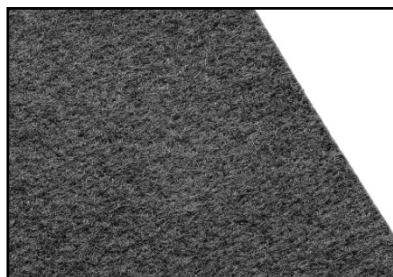




FX[®]-HSE Nonwoven Polypropylene Geotextiles

FILTRATION | DRAINAGE | SEPARATION | LINER PROTECTION | GAS COLLECTION

CARTHAGE MILLS' FX-HSE SERIES OF NONWOVEN POLYPROPYLENE GEOTEXTILES



■ SERIES DESCRIPTION

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 found in these types of applications.

Carthage Mills' FX-HSE Series of nonwoven geotextiles are constructed of 100% polypropylene staple filaments that have been needle-punched and heat-set for stability; and are chemically stable in a wide range of aggressive environments found in and around environmental applications.

Carthage Mills' FX-HSE Series of nonwoven geotextiles exhibits high

durability with excellent resistance to puncture and tear, yet easily con-forms to the ground and site irregularities for trouble-free installation.

Meeting the strictest of Codes and Regulations, the FX-HSE Series of nonwoven geotextiles is manufactured such that the Mass Per Unit Area is reported as true "Minimums"; thereby assuring a thick structure for the long-term protection and performance of structures like impermeable lining systems.

■ FEATURES AND BENEFITS

The Carthage Mills' FX-HSE Series of environmental nonwoven polypropylene geotextiles are designed to provide:

- SEPARATION and SOIL RETENTION
With superior soil-retention the FX-HSE Series prevents dissimilar materials from inter-mixing – critical in the collection of liquids in landfill applications.
- FILTRATION AND HIGH PERMITTIVITY
High permittivity properties provide high water/leachate flow rates.

- STRENGTH AND DURABILITY
Provides excellent resistance to puncture and installation damage, and adverse site conditions; assuring immediate protection of lining systems.
- LATERAL FLOW OF GASES
Assuring a clog-free outlet for gases to escape to and through venting systems is critical in the long-term success of the landfill.
- CHEMICALLY STABLE IN HARSH CONDITIONS
Stable within a pH range of 2 to 13.

■ APPLICATIONS

Carthage Mills' FX-HSE Series of nonwoven geotextiles are most frequently used in applications where minimum standards and codes are prevalent, such as:

- LANDFILL/WASTE COLLECTION DRAINAGE AND FILTRATION SYSTEMS
- GEOMEMBRANE PROTECTION
- GAS COLLECTION AND VENTING SYSTEMS
- LIQUID AND/OR GAS PRESSURE RELIEF SYSTEMS





■ FX[®]-HSE Series of Nonwoven Geotextiles

Carthage Mills' FX-HSE Series of nonwoven geotextiles is designed specifically for the environmental market, is constructed of 100% polypropylene staple fibers which are formed into a random network, needle-punched and heatset for dimensional stability. The [FX[®]-HSE Series](#) of nonwoven geotextiles delivers high durability; excellent physical and hydraulic properties; is inert to biological degradation; and resistant to naturally encountered chemicals, alkalis, and acids.

The Carthage Mills' FX-HSE Series of environmental nonwoven geotextiles designates "Mass Per Unit Area" or "Weight Per Square Yard" as a true Minimum value.

Note: The listing below is a sampling of available products in this Series environmental geotextiles. For more information and/or a complete listing of all the products in this Series, please call or visit our website.

