

Product catalogue



Geosynthetics
division

About us

The Armando Alvarez Group can trace its origins back to 1954.

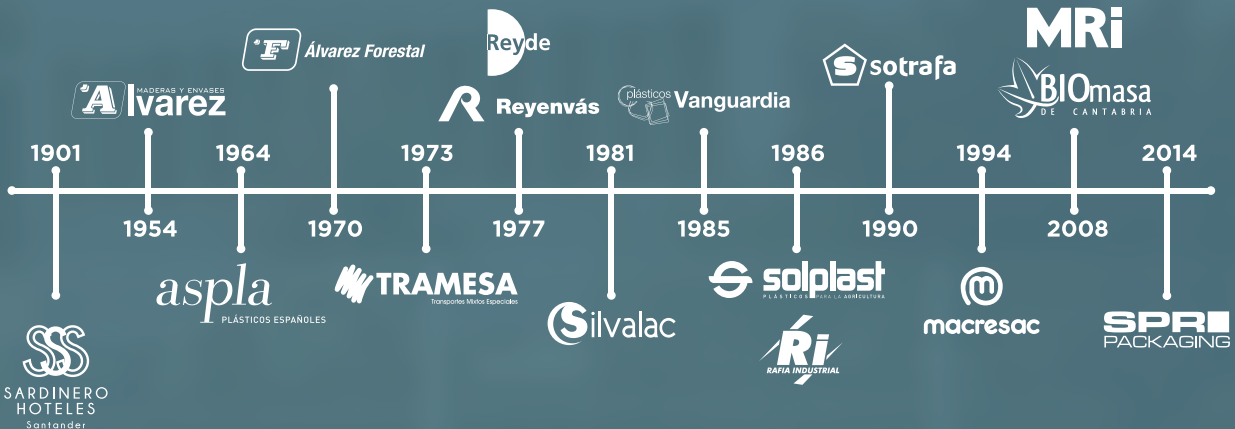
In the beginning, the group focused on wood preservation for purposes such as construction or use in the chemical industry.

Although the group has never turned its back on its origins, it has gradually become a role model for industry in Europe.

To date, the Armando Álvarez Group can boast eleven plastic extrusion facilities, and it is present in other strategically important sectors in Spain, such as transport, energy and hospitality.

Our current plastic extrusion volume is estimated to be over 300,000 tons. Every company in the group has been certified with the quality management system ISO 9001.

Company's Timeline



Quality products, committed team



Since 2005, **Sotrafa SA** has produced and supplied more than 47 million square metres of Geomembrane for a variety of hydraulic and environmental applications.

Wide range of geomembranes:

- **ALVATECH HDPE** with a 0.75 (29.53 mil) to 3 mm (118.11 mil) thickness and a 5.8 m (19.03') or 7.5 m (24.61') width.
- **ALVATECH HYDRO HDPE** with a 0.5 mm (19.69 mil) to 1 mm (39,37 mil) thickness, and a 6 m (19.69') or 8 m width folded and unfolded respectively.
- **ALVATECH LLDPE** with a 0.75 (29.53 mil) to 3 mm (118.11 mil) thickness and a 5.8 m (19.03') or 7.5 m (24.61') width.
- **ALVATECH HYDRO LDPE** with a 0.5 mm (19.69 mil) to 1 mm (39,37 mil) thickness, and a width of up to 12 m (39.37'), folded.
- **ALVATECH ULTRAFLEXIBLE VLDPE** with a 0.75 (29.53 mil) to 3 mm (118.11 mil) thickness and a 5.8 m (19.03') or 7.5 m (24.61') width.

Always satisfying the needs of our clients



Rafia Industrial S.A. was established in 1941, and in 1987 became part of the Armando Álvarez Group. From that date, Rafia Industrial has not ceased to make major investments with the purpose of meeting the growing number of requirements set by our clients, by employing cutting-edge techniques and ever evolving qualified personnel.

Our solid principles and values have earned us our clients' recognition and confidence in our products, which adapt perfectly to the requirements of the most modern packing facilities.





Features and advantages

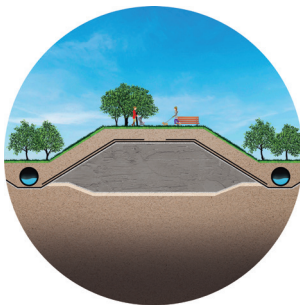
- Several widths available for different applications.
- Length marking (printed in metres) on the edge of the sheet, as a countdown system.
- Smooth geomembrane, with slight roughness for easier installation.
- Manufactured by Flat Die Extrusion, which enables uniform thickness and avoids creasing.
- Our formulation makes the product easier to weld, which improves its application performance.
- Our geomembrane is certified and meets the most demanding markets requirements.

