



## SENSOR (UK) Limited

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# PRODUCT DATA SHEET

## SENSORLINE High Density Polyethylene Waterproofing Geomembrane

SENSORLINE is a High Density Polyethylene liner, available in 5.5m, 5.8m, 7.2m & 7.5m and is certified to satisfactorily meet the quality required by standards EN13361:2005 (reservoirs) // EN13362:2006 (canals) // EN13491:2006 (tunnels and underground works) // EN13492:2006 (liquid waste storage) // EN13493:2006 (solid waste storage) and standard GRI GM-13 for 1.5mm & 2.0mm. In addition SENSORLINE is **UK Regulation 31 Approved for use in contact with Potable Water** where baffles, service reservoir lining, impounding reservoir lining and floating covers are required.

PROPERTIES	UNIT	HDPE GEOMEMBRANE (SENSORLINE)					TEST METHOD
		1.0mm	1.5mm	2.0mm	2.5mm	3.0mm	
Density	g/cm <sup>3</sup>	> 0.940	> 0.940	> 0.940	> 0.940	> 0.940	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	≤ 1.0 ≤3.0	EN ISO 1133
Thickness	mm	1.00 ± 5 %	1.50 ± 5 %	2.00 ± 5 %	2.50 ± 5 %	2.50 ± 5 %	EN 1849-2
Break Strength (1) Break Elongation (1) Yield Strength (1) Yield Elongation (1)	MPa % MPa %	<b>33</b> (≥ 26) <b>900</b> (≥ 700) <b>19</b> (≥ 16) <b>10</b> (≥ 9)	<b>33</b> (≥ 26) <b>900</b> (≥ 700) <b>19</b> (≥ 16) <b>10</b> (≥ 9)	<b>33</b> (≥ 26) <b>900</b> (≥ 700) <b>19</b> (≥ 16) <b>10</b> (≥ 9)	<b>33</b> (≥ 26) <b>900</b> (≥ 700) <b>19</b> (≥ 16) <b>10</b> (≥ 9)	<b>33</b> (≥ 26) <b>900</b> (≥ 700) <b>19</b> (≥ 16) <b>10</b> (≥ 9)	EN ISO 527-3, Test Type 5
Static Puncture Resistance	KN	≥3.3	≥4.5	≥6.0	≥7.0	≥7.75	EN-ISO 12236
Tear Resistance (1)	N	<b>150</b> (≥ 135)	<b>225</b> (≥ 200)	<b>300</b> (≥ 270)	<b>375</b> (≥ 335)	<b>450</b> (≥ 400)	ISO 34-1/B (a)
Temperature Resistance (1) (-77°C)	°C	NO CRACKS					EN 495-5
Linear Expansion Coefficient	°C <sup>-1</sup>	2.10-4	2.10-4	2.10-4	2.10-4	2.10-4	ASTM D 696
Stability size Change measure (100° C +/-2°C) (1)	%	≤1.0 (≤1.5)	≤1.0 (≤1.5)	≤1.0 (≤1.5)	≤1.0 (≤1.5)	≤1.0 (≤1.5)	EN 14632
<b>Carbon black</b> Carbon Black Content Particle Size Ashes Content Carbon Black Dispersion	% nm % -	<b>2.50</b> (2.25±0.25) ≤ 25 ≤0.1 ≤ 3	<b>2.50</b> (2.25±0.25) ≤ 25 ≤0.1 ≤ 3	<b>2.50</b> (2.25±0.25) ≤ 25 ≤0.1 ≤ 3	<b>2.50</b> (2.25±0.25) ≤ 25 ≤0.1 ≤ 3	<b>2.50</b> (2.25±0.25) ≤ 25 ≤0.1 ≤ 3	ISO 6964 ISO 18553
Oxidative Induction Time (O.I.T) Standard OIT (200°C, O <sub>2</sub> , 1 atm)	min	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	EN 728
Oven Aging at 85°C, Standard OIT (200°C, O <sub>2</sub> , 1 atm)-% retained after 90 days.	% retained	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	
UV Resistance, Standard OIT (200°C, O <sub>2</sub> , 1 atm) % retained after 1600 h.	% retained	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	
Stress Cracking (SP-NCTL) (2)	H	≥ 300	≥ 300	≥ 300	≥ 300	≥ 300	EN 14576
<b>Artificial Ageing</b> Reduction Break Elongation (2)	%	≤ 15	≤ 15	≤ 15	≤ 15	≤ 15	EN 12224
<b>Oven Ageing</b> Reduction Break Elongation (2)	%	≤ 15	≤ 15	≤ 15	≤ 15	≤ 15	EN 14575
<b>Water Absorption</b> 24 hours 6 days	% %	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	≤ 0.2 ≤ 1	EN ISO 62
Root Resistance	-	No perforations	No perforations	No perforations	No perforations	No perforations	EN/TS 14416
Stagnation against gases	m <sup>3</sup> /m <sup>2</sup> /d atm	<4 x 10 <sup>-4</sup>	<4 x 10 <sup>-4</sup>	<4 x 10 <sup>-4</sup>	<4 x 10 <sup>-4</sup>	<4 x 10 <sup>-4</sup>	ASTM D 1434
Hydraulic Permeability	m <sup>3</sup> /m <sup>2</sup> ·day	<2 x 10 <sup>-6</sup>	<2 x 10 <sup>-6</sup>	<2 x 10 <sup>-6</sup>	<2 x 10 <sup>-6</sup>	<2 x 10 <sup>-6</sup>	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.