

## PRODUCT TECHNICAL DATA SHEET

### ROWAD HDPE DOUBLE SMOOTH BLACK(HDS-R11):

ROWAD HDPE Geomembranes are produced from prime quality, high molecular weight resins and are specially designed to apply for all containment of fluids in hydraulic structure. It has exceptional mechanical properties and outstanding chemical resistance, dimensional stability with high thermal aging characteristics. It also has an excellent resistance to UV radiation, environmental stress crack and is highly suitable for exposed applications.

ROWAD Geomembranes specification shown below is meets or exceeds GRI GM 13 Rev.11 Standards.

Tested Prosperities	Test Method	Frequency	HDS075	HDS100	HDS150	HDS200	HDS250	HDS300
Thickness, (min. ave) mm	ASTM D 5199	Per roll	0.75	1.00	1.50	2.00	2.50	3.00
Lowest individual reading (-10%)			0.68	0.90	1.35	1.80	2.25	2.70
Density(min ave), g/cm <sup>3</sup>	ASTM D 792	90,000 Kgs	0.940	0.940	0.940	0.940	0.940	0.940
Tensile Properties , (min. ave)	ASTM D 6693,	9,000 Kgs						
Strength at Yield , N/mm	Type IV							
Strength at Break, N/mm	50mm /min							
Elongation at Yield, %	G.L. = 33 mm							
Elongation at Break, %	G.L. = 50 mm							
Tear Resistance,(min ave) N	ASTM D 1004	20,000 Kgs	93	125	187	249	311	374
Puncture Resistance,(min ave) N	ASTM D 4833	20,000 Kgs	260	360	520	680	840	1000
Carbon Black Content, (range) %	ASTM D1603/4218	9,000 Kgs	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0
Carbon Black Dispersion	ASTM D 5596	20,000 Kgs	+Note 1	+Note 1	+Note1	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397	Per GRIGM10	>300	>300	>300	>300	>300	>300
Oxidative Induction Time, mins	ASTM D 3895	90,000 Kgs	100	100	100	100	100	100
Dimensional Stability, %	ASTM D 1204	Resin batch	±1	±1	±1	±1	±1	±1
Oven Aging at 85°C	ASTM D 5721	Per	>80	>80	>80	>80	>80	>80
HP OIT % retained after 90 days	ASTM D 5885	formulation						
UV Resistance	GM 11	Per	>50	>50	>50	>50	>50	>50
HP OIT % retained after 1600 hrs	ASTM D 5885	formulation						
<b>Standard Roll Dimensions</b>								
Width(m) BF / FD	RTM	Per Roll	8/8	8/8	8/8	8/8	7/8	7/8
Length(m) BF / FD	RTM	Per Roll	225/225	170/170	110/110	80/80	70/70	50/50
Area (m <sup>2</sup> ) BF / FD	RTM	Per Roll	1800	1360	880	640	490	350

#### NOTES:

- Carbon black Dispersion only applies to near spherical agglomerates. 10 of 10 views in Category 1 or 2.
- Testing frequencies are rounded the nearest full roll.
- Roll lengths & widths have a tolerance of ±1%.
- NCTL/OIT Results For Smooth and Textured materials are taken from SMOOTH Section/Selvage of the Role & All 3<sup>rd</sup> Party Tests must be taken from this section only.
- Where offered- Conductive layers will be complete across the bottom of each role. (Standard Conductive will be BF or FD while Premium conductive will be BF only).
- For reference; BF= Blown Film, FD= Flat Die.
- Where offered single Textured rolls will be located on the upper face Unless otherwise agreed.