ALVATECH 5002

Smooth waterproof liner manufactured with either high-density polyethylene (HDPE), linear low-density polyethylene (LLDPE) or very low-density polyethylene (VLDPE).

Two widths available: 5.8 m (19.03') and 7.5 m (24.61'). By using a 7.5 m (24.61') width you can optimize installation costs and on site quality control, by reducing the number of welds by around 20 percent compared to the welds necessary with a 6.20 m (20,34') width.

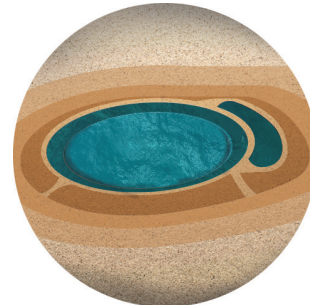
ALVATECH is manufactured by flat die extrusion (calendering). This state-of-the-art technology enables to achieve an excellent thickness regulation and a uniform surface finishing. The product's specific formulation makes it easy to weld, enhancing its mechanical properties and chemical resistance.



Landfill construction



Mining



Reservoir construction

Applications:

- Reservoirs
- Mining
- Landfills
- Canals
- Aquaculture
- Floating covers
- Environmental works
- Underground works

Functions:



Sealing

Barrier

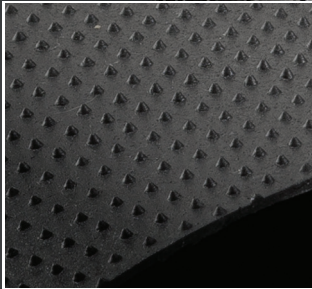
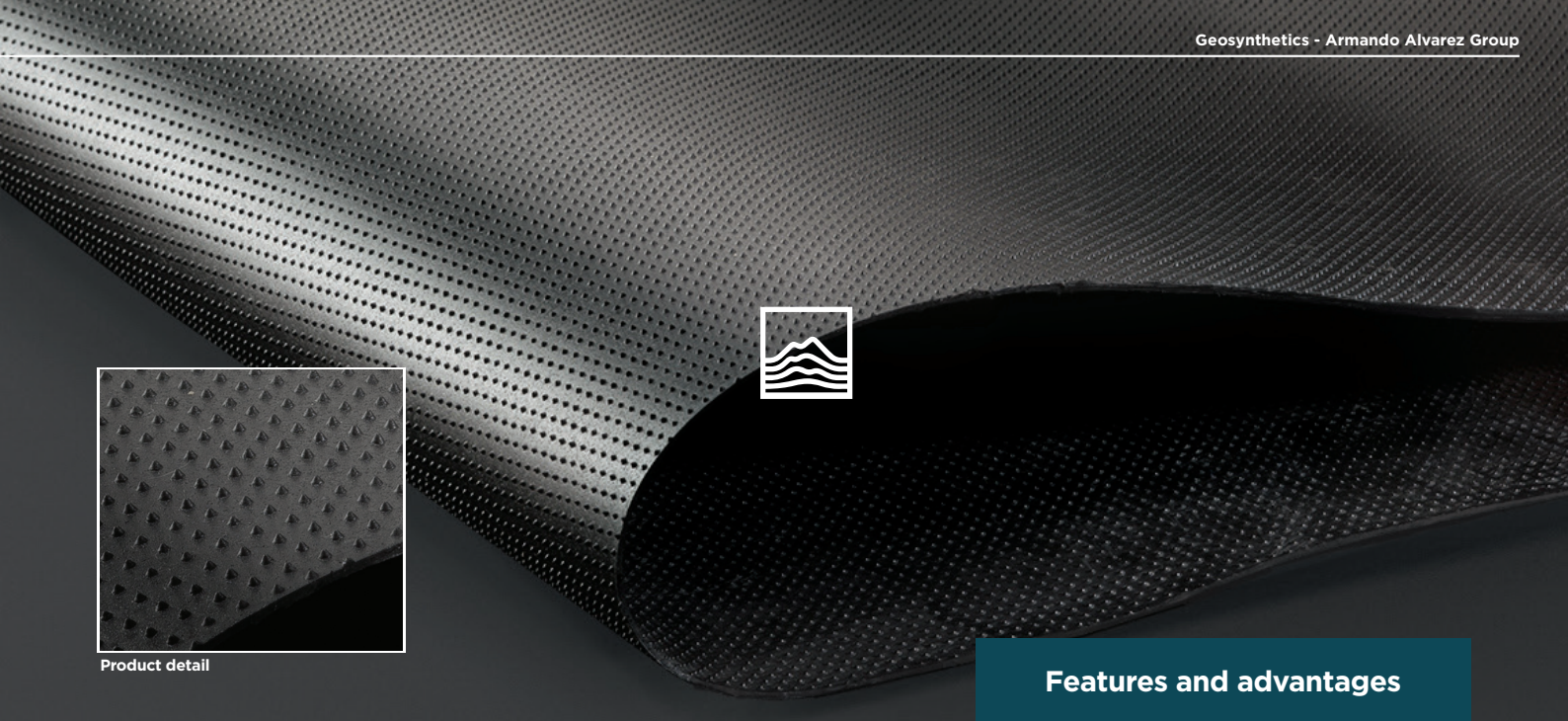
Special geomembranes:

