



**ALPHA
PINNACLE**



ALPHATEX NONWOVEN GEOTEXTILE

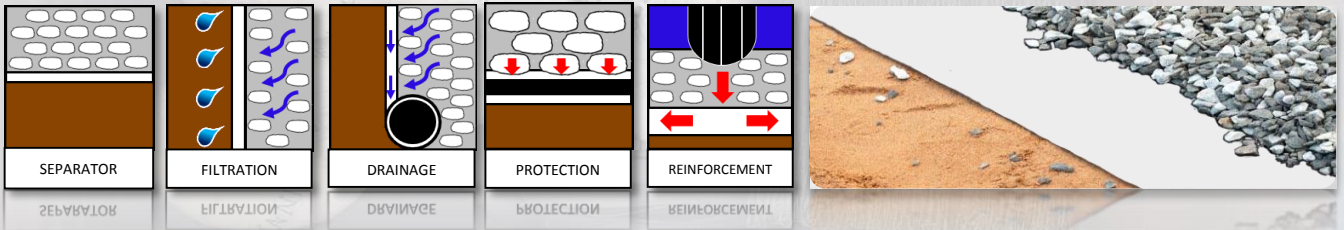
ALPHATEX NONWOVEN GEOTEXTILE



ALPHATEX nonwoven geotextile is made to achieve a higher quality standard material and has ISO 9001:2008 accreditation.

The AlphaTex geotextile is made using needle punched technology and have high resistance on heat and light. It is proven to exhibit long term resistance to all substances occurring naturally in soil, water and microorganism. The geotextile defines as permeable textile material used in contact with soil, rock, earth or any other geotechnical related material as integral part of civil engineering projects, structure or system.

AlphaTex geotextile supplied in roll forms with standard width and length. There are five main functions of geotextile; separator, filtration, drainage, protection and reinforcement.



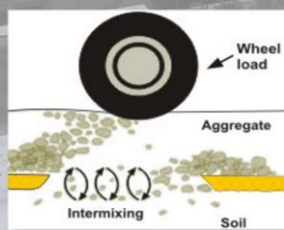
APPLICATION



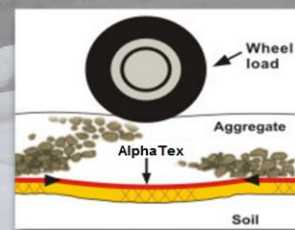
Separator

AlphaTex's is ideal as a separator for the construction of roads/embankments over soft grounds, as it prevents soil layers with different composition and properties from mixing during construction. Consequently, the amount of fill material can be reduced and the life span of the road/embankment can be enhanced. The properties of AlphaTex used are dependent upon the subgrade strength and load applied during the construction. Typically AlphaTex is placed directly on the subgrade followed by placement and compaction of adequate depth of stone.

Without AlphaTex



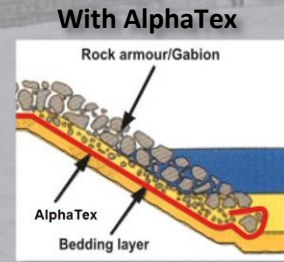
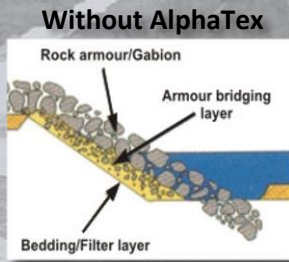
With AlphaTex





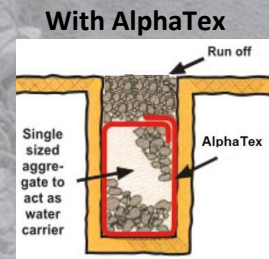
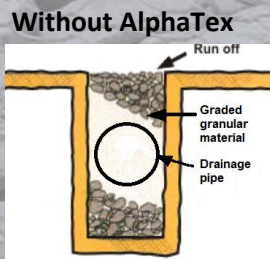
Filtration

AlphaTex is highly porous, allowing water to pass through in any direction of the geotextile from a soil mass. At the same time retains and restrict the movement of the soil particles which is very important for soil stability and erosion prevention. Normally, AlphaTex is used between soils and rip rap to prevent erosion of soil through the armoring layer. AlphaTex is used at the back of gabion retaining wall to contain soil mass from movement caused by ground water table. Conventional filter properties and criteria can be used for the design.



