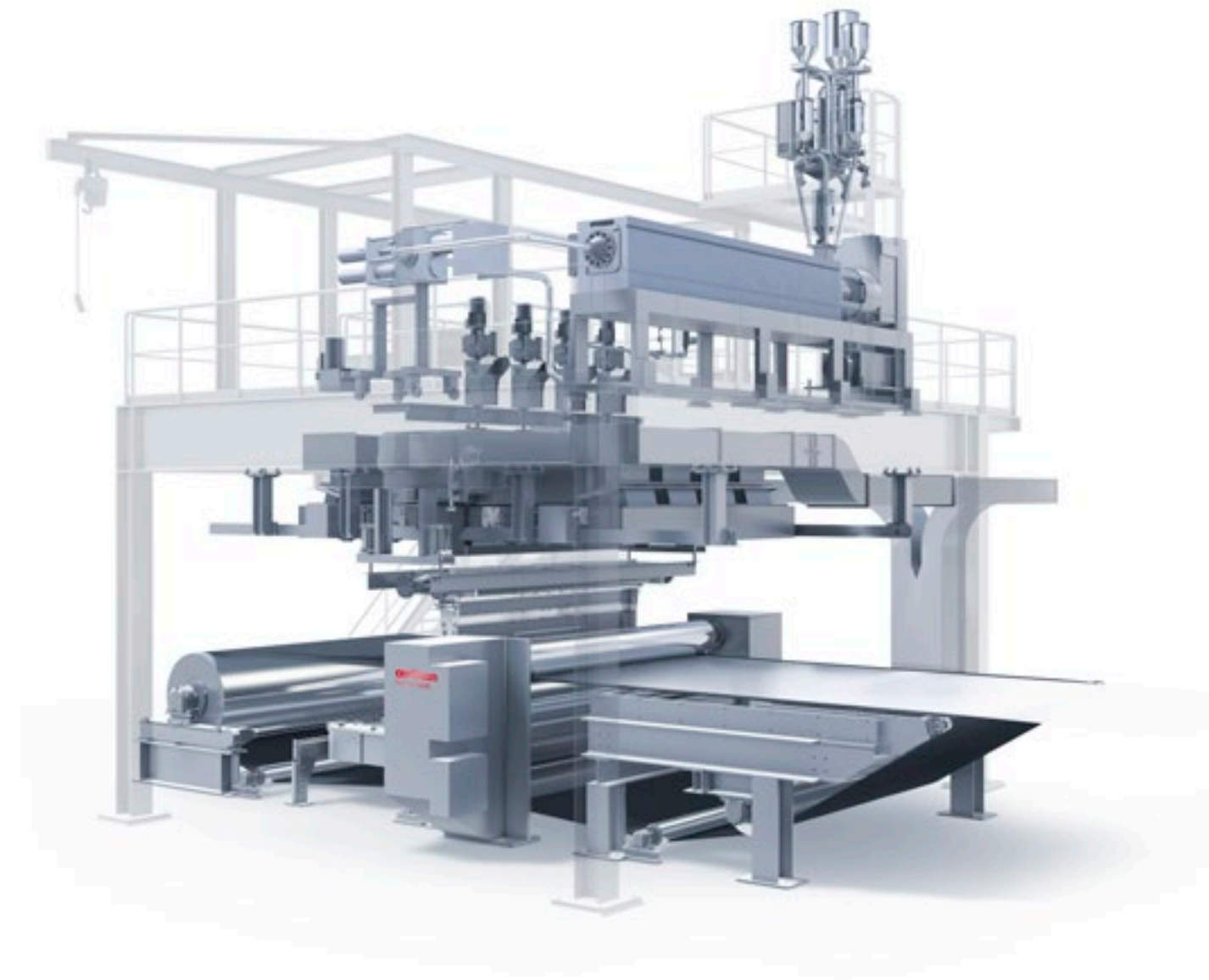
To achieve the greatest possible mechanical robustness and durability, the raw materials used are either polypropylene (PP) or polyester (PET). PP is typically used if the product requires extreme resistance to degradation. In contrast PET is more suitable for solution requiring a shorter lifetime tenacity or if the geo-nonwoven is positioned close the surface.

Spunbonds are – due to their technical and commercial benefits – progressively replacing classical carded nonwovens, as the market is increasingly demanding more efficient processes and products. Making spunbonded geotextile applications on the rise.