- **ALVATECH ENDURANCE** excellent high temperature resistance (100°C-212°F).
- **ALVATECH HP-OIT** with antioxidant additives that extend its useful life.
- **ALVATECH COLOR** available in white, ochre, different shades of blue, etcetera.
- **ALVATECH CONDUCTIVE** helps control leaks in non-conductive terrains.

Product specifications

Material	HDPE, LLDPE and VLDPE
Thickness	From 0.75 (29.53 mil) to 3.00 mm (118.11 mil)
Width	7.50 and 5.80 m (24.61 and 19.03') - Other widths are available upon request.





Product detail

Features and advantages

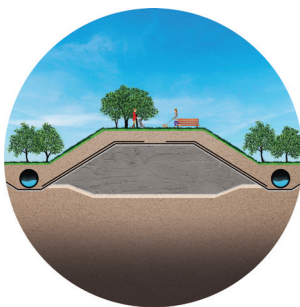
- High friction coefficient which improves slope stability.
- Sotrafa is one of the few manufacturers worldwide to produce 7.5 m - 24.61'in structured geomembrane.
- A greater number of spikes increases friction.
- Homogeneous surface.
- Made by calendaring, which guarantees the sheet's basal thickness.
- Smooth edges help to weld consecutive sheets.

ALVATECH FIX

A waterproof liner available in both high-density polyethylene (HDPE) and linear low-density polyethylene (LLDPE).

Structured surface on one or both sides, densely spiked (57,000 spikes/m²), each spike has a height of 0.8 mm (31.5 mil), making the sheet more stable when waterproofing very steep gradients (high friction coefficient resulting in a greater friction angle).

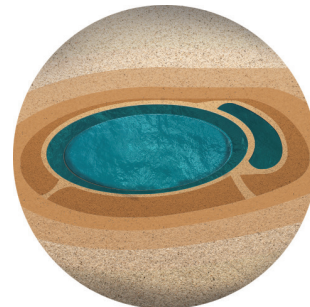
We are renowned for producing 7.5 m (24.61')-wide structured geomembrane, and this helps optimize installation costs by reducing the number of welds.



Landfill construction



Mining



Reservoir construction

Applications:

- Reservoirs
- Mining
- Landfills
- Canals
- Aquaculture
- Floating covers
- Environmental works
- Underground works

Functions:



Sealing



Barrier

Product Specifications

Material	HDPE and LLDPE available
Thickness	From 1.50 mm to 2.50 mm (59.06 mil to 98.43 mil)
Width	7.50 m (24.61')



Features and advantages

- Construction and maintenance cost reduction.
- Improvement of engineering solutions and extension of works lifespan.
- Reduction in the use of sand and other aggregates.
- Avoids mixing layers of materials with different physical properties.
- Avoid the mixture between materials layers of different physics characteristics.
- High energy absorption index.
- Outstanding geomembrane protection performance.
- High water flow coefficient with superior filtration properties even in the long term.

ALVAFELT

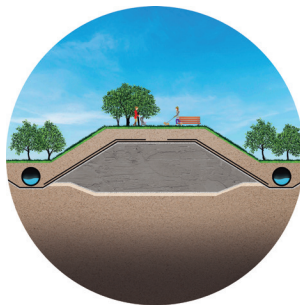
ALVAFELT is a non-woven geotextile developed from high tenacity polymeric fibres.

