



## High Density Polyethylene Column Point Textured Geomembrane

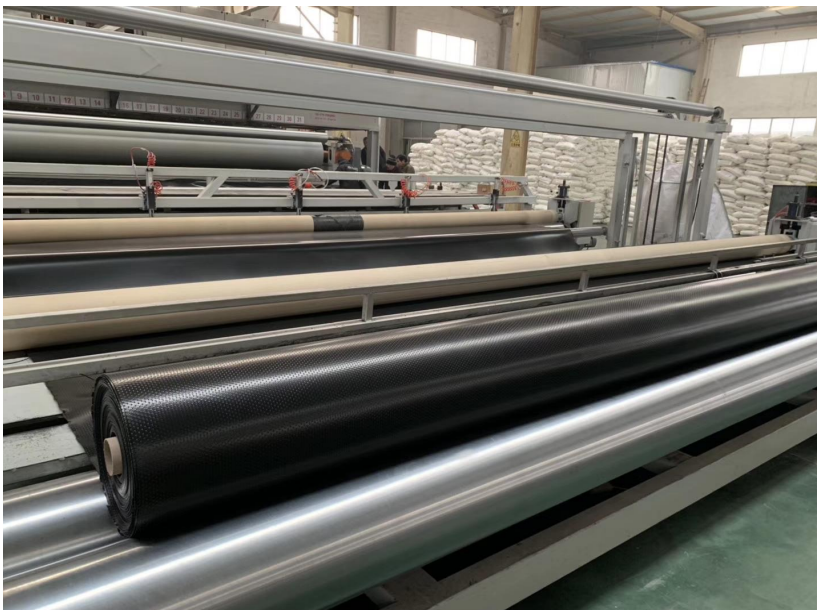
HDPE column point textured geomembrane is produced by using a coating equipment and squeezing it through a mold during the production process of HDPE geomembrane, which improves the friction performance of the surface of the geomembrane. In engineering laying, in addition to its functions of anti-seepage, anti fouling, and anti slip, it also has the function of enhancing the adhesion strength of geotextiles in secondary laying, and has the characteristics of convenient construction and high application efficiency. It is an ideal specialized material for anti-seepage and anti pollution engineering in landfill sites.

HDPE column point textured geomembrane on the basis of retaining the original high density polyethylene resin itself and good extension rate and stable chemical performance. The processing and other process processing, reasonable control has enhanced the product's tensile, wear-resistant, puncture resistant, acid-alkali, and corrosion resistance.

HDPE column point textured geomembrane has a beautiful appearance, uniform distribution, high friction coefficient, and convenient construction for anti-seepage, anti pollution, and anti slip functions. It is mainly used for anti-seepage of garbage landfills, sewage treatment plants, rivers, lakes, and reservoir dams, as well as slope protection projects such as reservoirs, fish ponds, and intensive plant breeding ponds.



[HDPE Column Piont Texturd Geomembranes]



[High Density Polyethylene Column Piont Texturd Geomembranes]

Column point geotextile can increase the friction coefficient with the contact surface, enhance the anti-skid function of geotextile, especially suitable for slope, steep slope and heavy straight anti-seepage, and improve engineering stability. Effectively prevent the sliding of the geomembrane and reduce stress on the weld seam and the membrane itself.

### HDPE Column Piont Texturd Geomembrane Features:

- HDPE column point geomembrane has good flexibility and high damping coefficient, suitable for uneven deposition.
- HDPE column point geomembrane has good heat and cold resistance and can be used over a wide temperature range.
- HDPE column point geomembrane has good chemical properties and strong corrosion resistance.
- HDPE column point geomembrane has strong weather resistance and excellent resistance to aging, ultraviolet radiation, and decomposition. The material's service life can reach 50-70 years, providing environmental anti-seepage.
- HDPE column point geomembrane has high tensile strength and elongation at break, and can be used in various harsh environments.
- HDPE column point geomembrane has good puncture resistance and can almost resist plant roots.

Geomembrane Products: HIGH DENSITY POLYETHYLENE COLUMN POINT TEXTURED GEOMEMBRANES

## APPLICATION

HDPE column point textured geomembrane is mainly used for anti-seepage treatment of landfill sites, sewage treatment plants, and power plant regulating ponds; canal anti-seepage, slope protection, industrial aquaculture ponds, fish ponds, shrimp ponds lining, and reservoir anti-seepage laying; golf pools, green lawns, chemical plants, refineries, storage tanks, chemical reaction tanks for anti-seepage; seepage control of sedimentation tank lining, reservoir, application tank, salt tank, irrigation system, etc.

