

## MACLINE SDH

### HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANES

**MACLINE SDH** is a high density polyethylene geomembrane (smooth surfaces on both sides) manufactured from maximum quality polyethylene resins, duly contrasted, that comply with the most rigorous requirements established for their use.

Geomembrane **MACLINE SDH** contains not less than 97% of pure polyethylene polymer and a balance not higher than 3% of carbon black, antioxidants and thermal stabilizers. The product does not contain plasticizers or fillers that could migrate over time.

Geomembrane **MACLINE SDH** are manufactured under permanent quality control and comply with national and international standards.

SURFACE: SMOOTH/SMOOTH RAW MATERIAL CHARACTERISTICS			
Property	Unit	Test Method	Value
Density in white	g/cm <sup>3</sup>	EN ISO 1183-1	≥0.932
Membrane density	g/cm <sup>3</sup>	EN ISO 1183-1	>0.940
Melt flow index	g/10min	EN-ISO 1133,190/5.0 ASTM D1238, 190/5,0	≤ 1.3 ≤ 0.4
Carbon black content	%	ISO 6964 ASTM 4218	2.0 - 2.5
Carbon black dispersion	- -	ISO 11420	< 3

DURABILITY UV RESISTANCE			
UV Resistance	-	-	yes
Oxidative Induction Time (OIT)	min.	ISO 10837	80
Stress cracking resistance (ESCR)	h	ASTM D 5397	>200
		ASTM D1693 - Cond.B	> 2000

COLOUR: BLACK RAL CODE: - FUNCTIONAL PROPERTIES			
Property	Unit	Test Method	Value
Low temperature brittleness At -40°	1	ASTM D746/B	-40
	2	EN 495-2	No cracks
Water absorption	%	EN ISO 62 (24h)	Ö0.1
Linear thermal expansion coefficient	cm/cm/°C	ASTM D 696	<2.15x10 <sup>-4</sup>
Dielectric constant	-	ASTM D1248	-
Water permeability Gas permeability	m <sup>3</sup> /m <sup>2</sup> x day	EN 14150 ASTM D1434/82	<1.75x10 <sup>-6</sup> 3.3x 10 <sup>-3</sup>
Thickness of the coextruded layer	%	-	-
Fire resistance	-	ISO 11925-2	E

GEOMEMBRANE PHYSICAL - MECHANICAL PROPERTIES			MACLINE SDH					
Tested Property	Unit	Test Method	075	100	150	200	250	300
Thickness	mm	EN 1849-2	0.75	1.00	1.50	2.00	2.50	3.00
Tolerance	%	-	±6					
<b>Tensile properties (*):</b>								
• Tensile strength at yield	N/mm	EN-ISO 527 Tipo V	13(12)	18(16)	27(24)	36(32)	45(40)	54(48)
• Elongation at yield	%		11	11.5(>9)	11.5(>9)	11.5(>9)	11.5(>9)	11.5(>9)
• Tensile strength at break	N/mm		25(22)	30(28)	45(42)	60(56)	75(70)	90(84)
• Elongation at break	%		600	800(>700)	800(>700)	800(>700)	800(>700)	800(>700)
Static CBR puncture resistance	kN	EN-ISO 12236	>2.0	3.5(3.0)	3.8(3.3)	5.5(5.0)	6.3(5.8)	6.5(6.0)
Tear Resistance	N/mm	ISO 34-1	110	150	200	300	350	400
Biaxial elongation	%	prEN 14151	<15	<15	<15	<15	<15	<15
Dimensional stability (120 °C/hr)	%	EN ISO 14632	±1.5					

(\* ) Values in brackets are AVERAGE MINIMUM values. The rest are NOMINAL .

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with SINCERT's and UKAS' s accreditation.