It is notable for its excellent mechanical and hydraulic properties along with its high chemical stability.

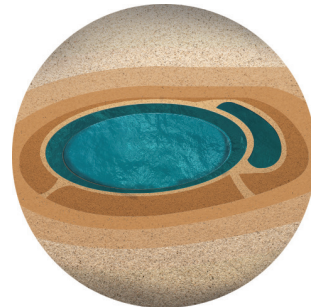
It is used in a wide range of civil engineering applications in order to improve jobs designs through its separation, filtration and protection properties.



Roads and pavements



Landfill construction



Reservoir construction

Applications:

- Road and construction maintenance
- Development of new railway lines
- Hydraulic engineering
- Environmental engineering
- Landfill construction and closure
- Mining
- Sports fields

Functions:



Filtration



Separation



Drainage



Protection



Reinforcement



Stabilization



Protection against erosion

Product specifications

Raw Material	Polypropylene, Polyester or a blend of both
Weights	From 100 to 1,200 grams/m ²
Roll width	Up to 6,60m





Features and advantages

- Reduces degradation of internal layers.
- Superior capacity for load distribution.
- Reduce pavement rutting.
- Reduce pavement and parking lots maintenance costs due to the increase in its lifespan.
- Optimal chemical stability against acid and alkaline soils.
- High shear modulus.

ALVATEX

Woven geotextile manufactured from 100% virgin polypropylene high tenacity raffia filaments, especially designed to offer; separation, filtration, stability and reinforce solutions.

Its superior resistance and tensile strength, mixed with an outstanding puncture resistance transmit to it an excellent performance and durability even in the long term.

ALVAFELT's main applications are engineering projects where earthworks and foundations are required, and for road construction, parking lots, etc.

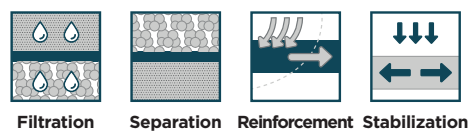


With and without separation and filtration geotextile

Application:

- Road construction and maintenance
- Parking lots
- Working areas
- Sport fields

Functions:



Product specifications

Material	Polypropylene or Polyethylene
Tensile strength	From 17 KN/m to 42 KN/m
Roll width	Up to 5.2 m (17.06')



Features and advantages

- Reduction of pavement and parking lots maintenance costs due to the increase in its lifespan.
- Optimal chemical stability against acid and alkaline soils.
- Avoidance of the adverse effects in routes occasioned by the shrink-swell soils.

ALVAPOL

Woven geotextile manufactured from 100% virgin polypropylene high tenacity raffia filaments, laminated with a polypropylene layer especially designed to offer; separation, sealing and reinforcement solutions.

ALVAPOL main application is road construction, especially over soils that contain expansive clays in order to prevent or limit moisture ingress that carry out pavement damage. It is likewise advisable to be used during design and construction of sport fields.



Roads and pavements



Temporary roads



Sport fields

Applications:

- Road construction and maintenance
- Parking lots
- Logistics platforms
- Sport fields

Functions:



Separation



Reinforcement



Sealing

Product specifications

Material	Polypropylene or Polyethylene
Tensile strength	From 17 KN/m to 42 KN/m
Roll width	Up to 5.2 m (17.06')





Features and advantages

- High resistance against traction with a minimum yield deformation.
- Excellent resistance against micro organisms, as well as chemical and physical action.
- Optimal friction properties.
- Recommended in projects where a +100 year duration of the geosynthetic is required.
- Reduced engineering works maintenance costs and prevention of premature failure.

ALVATEX Y

High-quality geotextile made from high-tenacity and high-molecular-weight polyester multifilament thread, permeable and with excellent mechanical properties.

This geosynthetic is offered for more demanding reinforcement solutions and is used in a wide range of engineering applications.



Embankments over soft soil



Construction of piled embankments



Hydraulic engineering

Applications:

- Development of new railroad tracks
- Road construction and maintenance
- Development of parking lots
- Hydraulic engineering
- Embankments on low water capacity soils
- Piled embankments or over cavities
- Wall retention structures

Functions:



Filtration



Separation



Reinforcement



Stabilization



Protection against erosion

Product specifications

Material	Polyester
Tensile strength	Up to 1,000 KN/m (uniaxial) and 400 KN/m (biaxial)
Roll width	Up to 5.4 m (17.72')



Features and advantages

- Prevents the pavement from collapsing.
- Delays and reduces the formation of stress-related cracks.
- Prevents the surface from cracking due to frost cycles .
- Prevents the surface from cracking due to frost and defrost cycles.
- Controls the formation of reflection cracks after reasphalting.
- Extends life of service.
- Significantly reduces thickness of the asphalt or concrete layer.

