



Environmental Protection Products



GRAND APEX INTERNATIONAL CO. LTD.

新力國際技術產品有限公司

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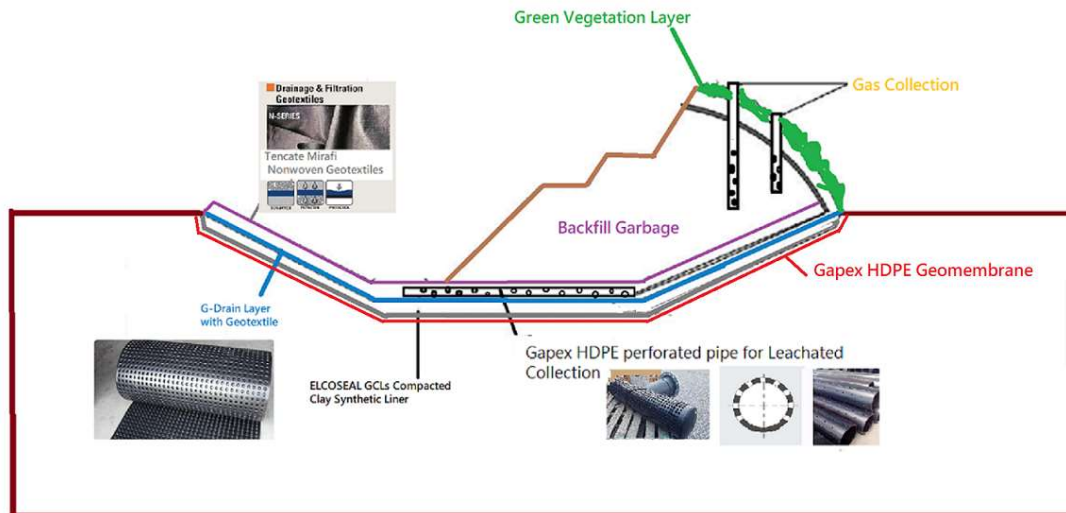
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Gapex Landfill Geomaterial Solutions



1. Gapex HDPE Geomembrane
2. ELCOSEAL Geosynthetic Clay Liners (GCLs)
3. Gapex HDPE perforated pipe
4. Gapex G-drain Layer
5. Tencate Nonwoven Geotextiles
6. G-Mat Erosion Control Mat

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Gapex HDPE Geomembrane

Gapex produces high quality geomembranes, geocells, concrete protective liners for major geoengineering applications such as landfills, wastewater treatment, tunnels, waterproofing, mining engineering and slope protection. As an environmentalist, Gapex has developed a variety of solutions to make projects easier and better.

Gapex smooth geomembrane is made of premium virgin HDPE resin designed specifically for geomembrane production along with adequate carbon black, antioxidant, and stabilizers to have superior mechanical properties and outstanding long-term resistance to chemical, ozone, oxidation, environmental stress crack, and UV radiation. These advantages make Gapex geomembrane the most suitable for those exposed or non-exposed applications.



Specialized in:

- Landfills
- Biogas
- Reservoir / Canal
- Aquaculture
- Infrastructure
- Mining/Tailing Dam/Leach Pad/Evaporation Pond

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ELCOSEAL® Geosynthetic clay liners (GCLs)

ELCOSEAL Geosynthetic Clay Liners (GCLs) are used as an easy to install lining system in landfills and waste containment structures and for liquid containment in effluent ponds and tailings dams. ELCOSEAL GCLs are also effective liners for dams, ponds, lakes, wetlands, irrigation canals and channels.

ELCOSEAL GCLs consist of a layer of bentonite bonded between two layers of woven and nonwoven geotextiles. The needle-punching process reinforces the bentonite layer with thousands of fibers, maximising the product's internal resistance. An additional heat-treating process called "thermal locking" secures the needle-punched fibers, further improving strength and performance.

Landfill

Landfill lining and capping systems reduce leakage of leachate out of the landfill waste body and prevent water infiltration through the top surface of the landfill. ELCOSEAL GCLs can be used in landfill base liners, side slopes and caps to replace or supplement traditional lining systems.



