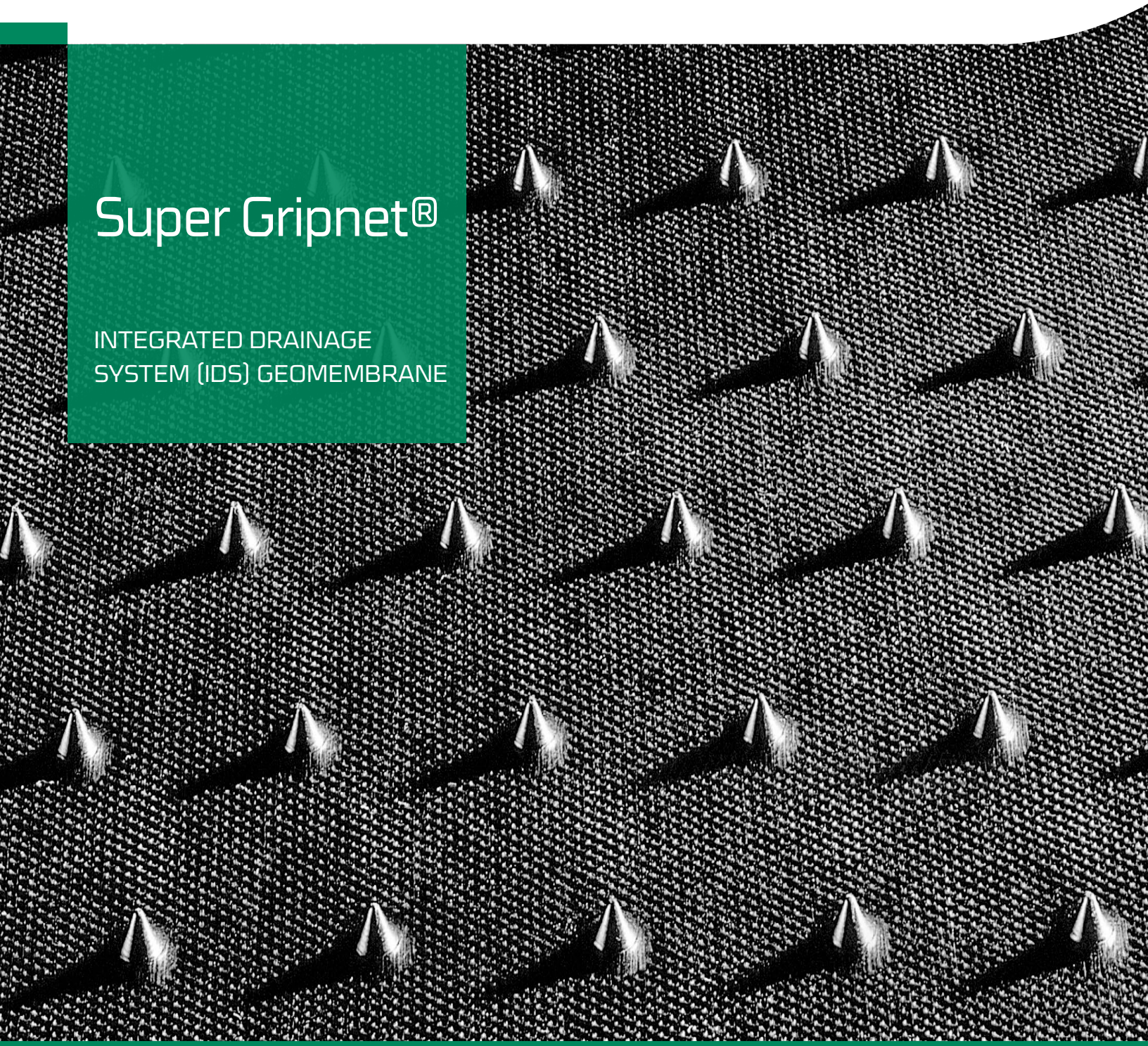
agru

The Plastics Experts.

Super Gripnet®

INTEGRATED DRAINAGE SYSTEM (IDS) GEOMEMBRANE



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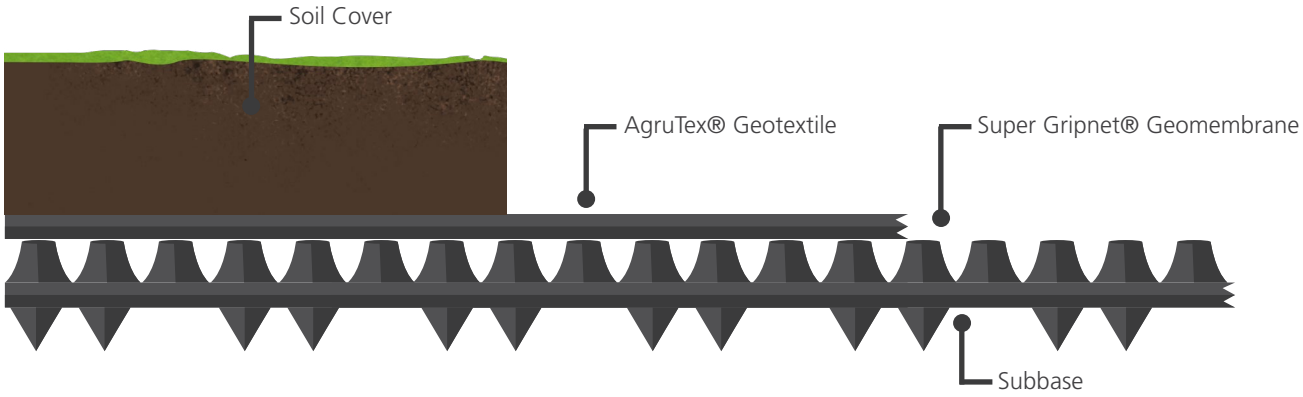
AGRU America's structured geomembranes are manufactured on state-of-the-art manufacturing equipment using the flat die calender manufacturing process, a method that produces a more consistent core thickness and greater physical properties than other processes, such as the blown film extrusion process. AGRU uses only the highest-grade HDPE and LLDPE resins manufactured in North America.