ALVAGRID ASPHALT

Geogrid made from polymer-coated fiberglass, with or without geotextile support.

ALVAGRID ASPHALT has been designed exclusively for its application in all kinds of developed areas by means of a flexible paving technology, mainly due to its low elongation (<3%) at high tensile strength and its excellent performance at high temperatures (200°C).

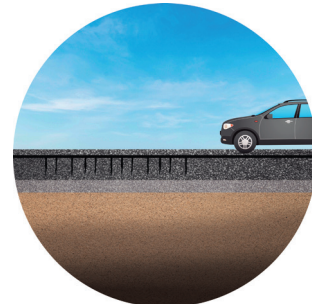
The function of the geotextile in this geocomposite is two fold: on one hand, thanks to the high absorption index of the bitumen, the pavement is sealed, preventing fluids and oxygen from penetrating the road structure; and, secondly, it improves the bonding between the different asphalt layers.



Road and pavements



Rigid pavement rehabilitation with asphalt overlay



Asphalt overlay rehabilitation

Applications:

- New high-performance road construction
- Pavement maintenance and rehabilitation
- Runways
- Concrete pavement expansion joints
- Parking lots

Functions:



Reinforcement



Sealing



Stress relaxation

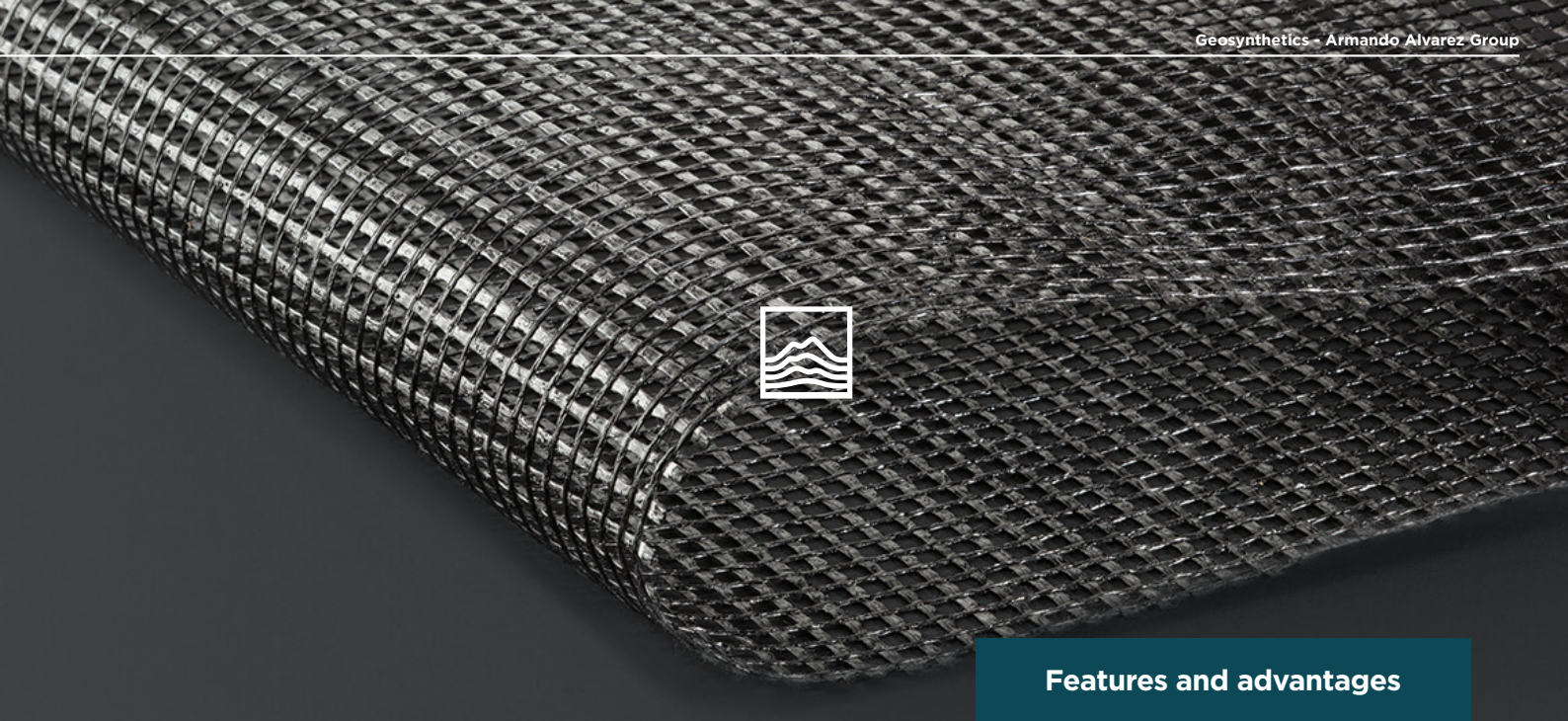


Anti-reflecting cracking

Product specifications

Material	Polymer-coated fiberglass
Composite	With or without geotextile for bitumen absorption
Tensile strength	50x50 KN/m - 100x100 KN/m or 100x200 KN/m
Roll width	Available in 2.25 m or 1.5 m (7.38' or 4.32')





Features and advantages

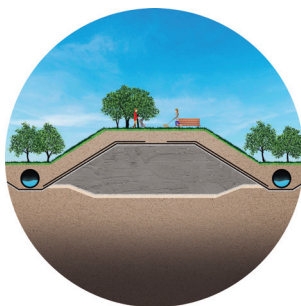
- Reinforced earth wall systems.
- Significant reduction of construction deadlines.
- Optimal chemical, biological and UVA-ray resistance .
- Excellent bonding soil/geogrid system due to its optimal reticular pattern .
- High modulus reinforcement properties.
- High tensile strength with low creep
- Engineered to withstand both harsh construction conditions and aggressive soil environments.

ALVAGRID PET

Flexible reinforcement geogrid, manufactured with high molecular weight (> 30.000) high tenacity polyester yarns by precision knitting process along with black PVC saturation coating.