## SPECIFICATIONS OF HDPE COLUMN POINT TEXTURED GEOMEMBRANE

HDPE COLUMN POINT TEXTURED GEOMEMBRANE GB T17643-2011

Item	Indicators						
	0.75	1	1.25	1.5	2	2.5	3
Thickness (mm)	0.75	1	1.25	1.5	2	2.5	3
Density (g/m <sup>3</sup> )	≥0.940						
Roughness height (mm)	≥0.25						
Tensile yield strength (longitudinal and transverse) N/mm	≥11	≥15	≥18	≥22	≥29	≥37	≥44
Tensile fracture strength (longitudinal and transverse) N/mm	≥8	≥10	≥13	≥16	≥21	≥26	≥32
Yield elongation (longitudinal and transverse) %	≥12						
Elongation at break (longitudinal and transverse) %	≥100						
Right angle tear load (longitudinal and transverse) N	≥93	≥125	≥160	≥190	≥250	≥315	≥375
Puncture resistance strength N	≥200	≥270	≥335	≥400	≥535	≥670	≥800
Tensile load stress cracking (notch constant load tensile method) h	≥300						
Carbon black content %	2.0~3.0						
Carbon black dispersibility	Out of 10 data points, there should be no more than 1 level 3, and levels 4 and 5 are not allowed.						
oxidation induction time (OIT)(min)	Induction time of atmospheric pressure oxidation≥100						
	Induction time of high-pressure oxidation≥400						
85°C thermal aging (atmospheric pressure OIT retention rate after 90 days)	≥55						
UV resistance (OIT retention rate after 1600 hours of UV irradiation) %	≥50						

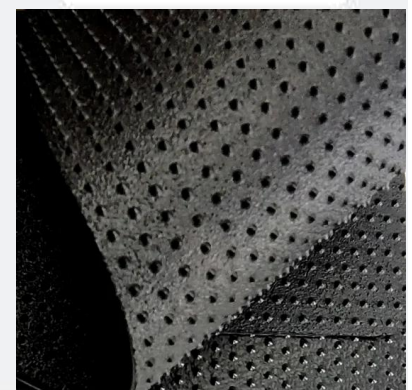
Note: The technical performance indicators for thickness specifications not listed in the table are required to be executed using interpolation method.

HDPE double column point geomembrane is mainly used for slopes. Its main function is to increase friction through its surface column points, playing a role in anti slip. When laying, it should be rolled from top to bottom, with an overlap width of about 15cm between adjacent films. It is welded using an automatic climbing welding machine.

HDPE column point geomembrane has better efficiency, and new technologies have improved the membrane's anti-seepage performance, resulting in lower costs for additional materials. Through actual testing, geomembranes can save 50% of engineering costs.

The construction speed of HDPE column point geomembrane is fast, the geomembrane has high flexibility, multiple specifications, and various laying forms, which can meet different engineering needs.

The appearance of the column points is beautiful, with a uniform distribution and high friction coefficient, which has the function of anti seepage and anti skid, making it easy to construct.



Geomembrane Products: HIGH DENSITY POLYETHYLENE COLUMN POINT TEXTURED GEOMEMBRANES

## SPECIFICATIONS OF HDPE COLUMN POINT TEXTURED GEOMEMBRANE

### HDPE COLUMN POINT TEXTURED GEOMEMBRANE ASTM GM13

Properties	Test Method (ASTM)	Test Value					
		1.00 mm	1.25 mm	1.50 mm	2.00 mm	2.50mm	3.0mm
Asperity Height	D7466	0.25mm	0.25mm	0.25mm	0.25mm	0.25mm	0.25mm
Density	D 792	0.940 g/cm <sup>3</sup>	0.940 g/cm <sup>3</sup>	0.940 g/cm <sup>3</sup>	0.940 g/cm <sup>3</sup>	0.940 g/cm <sup>3</sup>	0.940 g/cm <sup>3</sup>
Tensile properties	D6693 Type IV	15	18	22	29	37	44
Strength at Yield N/mm		10	13	16	21	26	32
Strength at Break N/mm		12	12	12	12	12	12
GElongation at Yield %		700	700	700	700	700	700
Elongation at Break %							
Tear Resistance	D 1004	125 N	156 N	187N	249 N	311 N	374 N
Puncture Resistance	D 4833	267N	333N	400N	534 N	667 N	800N
Stress Crack Resistance	D 5397	500hr.	500 hr.	500 hr.	500 hr.	500hr.	500 hr.
Carbon Black Content	D 1603	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%
Oxidative Induction Time (OIT)	D 3895 D 5885	100 min.	100 min.	100 min.	100 min.	100 min.	100 min.
Standard OIT							
High Pressure OIT		400min.	400 min.	400 min.	400 min.	400 min.	400 min.
Oven Aging at 85 °C Standard OIT	D 5721 D 3895 D 3895	55%	55%	55%	55%	55%	55%
retained after 90 days							
High Pressure OIT retained after 90 days		80%	80%	80%	80%	80%	80%
UV Resistance	D 3895 D 5885	50%	50%	50%	50%	50%	50%
Standard OIT							
High Pressure OIT		50%	50%	50%	50%	50%	50%

