

TECHNICAL DATA SHEET

Name and address of manufacturer	:	PROTAN TURKEY YALITIM SAN. VE TİC.A.Ş. G.O.S.B. İhsandede Caddesi No:111/1 Gebze/KOCAELİ / TÜRKİYE
Product trade name	:	PROTAN BA/T
Description	:	PVC Tunnel membrane with bitumen respectively / Signal layer PVC membrane
European Standart	:	EN 13491
Type of application	:	GBR-P : Polymeric Geosynthetic Barrier
Standart dimensions	:	Width : 2200 mm ; Length : 20 m

CHARACTERISTICS	MANUFACTURER'S LIMITING VALUE	TEST RESULT 1,50 mm	TEST RESULT 2,00 mm	UNIT	TEST METHODS
THICKNESS	MDV / İBD	1,50 ± %5	2,00 ± %5	mm	EN 1849-2
THICKNESS SIGNAL LAYER	< 0,8	< 0,8	< 0,8	mm	EN 1849-2
WATER PERMEABILITY	Waterproof	Waterproof	Waterproof	-	EN 1928
STRAIGHT DEVIATION and EVENNESS	Deviation from straight < 50 mm Evenness < 10 mm	Deviation from straight < 50 mm Evenness < 10 mm	Deviation from straight < 50 mm Evenness < 10 mm	mm	EN 1848-2
DENSITY	+ 0,03 / - 0,003	+ 0,03 / - 0,003	+ 0,03 / - 0,003	g/cm ³	-
TENSILE STRENGTH	Machine Direction ≥ 15	Machine Direction ≥ 15	Machine Direction ≥ 16	N/mm ²	EN 12311-2 (Method B dumble)
	Cross Direction ≥ 15	Cross Direction ≥ 15	Cross Direction ≥ 15		
LOW TEMPERATURE BEHAVIOUR (FLEXURE)	-20	-20	-20	°C	EN 495-5
RESISTANCE TO STATIC PUNCTURE	4,5±0,5	4.5	4.8	kN	EN ISO 12236
WATER PERMEABILITY	<1x10 ⁻⁷	<1x10 ⁻⁷	<1x10 ⁻⁷	m ³ /m ² x d	EN 14150
GEOTEXTILES and GEOTEXTILE - RELATED PRODUCTS - DETERMINATION of the RESISTANCE TO WEATHERING	≤ 10	≤ 10	≤ 10	%	EN 12224
RESISTANCE to OXIDATION	≤ 20	≤ 20	≤ 20	%	EN 14575
ELONGATION AT BREAK	Machine Direction ≥ 250	Machine Direction ≥ 300	Machine Direction ≥ 300	%	EN 12311-2 (Method B dumble)
	Cross Direction ≥ 250	Cross Direction ≥ 250	Cross Direction ≥ 300		
RESISTANCE TO IMPACT	≥ 750	≥ 750	≥ 800	mm	EN 12691
MELTING FLOW	Tolerable deviation < 10%	Tolerable deviation < 10%	Tolerable deviation < 10%	%	-
FIRE RESISTANCE	CLASS E	CLASS E	CLASS E	-	CLASSIFICATION AFTER EN 13501-1
SHEAR TEST for WELDED SEAMS	Break outside seam shear strenght ≥ 600	Break outside seam shear strenght ≥ 1000	Break outside seam shear strenght ≥ 1100	N/50mm	EN 12317-2
PEEL TEST for WELDED SEAMS	≥ 200	≥ 200	≥ 250	N/50mm	EN 12316-2
MODULE of ELASTICITY BETWEEN 1 and 2 % ELONGATION	< 100	< 100 N/mm ²	< 100 N/mm ²	N/mm ²	EN 12317-2
VISIBLE DEFECTS	No cracked, waving, space, brightness, bubble, hole, scratch, cove, embedded	No cracked, waving, space, brightness, bubble, hole, scratch, cove, embedded	No cracked, waving, space, brightness, bubble, hole, scratch, cove, embedded	-	EN 1850-2
SCREENING TEST METHOD for DETERMINING CHEMICAL RESISTANCE	Change in elongation: ≤ 10 %	Change in elongation: ≤ 10 %	Change in elongation: ≤ 10 %	%	EN 14414 : A (hydrolyses under acid conditions)
SCREENING TEST METHOD for DETERMINING CHEMICAL RESISTANCE	Change in elongation: ≤ 10 %	Change in elongation: ≤ 10 %	Change in elongation: ≤ 10 %	%	EN 14414 : B (hydrolyses under alkaline conditions)
DIMENSIONAL STABILITY (Storage at 80 °C for 1 hours)	≤ ± 2	≤ ± 2	≤ ± 2	%	EN 1107-2
STORAGE in WATER at 85±1 °C for 90 days	Reduction in tensile strenght < 15 % Reduction in elongation < 15 %	Reduction in tensile strenght < 15 % Reduction in elongation < 15 %	Reduction in tensile strenght < 15 % Reduction in elongation < 15 %	%	EN 14575