This product stands out for its high elasticity, high tensile strength and a low creep.

ALVAGRID PET has been designed specifically for reinforcement and stabilization use in low bearing capacity soils and the construction of reinforced earth walls.



Landfills construction



Embankment on piles



Reinforced soil structures

Applications:

- Reinforcement of the road and railroad sub base course.
- Stabilization and reinforcement of low bearing capacity soil.
- Stabilization and reinforcement of parking lots.
- Working platforms
- Reinforced earth wall systems

Functions:



Reinforcement



Stabilization

Product specification

Material	Polymer-coated polyester
Tensile strength	Up to 200 KN/m (biaxial) and 250 KN/m (uniaxial)
Roll width	Possibility of production in 3.9 m and 5 m



Features and advantages

- Reduction of the thickness of the granular material layer which helps to diminish costs and construction deadlines.
- Reduction of the embankment base due to the possibility of increasing the slope.
- Reduction of the elastic deformation of the ballast base in the case of rail tracks.
- Minimization of differential settlements.
- Optimal chemical and mechanical stability, even in aggressive environments.
- Resistant to the attack of micro organisms and UVA-induced stress.

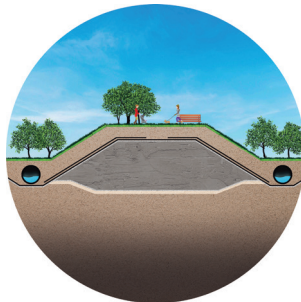
ALVAGRID PP

ALVAGRID PP is a geogrid made from 100 % virgin polypropylene. Manufactured using a punching and drawing process whereby the polypropylene sheet is stretched in two directions, machine (longitudinal) and cross-machine (transverse).

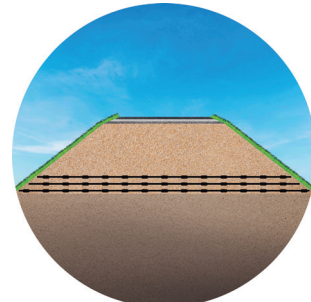
It has been specifically designed for its use in reinforcement and stabilization applications, where adverse environmental conditions require a more stable geogrid against the action of chemicals and biological agents.