HDPE column point rough surface geomembrane is divided into single column point geomembrane and double column point geomembrane. The products produced by this production process retain the excellent mechanical properties and good elongation of the original resin, and have stable chemical properties. By adding a certain proportion of functional additives through melting, extrusion, rolling, drawing and other processes, the tensile, wear-resistant, and puncture resistance of the products are enhanced. The mechanical properties of this product are nearly three times higher than those of rough surface anti-skid geomembranes produced by similar ordinary processes. The column points on the membrane surface are formed by specially designed model rolling, with uniform distribution, beautiful appearance, and improved friction coefficient. The front and back sides of the membrane surface can be melted together by different materials and colors. In engineering applications, the front and back sides of the product can be set according to geological conditions and engineering requirements.

### The difference between column point geotextile and rough surface geotextile

Column point geomembrane is formed by mutual compression and cooling of concave columnar point pressure rollers before the plate is cooled and formed, resulting in columnar protrusions on the base plate, forming a columnar point surface geotextile.

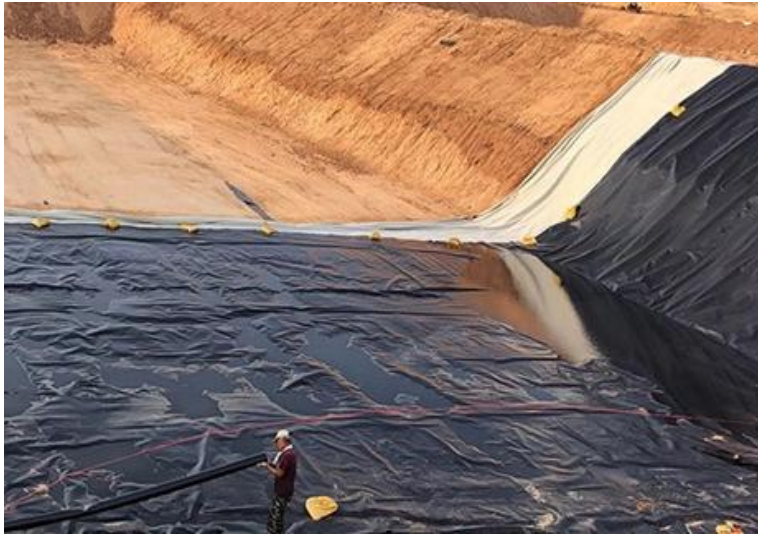
Rough surface geomembrane is based on the foundation plate, which damages the original surface and reduces the thickness of the original plate, so its physical indicators are lower than those of the foundation plate.

The friction coefficient of rough surface geotextile is higher than that of column point geotextile. The quality of column point geotextile is higher and it bears greater force. The friction coefficient of the rough surface is large, and the quality is slightly inferior to that of the column point geotextile, which is prone to damage.





## PROJECTS CASE OF HDPE COLUMN POINT TEXTURED GEOMEMBRANE



[Agricultural Irrigation System in Pakistan]



[Dam in Singapore]

## GEOMEMBRANE CONSTRUCTION

Construction method of geomembrane:

- It should be extended from the bottom to the high level. Do not pull too tightly. There should be 1.50% of the remaining sinking stretch. Considering the actual situation of this project, the slope adopts the order of laying from top to bottom;
- The two adjacent vertical joints should not be on a horizontal line, and it should be staggered by more than 1m;
- The vertical connector should be from the dam of the dam. At the bending foot of 1.50m, it should be located on the plane;
- First slope and backcourt;
- When the slope is laid, the direction of the exhibition membrane should basically parallel on the maximum slope line.

Climate requirements for geomembrane construction:

- The temperature should geomembrane be above five degrees Celsius. At low temperature, the geomembrane should be tense, and the geomembrane should be relaxed at high temperature.
- The wind is below level four.
- When the temperature is too low, the wind and rainy weather above level 4 should not be constructed.
- David weather and wind force affect the construction of the geomembrane, the HDPE geomembrane to be welded and the sandbags are applied.

## APPLICATION SCENARIOS

- Water conservancy (such as anti-seepage of rivers, lakes, reservoir embankments, embankments, reinforcement of leaks, anti-seepage of channels, vertical central walls, slopes, etc.).
- Landscape garden (artificial lake, river, reservoir, golf course pool bottom lining and slope, green lawn waterproofing and anti-seepage, etc.).
- Agriculture (seepage control of reservoirs, application pools, reservoirs, irrigation systems, etc.).
- Municipal (subway and structural underground engineering, highway, railway embankment anti-seepage).

