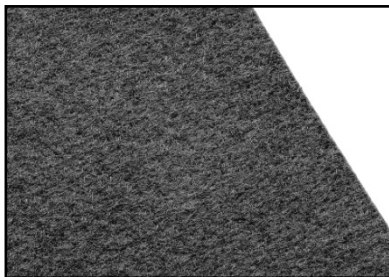




# FX<sup>®</sup>-HSE Nonwoven Polypropylene Geotextiles

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<sup>®</sup>-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<sup>®</sup>-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 <sup>®</sup> -40HSE	FX-60HSE	FX-80HSE	FX-100HSE	FX-120HSE	FX-160HSE	FX-600HSE
<input type="checkbox"/> <b>Mechanical</b>									
Grab Tensile Strength	D 4632	lbs	105	160	225	270	305	425	170
Grab Tensile Elongation		%	50%	50	50	50	50	50	50
Trapezoidal Tear	D 4533	lbs	45	65	90	100	110	150	70
CBR Puncture	D 6241		305	450	600	725	830	1200	450
<input type="checkbox"/> <b>Endurance</b>									
UV Resistance	D 4355	% @ 500 hrs	70%	70%	70	70	70	70	80
<input type="checkbox"/> <b>Hydraulics/Filtration</b>									
Permittivity <sup>(1)</sup>	D 4491	sec <sup>-1</sup>	2.00	1.63	1.26	0.94	0.70	0.57	1.50
Water Flow Rate <sup>(1)</sup>		gpm/ft <sup>2</sup>	160	125	100	75	50	45	110
Apparent Opening Size (AOS) <sup>(1)</sup>	D 4751	US Std Sieve	70	70	80	100	100	100	80
<input type="checkbox"/> <b>Physical</b>									
Mass Per Unit Area (Minimum)	D 5261	oz/yd <sup>2</sup>	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.

<sup>(1)</sup> 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 01-01-26 and subject to change without notice.

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*Since 1958: America's First Geotextile Company*



# ■ FX<sup>®</sup>-HSE Series of Nonwoven Geotextiles

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PROPERTY	ASTM TEST	UNIT	FX <sup>®</sup> -800HSE	FX-1000HSE	FX-1200HSE	FX-1600HSE	FX-2000HSE	FX-2400HSE	FX-2800HSE	FX-3200HSE
<input type="checkbox"/> <b>Mechanical</b>										
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		600	725	900	1200	1310	1800	2100	2287
<input type="checkbox"/> <b>Endurance</b>										
UV Resistance	D 4355	% @ 500 hrs	80%	80%	80	80	80	70	80	80
<input type="checkbox"/> <b>Hydraulics/Filtration</b>										
Permittivity <sup>(1)</sup>	D 4491	sec <sup>-1</sup>	1.40	1.20	0.90	0.70	-	-	-	-
Water Flow Rate <sup>(1)</sup>		gpm/ft <sup>2</sup>	110	85	65	50	-	-	-	-
Apparent Opening Size (AOS) <sup>(1)</sup>	D 4751	US Std Sieve	80	100	100	100	100	100	100	100
<input type="checkbox"/> <b>Physical</b>										
Mass Per Unit Area (Minimum)	D 5261	oz/yd <sup>2</sup>	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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