

Geomembrane **ALVATECH 5002-HDPE** is manufactured by SOTRAFA S.A. (Almería-Spain), a company of the Armando Alvarez Group.

ALVATECH 5002-HDPE is a High Density Polyethylene liner, available in 5,8m and 7,5m and manufactured with the latest cast system technology.

SOTRAFA certifies that HDPE Geomembrane (ALVATECH 5002-HDPE) satisfactorily meets the quality required by standards UNE-EN 13361:2013 (reservoirs) // UNE-EN 13362:2013 (channels) // UNE-EN 13491:2013 (tunnels and underground works) // UNE-EN 13492 :2013 (dumps for liquid waste) // UNE-EN 13493 :2013 (dumps for solid waste) // UNE -EN 15382:2013 (transport infrastructure)

PROPERTIES	UNIT	HDPE GEOMEMBRANE (ALVATECH 5002-HDPE)				TEST METHOD
		HDPE Geo 1.0	HDPE Geo 1.5	HDPE Geo 2.0	HDPE Geo 2.5	
Density	g/cm ³	> 0.940	> 0.940	> 0.940	> 0.940	UNE-EN ISO 1183
Melt Index (190°C, 2.16 kg) (190°C, 5 kg)	g/10 min	≤ 1.0 ≤ 3.0	≤ 1.0 ≤ 3.0	≤ 1.0 ≤ 3.0	≤ 1.0 ≤ 3.0	UNE-EN ISO 1133
Thickness	mm	1.00 ± 5 %	1.50 ± 5 %	2.00 ± 5 %	2.50 ± 5 %	UNE -EN 1849-2
Break Strength (1) Break Elongation (1) Yield Strength (1) Yield Elongation (1)	MPa % MPa %	33 (≥ 26) 900 (≥ 700) 19 (≥ 16) 10 (≥ 8)	33 (≥ 26) 900 (≥ 700) 19 (≥ 16) 10 (≥ 8)	33 (≥ 26) 900 (≥ 700) 19 (≥ 16) 10 (≥ 8)	33 (≥ 26) 900 (≥ 700) 19 (≥ 16) 10 (≥ 8)	UNE-EN ISO 527-3, Test Type 5
Static Puncture Resistance	kN	3,3	4,5	6,0	7,0	UNE-EN ISO 12236
Tear Resistance (1)	N	150 (≥ 135)	225 (≥ 200)	300 (≥ 270)	375 (≥ 335)	UNE ISO 34-1
Temperature Resistance (1)	°C	NO CRACKS				UNE-EN 495-5
Linear Expansion Coefficient	° C ⁻¹	2·10 ⁻⁴	2·10 ⁻⁴	2·10 ⁻⁴	2·10 ⁻⁴	ASTM D 696
Stability size Change measure	%	≤ 1,0 (≤ 1,5)	≤ 1,0 (≤ 1,5)	≤ 1,0 (≤ 1,5)	≤ 1,0 (≤ 1,5)	UNE-EN ISO 14632
Carbon black Carbon Black Content Particle Size Ashes Content Carbon Black Dispersion	% nm % -	2.50 (2.25± 0.25) ≤ 25 ≤ 0,1 ≤ 3	2.50 (2.25± 0.25) ≤ 25 ≤ 0,1 ≤ 3	2.50 (2.25± 0.25) ≤ 25 ≤ 0,1 ≤ 3	2.50 (2.25± 0.25) ≤ 25 ≤ 0,1 ≤ 3	UNE 53375-2 ISO 18553
Oxidative Induction Time (O.I.T) Standard OIT (200°C, O ₂ , 1 atm)	min	≥ 100	≥ 100	≥ 100	≥ 100	UNE-EN 728
Oven Aging at 85°C, Standard OIT (200°C, O ₂ , 1 atm)-% retained after 90 days.	% retained	≥ 55	≥ 55	≥ 55	≥ 55	
UV Resistance, Standard OIT (200°C, O ₂ ,1 atm) % retained after 1600 h.	% retained	≥ 55	≥ 55	≥ 55	≥ 55	
Stress Cracking (SP-NCTL) (2)	H	≥ 400	≥ 400	≥ 400	≥ 400	UNE-EN 14576 ASTM D 5397
Artificial Ageing Reduction Break Elongation (2)	%	≤ 15	≤ 15	≤ 15	≤ 15	UNE-EN 12224
Oven Ageing Reduction Break Elongation (2)	%	≤ 15	≤ 15	≤ 15	≤ 15	UNE-EN 14575
Water Absorption 24 hours 6 days	% %	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	UNE-EN ISO 62
Root Resistance	-	No perforations	No perforations	No perforations	No perforations	CEN/TS 14416
Stagnation against gases	(m ³ /m ²) / (d.atm)	< 2 x 10 ⁻³	< 2 x 10 ⁻³	< 2 x 10 ⁻³	< 2 x 10 ⁻³	ASTM D 1434
Hydraulic Permeability	(m ³ /m ²)/d	< 2 x 10 ⁻⁶	< 2 x 10 ⁻⁶	< 2 x 10 ⁻⁶	< 2 x 10 ⁻⁶	UNE-EN 14150

(1) Both directions (longitudinal and transversal) (2) Both sides.

All the values are nominal with a tolerance of ±5%. Those values between parentheses are the minimum ones required by the norm.

We manufacture HDPE, LLDPE and VLDPE Geomembranes, with thickness between 0,75mm and 3mm, smooth or structured sheets.

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