| PROPERTY | ASTM TEST | UNIT | FX [®] -40HSE | FX-60HSE | FX-80HSE | FX-100HSE | FX-120HSE* | FX-160HSE | FX-600HSE |
|---|-----------|---------------------|--|----------|----------|-----------|------------|-----------|-----------|
| <input type="checkbox"/> Mechanical | | | | | | | | | |
| Grab Tensile Strength | D 4632 | lbs | 105 | 160 | 225 | 270 | 320 | 425 | 170 |
| Grab Tensile Elongation | | % | 50% | 50 | 50 | 50 | 50 | 50 | 50 |
| Trapezoidal Tear | D 4533 | lbs | 45 | 65 | 90 | 100 | 125 | 150 | 70 |
| CBR Puncture | D 6241 | | 305 | 450 | 600 | 725 | 900 | 1200 | 450 |
| <input type="checkbox"/> Endurance | | | | | | | | | |
| UV Resistance | D 4355 | % @ 500 hrs | 70% | 70% | 70 | 70 | 70 | 70 | 80 |
| <input type="checkbox"/> Hydraulics/Filtration | | | | | | | | | |
| Permittivity ⁽¹⁾ | D 4491 | sec ⁻¹ | 2.00 | 1.63 | 1.26 | 0.94 | 0.70 | 0.31 | 1.50 |
| Water Flow Rate ⁽¹⁾ | | gpm/ft ² | 160 | 125 | 100 | 75 | 50 | 45 | 110 |
| Apparent Opening Size (AOS) ⁽¹⁾ | D 4751 | US Std Sieve | 70 | 70 | 80 | 100 | 100 | 100 | 80 |
| <input type="checkbox"/> Physical | | | | | | | | | |
| Mass Per Unit Area (Minimum) | D 5261 | oz/yd ² | 4.0 | 6.0 | 8.0 | 10.0 | 12.0 | 16.0 | 6.0 |
| Thickness (Typical) | D 5199 | mils | 70 | 85 | 100 | 110 | 120 | 140 | 80 |
| Standard Roll Sizes / Packaging / Weight | | | Call for all Roll Sizes, Packaging and Weights | | | | | | |

NOTES: Mullen Burst Strength ASTM D 3786 is no longer recognized by ASTM D35 on Geosynthetics. Puncture Strength ASTM D 4833 is not recognized by AASHTO M 288 and has been replaced with CBR Puncture ASTM D 6241.

⁽¹⁾ At the time of manufacturing. Handling, storage and shipping may change these properties.

■ Unless otherwise stated, all values stated here are Minimum Average Roll Values (MARV); are calculated as the Typical minus two standard deviations; and are based on a 97.7% confidence level.

■ The properties reported above are effective 06-01-24 and subject to change without notice.

*NOTE: Please note that the data for FX-120HSE has not been updated since 2020, and will be updated when possible in 2021

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Since 1958: America's *First* Geotextile Company



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The Carthage Mills' FX-HSE Series of environmental nonwoven geotextiles designates "Mass Per Unit Area" or "Weight Per Square Yard" as a true Minimum value.

Note: The listing below is a sampling of available products in this Series environmental geotextiles. For more information and/or a complete listing of all the products in this Series, please call or visit our website.

| PROPERTY | ASTM TEST | UNIT | FX [®] -800HSE | FX-1000HSE | FX-1200HSE | FX-1600HSE | FX-2000HSE | FX-2400HSE | FX-2800HSE | FX-3200HSE |
|---|-----------|---------------------|--|------------|------------|------------|------------|------------|------------|------------|
| <input type="checkbox"/> Mechanical | | | | | | | | | | |
| Grab Tensile Strength | D 4632 | lbs | 230 | 270 | 320 | 425 | 450 | 500 | 725 | 830 |
| Grab Tensile Elongation | | % | 50% | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Trapezoidal Tear | D 4533 | lbs | 95 | 105 | 125 | 155 | 175 | 200 | 250 | 300 |
| CBR Puncture | D 6241 | | 675 | 725 | 900 | 1200 | 1310 | 1800 | 2100 | 2287 |
| <input type="checkbox"/> Endurance | | | | | | | | | | |
| UV Resistance | D 4355 | % @ 500 hrs | 80% | 80% | 80 | 80 | 80 | 70 | 70 | 80 |
| <input type="checkbox"/> Hydraulics/Filtration | | | | | | | | | | |
| Permittivity ⁽¹⁾ | D 4491 | sec ⁻¹ | 1.40 | 1.20 | 0.90 | 0.70 | - | - | - | - |
| Water Flow Rate ⁽¹⁾ | | gpm/ft ² | 110 | 85 | 65 | 50 | - | - | - | - |
| Apparent Opening Size (AOS) ⁽¹⁾ | D 4751 | US Std Sieve | 80 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| <input type="checkbox"/> Physical | | | | | | | | | | |
| Mass Per Unit Area (Minimum) | D 5261 | oz/yd ² | 8.0 | 10.0 | 12.0 | 16.0 | 20.0 | 24.0 | 28.0 | 32.0 |
| Thickness (Typical) | D 5199 | mils | 90 | 115 | 130 | 175 | 180 | 200 | 275 | 290 |
| Standard Roll Sizes / Packaging / Weight | | | Call for all Roll Sizes, Packaging and Weights | | | | | | | |

NOTES: Mullen Burst Strength ASTM D 3786 is no longer recognized by ASTM D35 on Geosynthetics. Puncture Strength ASTM D 4833 is not recognized by AASHTO M 288 and has been replaced with CBR Puncture ASTM D 6241.

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