The AGRU success story has been unfolding now for about seven decades. Founded in 1948 by Alois Gruber Sr., the company has grown to become one of the world's most important single-source suppliers for geosynthetic materials, piping systems, semi-finished products and concrete protection liners made from engineered plastics. Our ability to manufacture and supply everything from a single source is a unique differentiator. And, when it comes to application-technical consulting, we are your best partner.

Quality

At AGRU, customer satisfaction comes first. Our start-to-finish attention to quality ensures that our products meet and exceed the strictest technical specifications, providing safe operation within municipal solid waste, coal combustion residual (CCR), mining, oil & gas, water and wastewater infrastructures.

As a replacement and improvement to traditional geocomposite drainage products overlying textured geomembrane, facility owners capitalize on the increased performance and decreased costs that using Super Gripnet® provides. This is evident from over 150,000,000 square feet of Integrated Drainage System (IDS) installation across the United States and beyond.



HDPE and LLDPE Super Gripnet® applications include projects where containment, drainage, interface friction and economic dynamics are critical. These projects include landfill closures, containment facilities, oil & gas applications, minining reclamation projects, to name a few.

The structured Integrated Drainage System (IDS) geomembrane is manufactured by continuous horizontal flat die extrusion into profile rollers, which produces the final structured surface of drainage studs and spikes. This manufacturing process provides a smooth edge for on-site welding and a consistent core thickness, which provides industry leading geomembrane physical properties. This IDS product results in environmental containment, higher interface friction capabilities, consistent drain capacity and decreased project costs.

Super Gripnet® Liner

Features

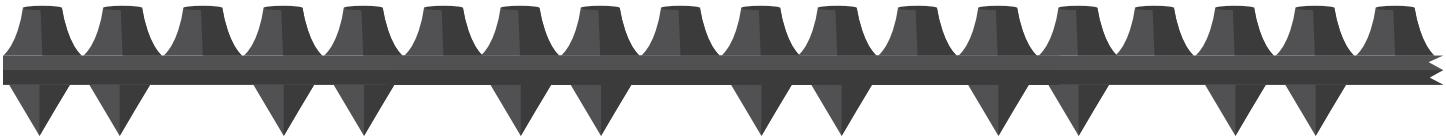
- Combines Containment Layer & Drainage Layer w/ Single IDS Geomembrane
- Exceptional Interface Performance on Steep Slopes
- Increased Performance / Decreased Cost
- Decreased number of laydown area
- Greater Factors of Safety
- Two Layer Closure versus Traditional Four Layer Closure
- Consistent Drain and Structure Pattern
- Single Point of Contact for Material Delivery

Interface	Peak Angle*	Peak Adhesion*
Super Gripnet® Spikes/Granular Soil	40d	35 psf
Super Gripnet® Spikes/Cohesive Soil	35d	45 psf
IDS/GT	30d	75 psf

Note:

*Based on linear regression best fit line of current DST data

Our engineered profile rollers provide the structured surface with a 130 mil (3.3 mm) studded drain surface on the top side and 175 mil (4.45 mm) spiked friction surface on the bottom side. The 23 feet (7 meter) wide rolls of finished product include a smooth edge on both sides of the roll for ease of thermal welding in the field. Due to the moulded structure, core thickness variation is dramatically reduced as compared with blown film textured sheets, so the mechanical properties of the sheet are greatly superior. In addition, the consistent high-profile spike surface ensures optimum interface friction characteristics at any point on the sheet surface and provides greater factor of safety values.



US Patent - No. 5.258.217

Advantages

Super Gripnet® geomembrane with our Integrated Drainage System (IDS) has decided advantages over traditional closure methods, including:

- Meets & Exceeds EPA Requirements
- Increased Performance / Decreased Cost
- Unmatched Shear Strength Performance and Factors of Safety
- Environmental Containment and Drainage Component in Single Layer
- Decreased Lead Time for Materials
- Decreased Number of Trucks for Delivery
- Decreased Number of Rolls to Unload/Handle/Store
- No Geocomposite Cutting or Net Ties on Seams
- Improved Planar Flow = Less reduction for chemical/biological clogging concerns

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AGRU America
500 Garrison Road
Georgetown, SC 29440
USA

T. +1 800 373 2478
F. +1 843 527 2738
salesmkg@agruamerica.com