



Carthage Mills

Geotextiles

Geotextile Fabrics

Geotextile fabrics were first developed in **1958** by Carthage Mills, and until 1967 had the only geotextiles available on the market. They were the first, and are the most commonly used geosynthetic today. They provide cost-effective solutions to meet specific site requirements for geotechnical and hydraulic applications requiring **SEPARATION, REINFORCEMENT, FILTRATION, DRAINAGE, CUSHIONING** and/or **PROTECTION**.



WOVEN GEOTEXTILES consist of individual yarns that are then woven on conventional textile weaving machinery using a wide variety of weaving patterns. They feature predictable openings, higher ultimate tensile strengths, and low elongation (high-modulus).



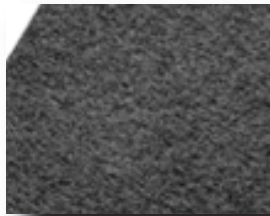
NONWOVEN GEOTEXTILES consist of either continuous filament or short staple fibers that are bonded together by various processes that can include both needling and heat processes. They have a random fiber orientation with indirect openings, and a thickness ranging from thick felt to a relatively thin fabric. They feature high permeability and water flow with a typically tight AOS (50-120), and high elongation (low modulus).

Whether you have a rigid specification to be met, or need a simple solution to a common application, Carthage Mills can deliver...

THE PRODUCTS YOU NEED WITH SUPPORT THAT MAKES A DIFFERENCE!

Nonwoven Geotextile Fabrics

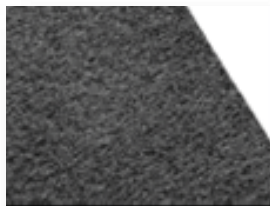
Carthage Mills' FX[®]-HS Series (Civil)



Carthage Mills' FX[®]-HS Series of nonwoven geotextiles are among the most commonly used nonwovens today, and provide immediate and cost-effective solutions for many **Separation, Drainage, Protection** and **Filtration** applications.

Specific Applications Include: Subsurface Drainage Systems; Under Riprap/Hard Armor in Erosion Control; Separation under Streets, Railways, Roadways and Pavers; Swales; Filtration/Drainage in SRW and Landfill Applications; Under Athletic Fields

FX[®]-HSE Series (Environmental)



Carthage Mills' FX[®]-HSE Series of nonwoven geotextiles are specially designed for a wide variety of applications in the environmental market. They offer immediate and cost-effective solutions for many of the unique challenges of **Filtration, Separation, Drainage** and **Liner Protection** found in this specialized market.

Specific Applications Include: Landfill/Waste Collection Drainage and Filtration Systems; Geomembrane Protection; Gas Collection and Venting Systems; Liquid and/or Gas Pressure Relief Systems



FX[®]-A/O Series of Asphalt Overlay Fabrics



Carthage FX[®]-A/O nonwoven polypropylene Asphalt Overlay fabrics are specially needle-punched and heat-set for strength, durability and asphalt retention to provide an economic solution to extending the useful life of pavement overlays up to 50%. They are ideal for **Pavement Restoration, Sealing, Stress Relief** and **Asphalt Adhesive Bonding**.

Specific Applications Include: Parking Lots; Highways; Streets; Airports; Bridges; Basketball Courts; Tennis Courts

Woven Geotextile Fabrics

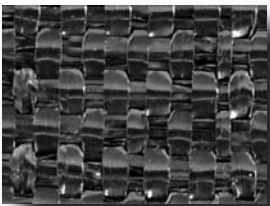
Carthage %™ Open Area Monofilament Series



Carthage %™ Monofilament geotextiles feature effective levels of *Percent Open Area (POA)*, unique to woven monofilaments, and essential for predicting its resistance to clogging. POA is the single most important property to consider when hydraulic gradients are medium to high, internal migration of fines may occur, and **'Long-Term' Filtration** is critical in **Drainage, Separation** and **Erosion Control** applications.