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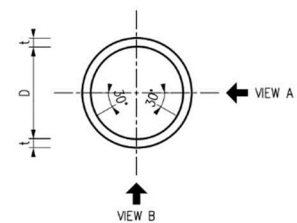
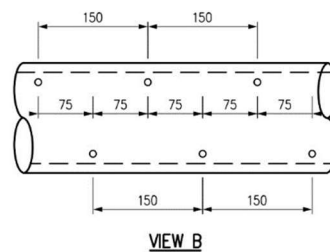
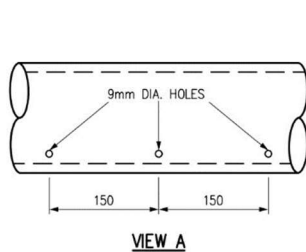
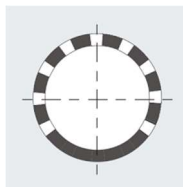
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Gapex HDPE perforated pipe for Landfill



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Gapex HDPE perforated pipe for Landfill

Material : PE100

Color : Black

Standard : BS EN12201-2

Nominal Outer Diameter(mm)	Nominal Wall Thickness(mm)					
	Standard Dimension Ratio					
	SDR33	SDR26	SDR21	SDR17	SDR13.6	SDR11
	Nominal Pressure(bar)					
	PN5	PN6	PN8	PN10	PN12.5	PN16
20						2.3
25						2.5
32						3.0
40						3.7
50					3.7	4.6
63				3.8	4.7	5.8
75			3.6	4.5	5.6	6.8
90			4.3	5.4	6.7	8.2
110		4.2	5.3	6.6	8.1	10.0
125		4.8	6.0	7.4	9.2	11.4
140		5.4	6.7	8.3	10.3	12.7
160		6.2	7.7	9.5	11.8	14.6
180		6.9	8.6	10.7	13.3	16.4
200		7.7	9.6	11.9	14.7	18.2
225		8.6	10.8	13.4	16.6	20.5
250		9.6	11.9	14.8	18.4	22.7
280		10.7	13.4	16.6	20.6	25.4
315		12.1	15.0	18.7	23.2	28.6
355		13.6	16.9	21.1	26.1	32.2
400		15.3	19.1	23.7	29.4	36.4
450		17.2	21.5	26.7	33.1	40.9
500		19.1	23.9	29.7	36.8	45.4
560		21.4	26.7	33.2	41.2	50.8
630	19.3	24.1	30.0	37.4	46.3	57.2
710	21.8	27.2	33.9	42.1	52.2	
800	24.5	30.6	38.1	47.4	58.8	
900	27.6	34.4	42.9	53.3	66.2	
1000	30.6	38.2	47.7	59.3	72.5	
1200	36.7	45.9	57.2	67.9		
1400	42.9	53.5	66.7			
1600	49.0	61.2				
1800	57.4	*72.8 (PN6.4)	89.5	105.9		

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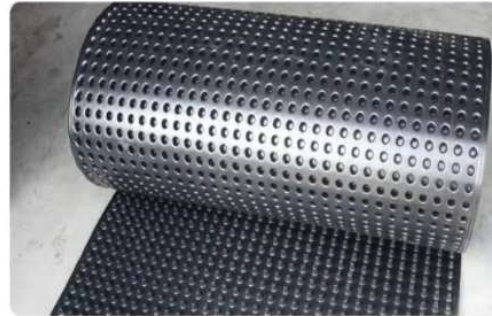
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G-Drain Layer With Geotextile

G-drain HD 10 are high-performance, high-strength drainage, efficient, economical composites for underground drainage. High-impact polystyrene core with a non-woven filter fabric.

G-drain HD 10 has been specifically designed to reduce hydrostatic pressure behind structures such as retaining wall and planter drainage, bridge abutment, It is also ideal for draining foundations and basement reducing the likelihood of structural damage caused by foundation movements in expansive soils. G-drain HD 10 drain also serve as protection courses over waterproofing membranes.



Technical Data

Property	Unit	Typical Value
CORE		
Material		HIPS
Thickness(Average) ASTM-D1621-73(79)	mm	0.64
High (Average) ASTM-D1621-73(79)	mm	9.61
Compressive Strength ASTM-D1621-73(79)	MPa / Kpa	1.06MPa/1000 Kpa
Maximum Force ASTM-D1621-73(79)	N	99930
Maximum Flow ASTM-D 4716	L/min/m	200
Color		Black/Blue
GEOTEXTILE		
Material		PP/PET
Equivalent Pore size(EOS)	O ₉₅ (O ₉₅) mm	0.07-0.2
Coefficient of permeability	cm/s	K × (10 ⁻¹ -10 ⁻³)
Grab tensile Strength	KN/m ≥	4.5
Grab Elongation	%	50
California Bearing ratio(CBR)	KN ≥	0.6
PACKING : 1170mm (W)x 13.67 m(L)=15 m²/Roll		

