

## F - Filtration Geotextiles

### Technical Data



TenCate Polyfelt F

TenCate Polyfelt F is a two-layer continuous filament nonwoven, one layer designed as filter, the other layer as protection against damage of the filter. This construction allows an optimum number of constrictions in the filter layer, resulting in an extremely low clogging risk and high soil retention security.

Properties <small>[Standard]</small>	Unit	F 60	F 70	F 80
Type of product	-	Two-layer mechanically bonded PP continuous filament nonwoven		
Raw material	-	100 % UV stabilized polypropylene		
<b>Hydraulic Properties</b>				
Number of Constrictions <small>[ASTM D 7178-06, XPG 38030 - see overleaf]</small>	-	25 - 40	25 - 40	25 - 40
Opening size $O_{90}$ <small>[EN ISO 12956]</small>	$\mu\text{m}$	80	80	80
Permeability normal to the plane <small>[EN ISO 11058]</small>	$\text{l/m}^2\text{s}$ (mm/s)	60	45	30
Flow rate in the plane <small>[EN ISO 12958]</small>	20 / 100 kPa $10^{-6} \text{ m}^2/\text{s}$	4.0 / 1.1	8 / 3	12 / 4.5
<b>Mechanical properties</b>				
Elongation at max. load <small>[EN ISO 10319]</small>	MD/CD %	85 / 75	85 / 80	85 / 80
Maximum absorbed energy * <small>[EN ISO 10319]</small>	$\text{kJ/m}$	9.2	12.4	14.4
Tensile strength <small>[EN ISO 10319]</small>	MD/CD $\text{kN/m}$	23 / 23	30 / 30	35 / 35
Cone drop test <small>[EN ISO 13433]</small>	mm	12	9	7
CBR puncture resistance <small>[EN ISO 12236]</small>	N	3300	4500	6500
<b>Durability Properties</b>				
UV resistance - strength retained <small>[EN 12 224]</small>	%	> 80	> 80	> 80
Chemical / biological resistance	-	resistant against all chemical agents and microorganisms usually occurring in seas or rivers		
<b>Identification Properties</b>				
Thickness <small>[EN ISO 9863]</small>	2 kPa mm	3.5	5.0	6.5
Mass per unit area <small>[EN ISO 9864]</small>	$\text{g/m}^2$	400	600	800

The values given are average values obtained in our laboratories and in testing institutes. The right is reserved to make changes without notice at any time.

\*) Area of the triangle beneath the stress-strain curve.

## TenCate Polyfelt F - Constriction Concept, Forms of Supply

### Constriction concept

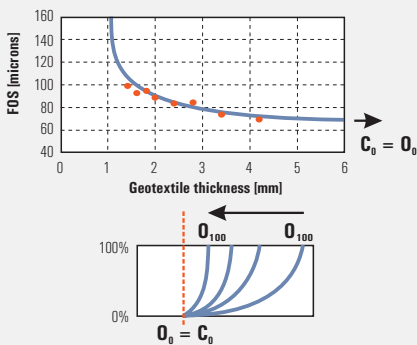
The number of constrictions "m" is a dimensionless parameter which combines the structural characteristics of the nonwoven (thickness, porosity, fibre size).

**A filtration geotextile works sufficient with m = 25 to m = 40 constrictions.**

$$m = \sqrt{(1 - \text{Porosity})} \times \frac{\text{Thickness}}{\text{Fibre Size}}$$

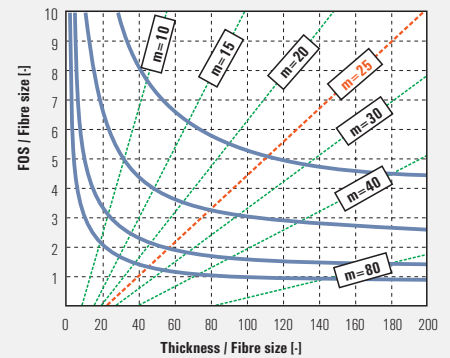
After Dr. J.P. Giroud, International Conference Geofilter'96 Montréal

#### 1. Filter homogeneity - $m \geq 25$



Experimental (left figure): The nonwoven is homogeneous from a given thickness. This optimum thickness depends on its internal structure (density, fibre size).

Theoretical (right figure): The nonwoven is homogeneous if its number of constrictions  $m \geq 25$  (for all nonwovens).

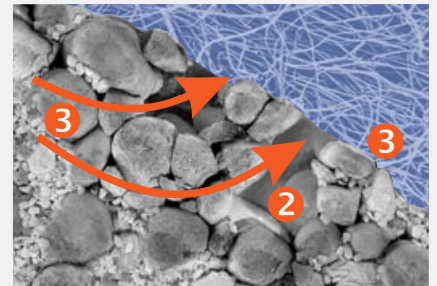


#### 2. Soil stability (no risk of internal clogging) - $m \leq 40$

The functions of a geotextile filtration system are (see figure to the right):

- (1) Maintain the soil skeleton in place
- (2) Let fine instable particles pass
- (3) Allow a free long-term water flow

To stabilise the soil, the skeleton particles should be maintained near the interface soil/geotextile. A stable filtration is guaranteed when the maximum number of constrictions does not exceed a certain value:  $m \leq 40$



Forms of Supply	Unit	F 60	F 70	F 80
Length x Width	m x m	100 x 6	60 x 6	40 x 6
Area	m <sup>2</sup>	600	360	240
Weight of roll	kg	252	228	204

The information given in this brochure is to the best of our knowledge true and correct, however new research results and practical experience can make revisions necessary. No guarantee or liability can be drawn from the information mentioned herein. Furthermore, it is not our intention to violate any patents or licences.

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