Roads and pavements



Landfill construction



Embankment construction

Applications:

- Road and railroad sub base reinforcement
- Stabilization and reinforcement of low bearing capacity soils
- Stabilization and reinforcement of parking lots
- Reinforced earth wall systems
- Landfill construction on low bearing capacity soils

Functions:



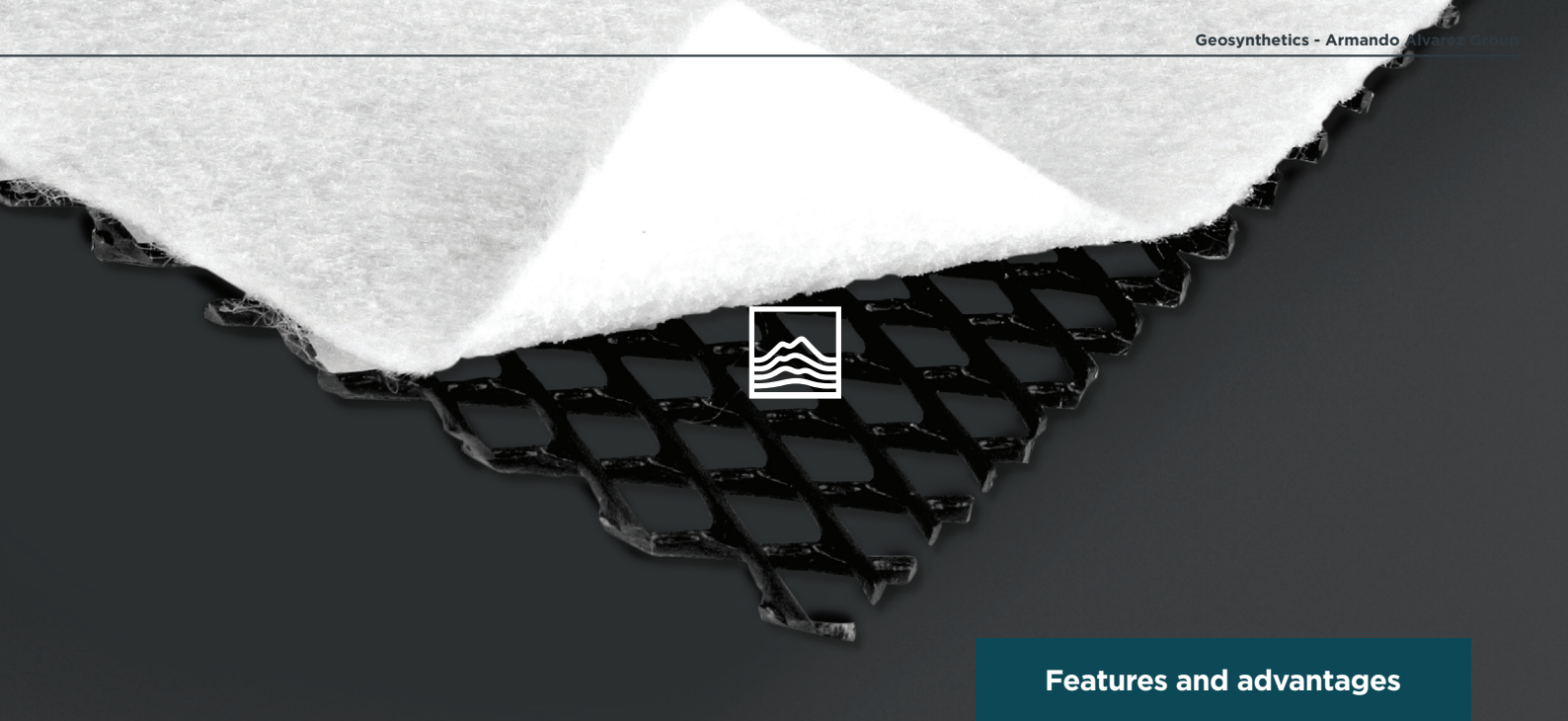
Reinforcement



Stabilization

Product specifications

Material	Polypropylene
Geocomposite	Possibility of incorporating a non-woven polypropylene geotextile
Tensile strength	Up to 40 KN/m
Roll width	4 m



Features and advantages

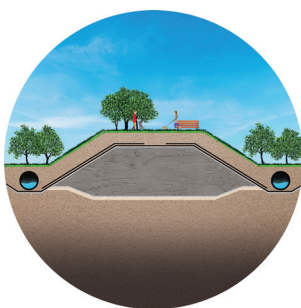
- High capacity drainage, even if subjected to heavy weights and small inclinations.
- In landfill sealing applications, reduction of the coating thickness of 17 cm (6.69") in comparison to the conventional design.
- In the construction of new landfills, reduction for the base thickness of approx. 100 cm (39.7") with regard to the conventional design.