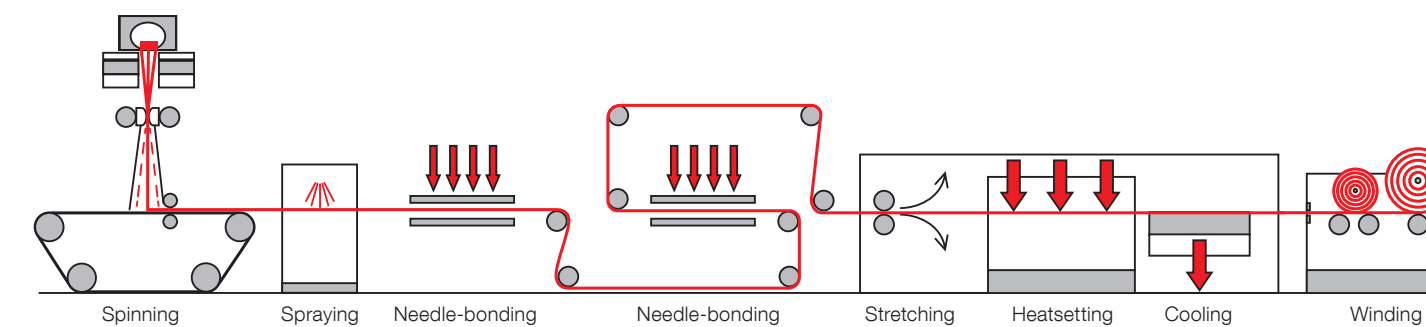
Oerlikon Nonwoven offers a one-step nonwoven production process from one single source – from the raw material to the finished nonwoven roll goods.

Our spunbond process is characterized by

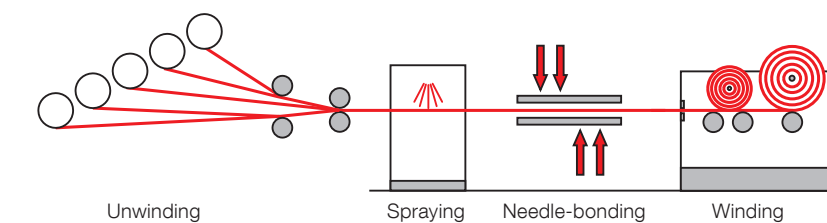
- High throughput spinning to enable cost effective production
- High speed spinning capability for high tenacity and low shrinkage filaments
- Medium to coarse filament spinning capability
- Optimized melt distribution for eliminating web performance variation across the width
- Robust spinning suitable for a wide variety of melt spinnable polymers
- Decoupled draw slot system to allow optimized filament characteristics
- Mono and bico/mixed fiber technology to meet your requirements



Spunbond plant for geotextiles 100 – 250 g/m<sup>3</sup>



Layer needling for geotextiles up to 1,000 g/m<sup>3</sup>



## Technical data of an Oerlikon spunbond line for geotextile production

Polymer	PP, PET, rPET
Basis weight	80 - 1,000 g/m <sup>3</sup>
Filament size	4 - 10 dtex
Standard product width	3,200 or 6,000 mm
Machine standard width (trimmed)	3,200 or 6,000 mm (others on request)
Line capacity	up to 10,000 tons/year

## Typical product performance data - PP geotextile

Basis weight DIN EN ISO 9864	CBR puncture strength DIN EN ISO 12236	Tensile strength DIN EN ISO 10319		Elongation DIN EN ISO 10319	
		MD [kN/m]	CD [kN/m]	MD [%]	MD [%]
100	1.0 - 1.1	5.9 - 6.5	5.8 - 6.4	>50	>50
200	2.0 - 2.2	12.0 - 13.0	12.0 - 13.0	>50	>50
400	3.9 - 4.3	24.0 - 26.0	23.0 - 26.0	>50	>50
700	6.9 - 7.6	41.0 - 46.0	41.0 - 45.0	>50	>50
1000	9.8 - 10.8	59.0 - 65.0	58.0 - 64.0	>50	>50

## Typical product performance data - PET geotextile

Basis weight DIN EN ISO 9864	CBR puncture strength DIN EN ISO 12236	Tensile strength DIN EN ISO 10319		Elongation DIN EN ISO 10319	
		MD [kN/m]	CD [kN/m]	MD [%]	MD [%]
80	0.5 - 0.7	5.0 - 5.8	4.2 - 5.2	>50	>50
110	1.2 - 1.5	6.8 - 7.9	6.3 - 7.3	>50	>50
160	1.7 - 2.0	9.9 - 11.5	9.4 - 10.9	>50	>50
270	2.9 - 3.1	16.7 - 19.4	16.2 - 18.8	>50	>50
320	3.5 - 4.0	19.8 - 23.0	19.6 - 22.8	>50	>50

## Tolerances for the average results [no upper limit]

Basis weight	-5%
CBR	-10%
Tensile strength	-10%
Elongation	-15%





## Why we should be your partner

Based on our long-time experiences we developed the process and engineered a spunbond production line from melt to nonwoven for geotextile applications made of polypropylene or polyester.

