ATARFIL geomembranes

ISO 9001
ISO 14001
BUREAU VERITAS Certification

CE
1213-CPR-014
06
EN 13361, EN 13362, EN 13491, EN 13492, EN 13493, EN 15382

(1)

ATARFIL LTM-LTMT$_{K1}$ (GM17)

Raw Material	Linear Low Density Polyethylene

ATARFIL LTM-LTMT is a **structured geomembrane** manufactured from maximum quality linear low density polyethylene LLDPE resins, duly contrasted, that comply with the most rigurous requirements established for their use.

ATARFIL LTM-LTMT contains 97,5% of pure polymer, and approximately 2,5% of Carbon Black, antioxidants and thermal stabilizers. The product does not contain plasticizers or fillers that can migrate over time.

The geomembrane ATARFIL LTM-LTMT is manufactured under rigurous quality controls.

Surface	TM Structured 1 side TMT Structured 2 sides	Colour	Black
		RAL Code	-

	Tested Property	Unit	Test Method	Value
Raw Material Identification	Density of Raw Material	g/cm³	ASTM D 792	0.915-0.926
	Density of Geomembrane	g/cm³	ASTM D 792	0.925-0.939
	Melt Flow Index	g/10 min	ASTM D 1238 (190ºC/2,16 Kg)	< 1,0
	Carbon Black Content	%	ASTM D 4218	2,0 - 2,5
	Carbon Black Dispersion	-	ASTM D 5596	Note (2)
Durability	Oxidative Induction Time (OIT) Standard OIT High Pressure OIT	min	ASTM D3895 (200ºC) ASTM D5885	≥ 100 ≥ 400
	Oven aging at 85ºC HP O.I.T, % retained after 90 days	%	ASTM D 5721 ASTM D 5885	≥ 60
	UV Resistance. HP OIT, % retained after 1600 hrs	%	ASTM D 7238 ASTM D 5885	≥ 35

	Tested Property	Unit	Test Method	Value
Functional Properties	Low Temperature Brittleness (tª: -40ºC)	-	ASTM D 746	No cracks
	Water Permeability	m^3/m^2·day	UNE EN 14150	$< 1 \cdot 10^{-6}$
	Coefficient of Linear Thermal Expansion	1/K	ASTM D 696	$2,15 \cdot 10^{-4}$
	Water Absorption	%	ASTM D 570 (24h)	≤ 0,2
			ASTM D 570 (6 days)	≤ 1
	Asperity Height(3)	mm	ASTM D 7466	0.70

	Tested Property	Unit	Test Method	Value				
Strength Characteristics Quality of Final Product	Thickness	mm	ASTM D 5994	1.00	1.50	2.00	2.50	3.00
	Thickness (min. ave)	%		nom (-5%)				
	Lowest individual for 8 out of 10 values	%		-10%				
	Lowest individual for any of the 10 values	%		-15%				
	Mechanical Properties (*)							
	Tensile strength at Break	N/mm	ASTM D 6693 (Type IV), lo: 50mm	13 (11)	18 (16)	23 (21)	28 (26)	33 (31)
	Elongation at Break	%		≥ 250				
	Tear Resistance	N	ASTM D 1004	≥ 100	≥ 150	≥ 200	≥ 250	≥ 300
	Puncture Resistance	N	ASTM D 4833	≥ 200	≥ 300	≥ 400	≥ 500	≥ 600
	2% Modulus	N/mm	ASTM D 5323	≤ 420	≤ 630	≤ 840	≤ 1050	≤ 1260
	Axi-Symmetric Break Resistance Strain	%	ASTM D 5617	≥ 30				
	Dimensional Stability	%	ASTM D 1204 (100ºC, 1h)	± 1,5				

		Parameter	Units	1,00 LTM-LTMT	1,50 LTM-LTMT	2,00 LTM-LTMT	2,50 LTM-LTMT	3,00 LTM-LTMT
10716	PRESENTATION (Standard Sizes)	Roll width	m	7.5	7.5	7.5	7.5	7.5
		Roll Length	m	130	100	80	65	60
		Surface	m^2	975	750	600	488	450

(*)Values indicated are MEDIUM. In brackets minimum values.
(1) Certificates belonging to the Environmental and Quality Integrated System of Atarfil.
(2)Carbon black dispersion (only near spherical agglomerates) for 10 different views: 9 in Categories 1 or 2 and 1 in Category 3.
(3)The value indicated is medium. Minimum value 0.50mm.

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