ALVADRAIN M

This geonet is formed by continuous extrusion of two intersecting high density polyethylene (HDPE) strands to form a high profile, biaxial net structure. The evenly spaced ribs, which intersect at 60°, keep flow channels open with a high capacity for water evacuation or gas collection.

The biaxial geonet design provides high flow characteristics in both machine and cross directions. The ability to allow complete flow in all directions is critical due to irregular surfaces caused by settlement and construction.

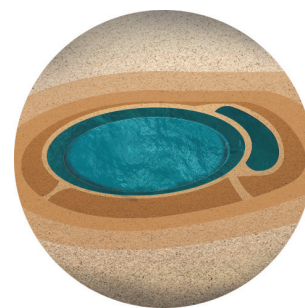
ALVADRAIN M is resistant to chemical and biological agents commonly present in natural soils and organic or inorganic waste; also stabilized with carbon black for resistance against UV degradation.



Landfill construction



Mining

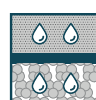


Reservoir construction

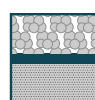
Applications:

- Landfill construction and sealing
- Mining
- Irrigation tanks
- Civil engineering works

Funciones:



Filtration



Separation



Drainage



Protection



Barrier

Product specifications

Material	High-density polyethylene (HDPE)
Thickness	4, 5, 6 and 7 mm (157.48, 196.85, 236.22 and 275.59 mil)
Geocomposite	According to the requirements, a non-woven polypropylene/ waterproof film geotextile can be added
Roll width	Available in 2 and 4 m (6.56 and 13.12')



Features and advantages

- Provides a greater capacity of the landfill.
- The waste overload is considerably lower to that produced by the gravel, therefore avoiding differential settlements.
- High drainage capacity even if subjected to heavy weights and small inclinations.
- Easy and quick to install, especially if compared to conventional designs.
- One single truck of ALVADRAIN T has the same drainage capacity as 60 trucks of gravel.
- Optimal adaptation at the base of slopes where the disposal of gravel for drainage is difficult and expensive.

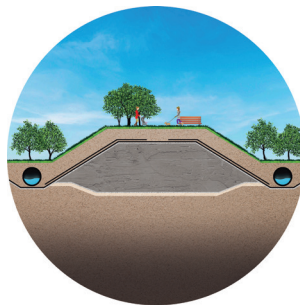
ALVADRAIN T

ALVADRAIN T is a 3 layer (triaxial) HDPE drainage net consisting of a robust inner core and outer stability strands, increasing significantly the tensile strength and compressive resistance to compare with the bi-planar product.

The triple layer construction provides high flow rates and the high confining pressures normally associated with deep waste facilities.



Roads and pavements



Landfill construction

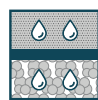


Mining

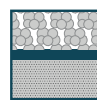
Applications:

- Landfill construction and sealing
- Mining
- Irrigation tanks
- Civil engineering works

Functions:



Filtration



Separations



Drainage



Protection



Barrer

Especificaciones de producto

Material	High-density Polyethylene (HDPE)
Thickness	5.5 and 7 mm (216.54 and 275.59 mil)
Geocomposite	According to the requirements, a non-woven polypropylene/ waterproof film geotextile can be added
Roll width	Available in 3.6 and 3.7 m (11.81 and 12.14')



Features and advantages

- Flat surface required only.
- Easy to fold/unfold and install.
- Does not require any projects, permits or workforce.
- +25 year durability.

FLEX ALVATANK

These flexible tanks are made from ultra-flexible polyethylene and are a reliable solution for the storage of a wide range of liquids, from drinking water to a great amount of chemical products, at a reasonable price. Capacity available ranges from 1 m³ up to 500 m³ (1.31 to 653.98 yd³), and depending on the application, there are different connection and valve options available.

Funciones:



Containment

OTHER COMPLEMENTARY PRODUCTS



Type "E" profile

This connecting element is placed between the geomembrane and a concrete structure and provides a completely sealing. It consists of three anchor points inlaid in the concrete and a 140 mm (5.51")-wide band to be subsequently welded to the geomembrane by extrusion. Supplied in 2.5 ml (0.15 in³) bars.

Alvatech Weld Rod

Welding Rod for extrusion, ideal for welding both HDPE and LLDPE geomembranes. Available both in 4 mm and 5 mm (157.48 and 196.85 mil).



Armando Alvarez Group

Avda. Pablo Garnica, 20
39300 Torrelavega - Cantabria, Spain
Phone: +34 942 84 61 00
www.armandoalvarez.com
info@armandoalvarez.com