Specific Applications Include: Bulkheads; Subsurface Drainage Systems; Under Riprap or Concrete Revetment Systems for Channel, Shoreline and Waterway Protection; Swales; Land Reclamation; Drainage/Filtration/ Collection Systems in Landfills

FX® Slit-Film Series



Carthage FX® Slit-film Series of geotextiles provides immediate and cost-effective solutions for everyday **Separation** and **Stabilization** applications and are among the most frequently used geotextiles in the industry.

Specific Applications Include: Parking Lots; Driveways; Streets; Railways; Roadways; Storage and Staging Areas; Board Roads; Construction Site Access/Haul Roads



Monofilament with Riprap

FX® High-Performance Series (PP)



Carthage FX® High-Performance Series of polypropylene (PP) geotextiles deliver higher strengths and long-term performance than typical woven slit-film geotextiles. They are ideal for applications that require **Separation, Stabilization, Filtration, Containment**, and moderate to severe **Reinforcement**.

Specific Applications Include: MSE Walls (Temporary and Permanent); Base Reinforcement; Land Reclamation; Landfill Capping/Closures; Reinforced Slopes; Roadway/Railway Construction; Dikes and Embankments on Soft Foundations; Voids Bridging; Airport Runways



Slit Film Separator

FX® High-Strength Series (PET)



Carthage FX® High-Strength polyester (PET) geotextiles were developed for the most demanding applications of **Reinforcement** and **Confinement** that require higher long-term design strengths (LTDS).

Specific Applications Include: Embankments on Soft Soils; Voids-bridging; Waste Lagoon Closures; MSE Structures; and Reinforcement Applications that require Creep Resistance, High Tensile and Long-Term Design Strengths (LTDS)

Technical Note

There are nine types of woven and nonwoven geotextiles listed above with a wide range of mechanical, physical and hydraulic properties. Because not all geotextiles can do all things (i.e. Long-term filtration, Separation, Reinforcement etc.), selecting the best geotextile for a specific application or interpreting a lengthy specification can be confusing. We encourage you to call us at (800) 543-4430 and let us help you through this process.

Custom Services

Custom Off-Line Slitting & Rerolling



Wish you had better access to custom width and slit/cut rolls specific for your applications? We can easily provide the products you need in the sizes that you specify for ANY of your needs. Whether you have rolls that you've had sitting around for a long time, or you are ordering a brand new shipment from us, we can take care of all your custom cut roll projects. Don't hesitate to give us a call.

Factory Wide Width Fabrication



Carthage Mills offers in-house Factory Seaming of geotextiles to Custom Wide Widths x Lengths to meet the most stringent of specifications. We have been providing custom sewn panels for over 50 years!

THE PRODUCTS YOU NEED WITH SUPPORT THAT MAKES A DIFFERENCE!



American Association of State Highway and Transportation Officials and AASHTO: M288-15



A joint committee, formed from the American Association of State Highway and Transportation Officials (AASHTO) and the Industrial Fabrics Association (IFAI), developed a general platform to standardize geotextiles for general transportation applications. The current revision for this standard is AASHTO: M288-15.

AASHTO: M288-15 is NOT a design guideline. The selection criteria are based on an engineer's knowledge of the site-specific installation stresses and soil hydraulic properties for the project application. Please visit our website for a listing of the appropriate Carthage Mills products per application specified. For further information on Carthage Mills and AASHTO: M288-15 contact your local Carthage Mills Representative or call (800) 543-4430. To order a copy of the complete AASHTO: M288-15 Specification, contact AASHTO at (202) 624-5800.



Carthage Mills

4243 Hunt Rd. Cincinnati, Ohio 45242
Ph: 800-543-4430 Fax: 513-794-3434
www.CarthageMills.com



SINCE 1958:
AMERICA'S FIRST
GEOSYNTHETICS
COMPANY