Drainage

AlphaTex 3 dimensional stable network of fabric allows water to flow through or within the plane of the geotextile due to its high permittivity. The dissipation and discharge of excessive pore water pressure can alleviate engineering structures such as roads, sports fields and behind retaining walls. Uncontrolled ground-water can be destructive and subsurfaced drainage system is very important under highways, parking lots, golf courses etc. Hydraulic properties such as permeability, apparent opening size (AOS) and flow rate are critical characteristic for this application.

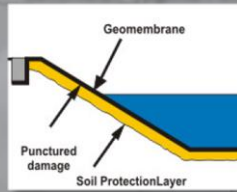




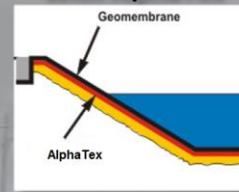
Protection

AlphaTex high puncture resistance protects and prevents perforation/tear during construction by heavy machinery or sharp and heavy objects to plastic liners/geomembrane used in landfills, by providing cushion and extra protection layer. AlphaTex maybe place on one or both sides of the plastic liners/ geomembrane as per design requirement.

Without AlphaTex

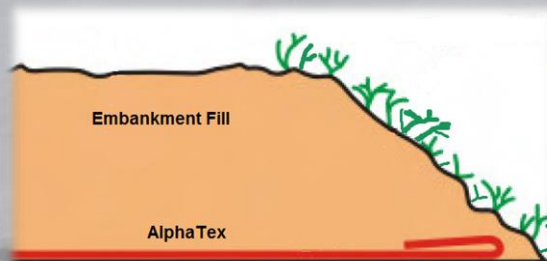


With AlphaTex



Reinforcement

AlphaTex separate, stabilize and reinforce subgrade over soft grounds thereby reducing aggregate requirements in roads and embankment construction. In addition, loads are spread equally and therefore gives additional strength in stabilizing and reinforcing the construction areas. Typically, AlphaTex is placed over the foundation soil and covered with fill soil that built using conventional construction equipment until the required embankment height is achieved.



TECHNICAL DATA SHEET – ALPHATEX NONWOVEN GEOTEXTILE

AlphaTex AG Series

| PROPERTIES | TEST STANDARD | UNIT | AG10 | AG12 | AG15 | AG20 | AG25 |
|------------------------------------|----------------|------------------|------|------|------|------|------|
| PHYSICAL PROPERTIES | | | | | | | |
| Unit Weight | ASTM D5261 | g/m ² | 100 | 120 | 150 | 200 | 250 |
| Width | | m | 4 | 4 | 4 | 4 | 4 |
| Length | | m | 330 | 250 | 220 | 170 | 130 |
| MECHANICAL PROPERTIES | | | | | | | |
| Ultimate Tensile Strength – MD (1) | ASTM D4595 | kN/m | 6.6 | 8.9 | 10.8 | 14.2 | 18 |
| Ultimate Tensile Strength – CD (1) | ASTM D4595 | kN/m | 4.7 | 6.7 | 8.4 | 11.7 | 15 |
| Elongation – MD (2) | ASTM D4595 | % | 53 | 53 | 53 | 53 | 53 |
| Elongation – CD (2) | ASTM D4595 | % | 59 | 59 | 59 | 59 | 59 |
| Thickness (2) | DIN EN 29073/2 | mm | 1.65 | 1.7 | 2.05 | 2.5 | 2.9 |
| Grab Tensile Strength – MD (1) | ASTM D4632 | N | 450 | 600 | 755 | 1030 | 1200 |
| Grab Tensile Strength – CD (1) | ASTM D4632 | N | 350 | 490 | 608 | 840 | 1000 |
| Trapezoidal Tear Strength – MD (1) | ASTM D4533 | N | 165 | 220 | 271 | 380 | 465 |
| Trapezoidal Tear Strength – CD (1) | ASTM D4533 | N | 145 | 175 | 235 | 310 | 390 |
| CBR Puncture (2) | ASTM D6241 | N | 1180 | 1450 | 1830 | 2500 | 3400 |
| HYDRAULIC PROPERTIES | | | | | | | |
| AOS (O ₉₅) | ASTM D4751 | µm | 190 | 180 | 150 | 100 | 90 |
| Vertical permeability | EN ISO 11058 | mm/s | 120 | 115 | 110 | 95 | 85 |