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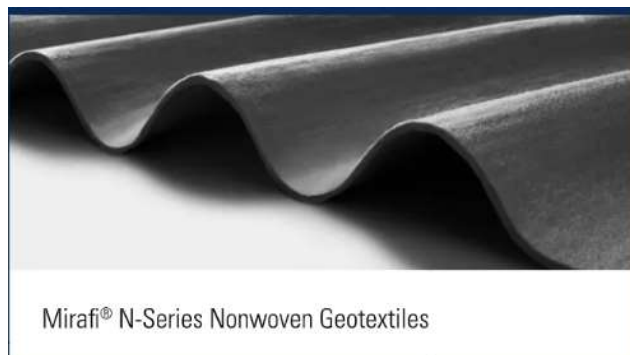
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Tencate Nonwoven Geotextiles

Mirafi® N-Series nonwoven polypropylene geotextiles are staple fibers used for soil separation and drainage. They combine high tensile strength, along with excellent physical



and hydraulic properties. This aggressive geotextile is designed to handle many environmental problems found in roads, embankments, airfields, landfills, and sports construction projects. Produced from polypropylene staple fibers, Mirafi® N-Series geotextiles combine high water flow rates and durability while providing excellent soil retention.



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G-Mat Erosion Control Mat

G-Mat is a compact P.E. web designed to grow wetland plants and native ecospecies. It restores our natural vegetation and improves local and global environmental quality.

G-Mat can stabilize eroding and subsiding land caused by storm water runoff and concentrated water flow. The roof reinforcement technology can be used in soil erosion control, filtration of pollutant, and recharge of groundwater and improvement of water quality. It can improve the natural cover's performance of the land on designed steep slopes or under high water velocity and shear conditions. The reinforced layer does not restrict the growth of vegetation but increase permissible shear of the vegetation.



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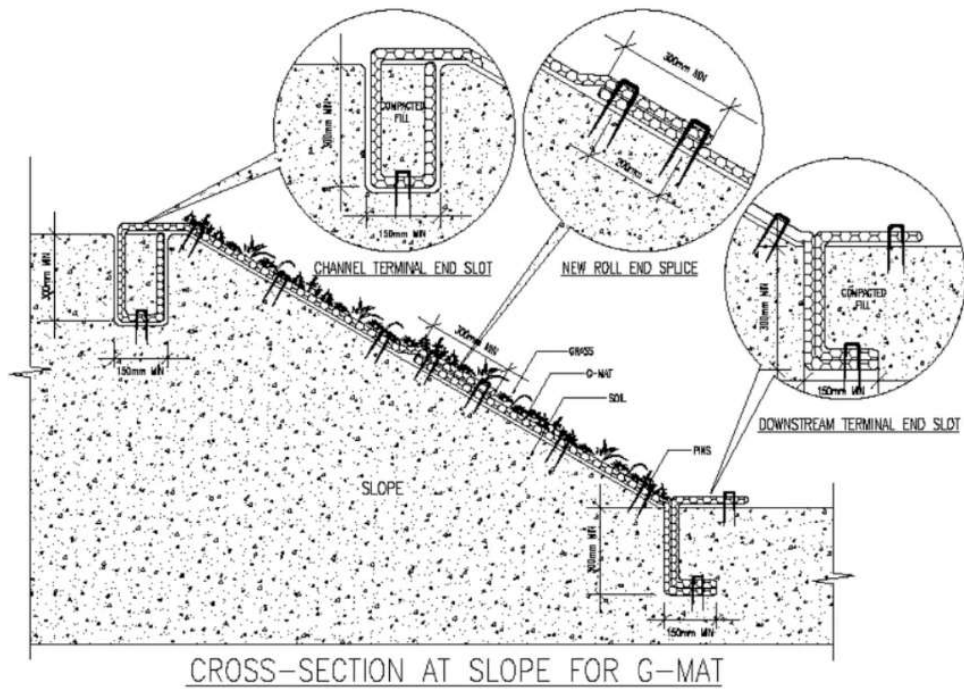
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Properties	Test Method	Value
Material		High Density Polyethylene
Standard Color		Black/Green
Thickness, mm	BS6906 part 1:1987	18mm
Filament Diameter	BS6906 part 1:1987	0.75mm
Tensile Strength	BS6906 part 1:1987	2.9(kN/m)
Elongation	BS6906 part 1:1987	360%
Porosity	%	90

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