- Low production costs through high capacity production, less space, machines and operators, low waste rate, low energy consumption and higher yield
- High product performance with low basis weight to meet the leading market requirements

As part of the Oerlikon Manmade Fibers segment we are a leading solution provider of a wide range of nonwoven technologies - with spunbond, meltblown and airlaid solutions, we cover the technical and disposable nonwoven markets.

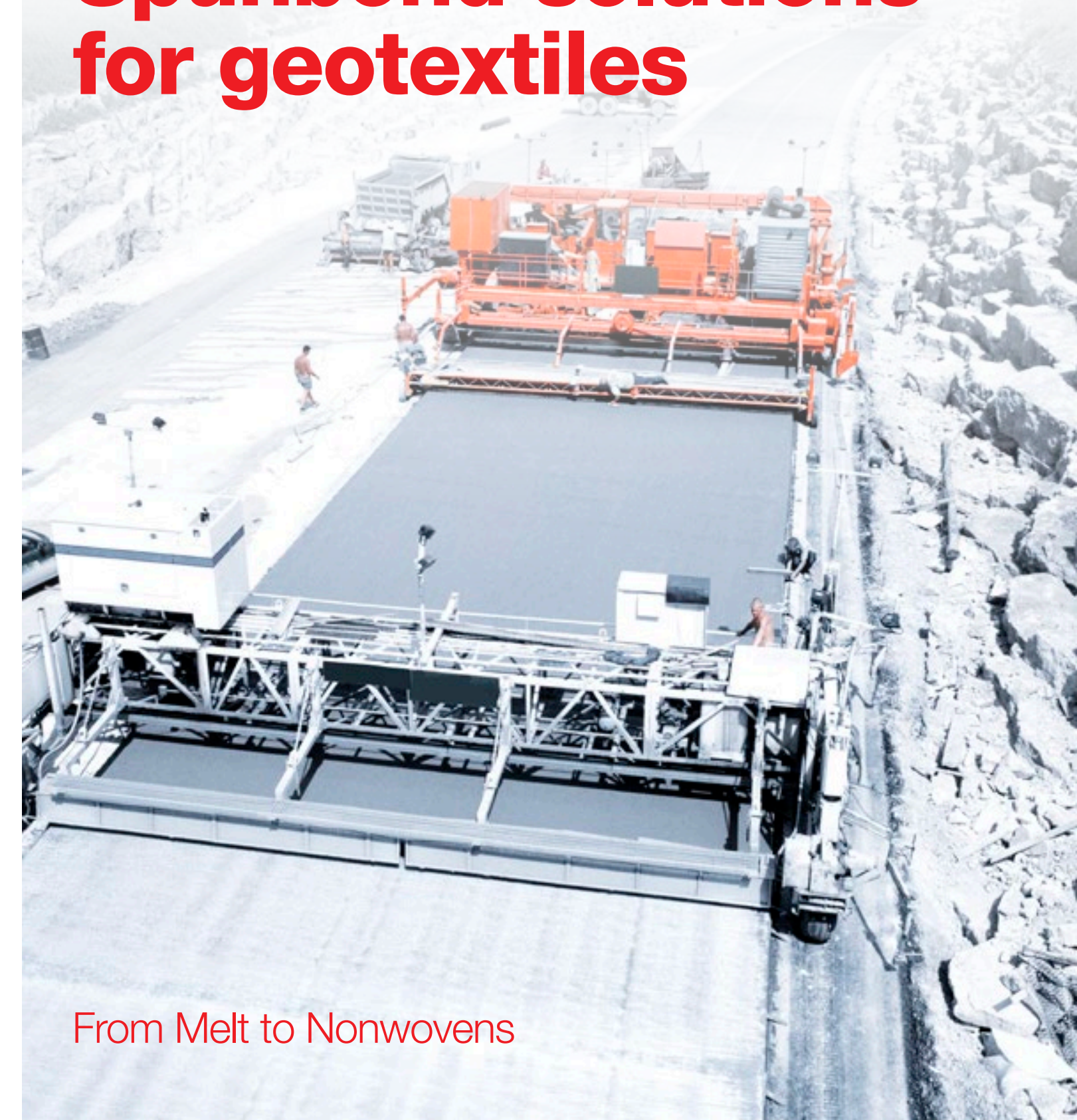
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The given properties respect typical average values obtained in accordance with accepted test methods at the time of manufacture and are subject to normal manufacturing variations. They are supplied as a technical service and should not be construed as guaranteeing properties of the products described or their suitability for a particular application and are subject to change without notice. ONW 03/19

**oerlikon**  
nonwoven

# Spunbond solutions for geotextiles



From Melt to Nonwovens