* based on, (1) = -10% tolerance, (2) = -15% tolerance

AlphaTex AG-S Series

| PROPERTIES | TEST STANDARD | UNIT | AG25S | AG30S | AG40S | AG50S | AG60S | AG80S | AG100S | AG120S |
|---|---------------|-----------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| PHYSICAL PROPERTIES | | | | | | | | | | |
| Unit Weight | EN ISO 9864 | g/m ² | ≥ 250 | ≥ 300 | ≥ 400 | ≥ 500 | ≥ 600 | ≥ 800 | ≥ 1.000 | ≥ 1.200 |
| Thickness | EN ISO 9863-1 | mm | ≥ 2.2 | ≥ 3.0 | ≥ 3.5 | ≥ 4.0 | ≥ 4.7 | ≥ 5.0 | ≥ 6.3 | ≥ 7.7 |
| Width | | m | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 |
| Length | | m | 110 | 80 | 70 | 60 | 50 | 45 | 40 | 35 |
| MECHANICAL PROPERTIES | | | | | | | | | | |
| Max. Tensile Strength Average MD/CD** (1) | EN ISO 10319 | kN/m | 20.0 | 25.0 | 30.0 | 35.0 | 45.0 | 55.0 | 65.0 | 80.0 |
| Max. Tensile Strength, MD/ CD** (1) | EN ISO 10319 | kN/m | 20/20 | 25/25 | 30/30 | 35/35 | 45/45 | 55/55 | 65/65 | 72/88 |
| Elongation at max. tensile strength, MD/CD** (1) | EN ISO 10319 | % | 50/50 | 50/50 | 50/50 | 50/50 | 50/50 | 50/50 | 50/50 | 50/50 |
| Puncture Force (1) | EN ISO 12236 | N | 3,600 | 4,500 | 5,800 | 7,500 | 8,500 | 10,000 | 12,000 | 14,000 |
| Dynamic Perforation Resistance (2) | EN ISO 13433 | mm | 14 | 10 | 7 | 6 | 5 | 4 | 2 | 1 |
| HYDRAULIC PROPERTIES | | | | | | | | | | |
| Characteristic Opening Size (3) | EN ISO 12956 | µm | 80 | 85 | 80 | 75 | 70 | 65 | 60 | 60 |
| Water Permeability (4) - V _I H ₅₀ -Index - Flow Rate _{H50} | EN ISO 11058 | m/s l/(m ² s) | 6.0 x 10 ⁻² 60 | 6.5 x 10 ⁻² 65 | 5.0 x 10 ⁻² 50 | 4.0 x 10 ⁻² 40 | 2.7 x 10 ⁻² 27 | 2.2 x 10 ⁻² 22 | 1.5 x 10 ⁻² 15 | 1.2 x 10 ⁻² 12 |
| Detector Tested | | | yes | yes | yes | yes | yes | yes | yes | yes |

* based on, **md = machine direction, cd = cross machine direction, (1) = (+)/- 10% tolerance, (2) = +/(-) 20% tolerance, (3) = +/- 30% tolerance, (4) = (+)/- 30% tolerance

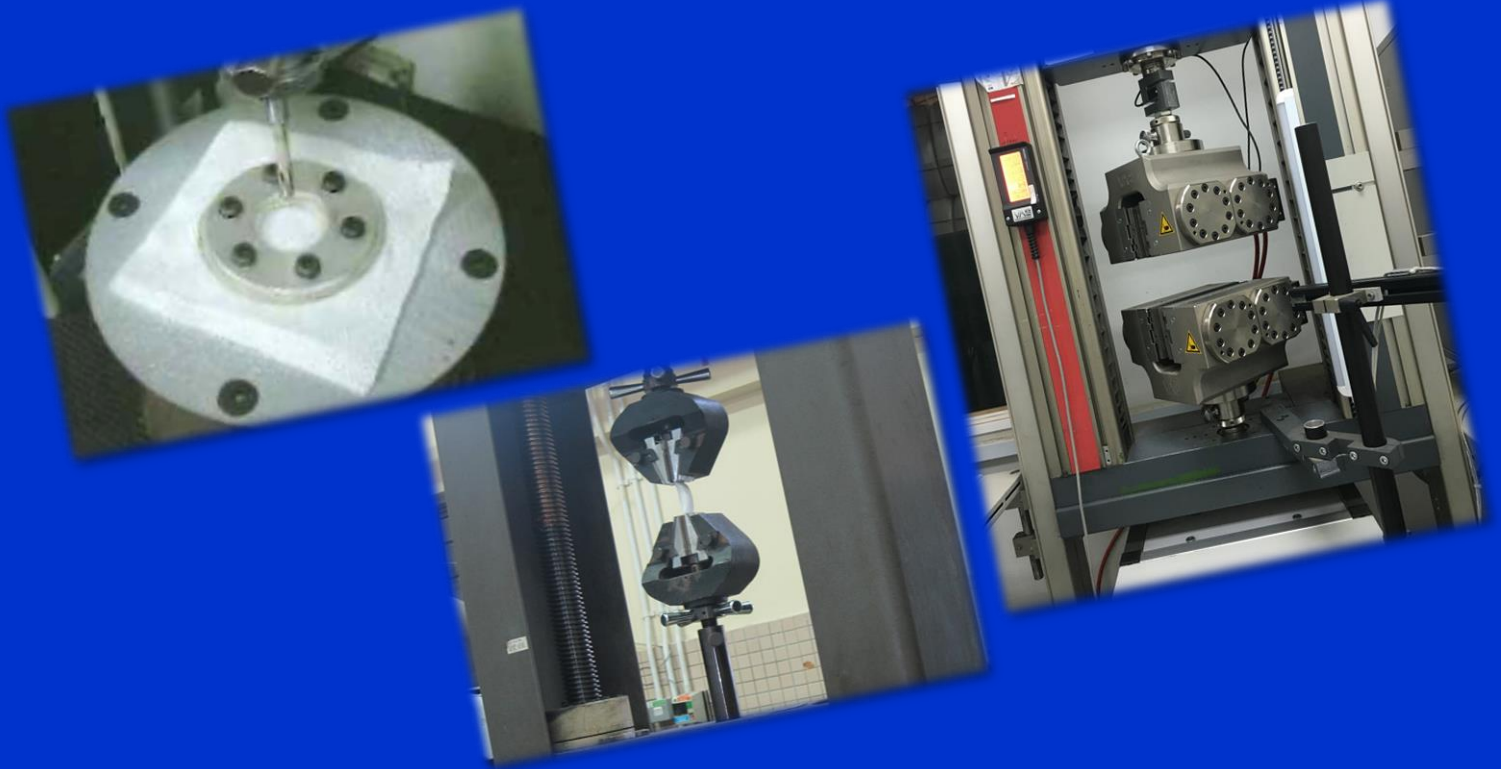
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SELECTION OF GEOTEXTILE PROPERTIES AND APPLICATION SUITABILITY

| GEOTEXTILE PROPERTIES | APPLICATION | | | | | |
|-------------------------------|---|--------------------------------|---------------------------|----------------------------------|-----------|---|
| | ROADWORKS/ SUBGRADE STABILIZATION | REINFORCED SLOPES/ WALLS | ROAD PAVEMENT WORKS | SURFACE EROSION PROTECTION | LANDFILLS | COASTAL & RIVERBANK EROSION PROTECTION |
| Unit weight/ mass | | | | | √ | √ |
| Thickness | | | | | √ | √ |
| Tensile Strength & Elongation | √ | √ | √ | √ | √ | √ |
| Grab Tensile Strength | | | | | √ | √ |
| Cone Drop Test | √ | | | | √ | √ |
| CBR Puncture | √ | √ | √ | | √ | √ |
| Trapezoidal Tear Strength | | | | | | √ |
| Opening Size | √ | | | | | √ |
| Permeability | √ | | | | | √ |
| Flow Rate | | √ | | | √ | |

GEOTEXTILE QUALITY CONTROL



ALPHA PINNACLE SDN. BHD. (1108444-U)

A-01-01, First Floor, Garden Shoppe @ One City, Jalan USJ 25/1F,
47650 Subang Jaya, Selangor, Malaysia

Telephone: (603) 5115 0330 | Fax: (603) 5115 0333

Email: contact@alphapinnacle.com

www.alphapinnacle.com