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*New polyethylene (PE) films with antimicrobial treatment

The following technical data sheet is for polyethylene (PE) films with our new custom-formulated antimicrobial treatment. The antimicrobial treatment is available for all grades and thicknesses of PE films manufactured by Great American Packaging and is functional on both sides of the film. This data sheet is specific to the properties of polyethylene only.

<u>Properties</u>	<u>Test method</u>	<u>Typical values</u>	<u>Unit</u>
Haze	ASTM D 1003	13	%
Gloss 45'	ASTM D 2457	55	-
1% secant modulus	ASTM D 882		psi
MD		53,300	
TD		58,900	
Dart Impact F50	ASTM D1709A	215	gm
Elmendorf tear	ASTM D 1922		gm
MD		214	
TD		173	
Tensile Break Strength	ASTM D 882		psi
MD		6,300	
TD		5,420	
Tensile Elongation @ break			%
MD		490	
TD		695	
Tensile Yield			psi
MD		2,270	
TD		2,310	
Elongation @ yield			psi
MD		12.4	
TD		11.8	

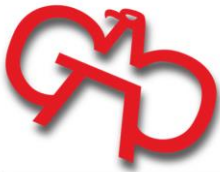


Efficacy Analysis

Quantitative Assessment of Activity - ISO 22196:2011						
<i>E. coli</i>						
Concentration of starting inoculum				1.92x10 ⁵		
Sample Description		# of Bacteria recovered	Log Value	R = [log(B/C)]	% Reduction	
1	Polyethylene bag	Inside	<2.00 x 10 ¹	<1.3	>5.7	>99.9%
		Outside	<2.00 x 10 ¹	<1.3	>5.7	>99.9%
Inoculum control		9.16 x 10 ⁶	7.0	---	---	

Quantitative Assessment of Activity - ISO 22196:2011						
<i>S. aureus</i>						
Concentration of starting inoculum				2.64x10 ⁵		
Sample Description		# of Bacteria recovered	Log Value	R = [log(B/C)]	% Reduction	
1	Polyethylene bag	Inside	<2.00 x 10 ¹	<1.3	>4.6	>99.9%
		Outside	<2.00 x 10 ¹	<1.3	>4.6	>99.9%
Inoculum control		7.32 x 10 ⁵	5.9	---	---	

Quantitative Assessment of Activity - ISO 22196:2011						
<i>MRSA</i>						
Concentration of starting inoculum				1.63x10 ⁵		
Sample Description		# of Bacteria recovered	Log Value	R = [log(B/C)]	% Reduction	
1	PE control no antimicrobial		1.17 x 10 ⁶	6.1	---	---
2	Sample 1 PE bag with MicroBlok Z		<2.00 x 10 ¹	<1.3	>4.8	>99.9%
3	Sample 2 PE bag with MicroBlok Z		<2.00 x 10 ¹	<1.3	>4.8	>99.9%
Inoculum control		3.40 x 10 ⁶	6.5	---	---	



Antifungal Assessment

AATCC Test Method 30-2013

Asperigillus niger (ATCC #6275)

* The width of the growth-free Zone surrounding the test specimen.

**Percentage of specimen free of growth.

Sample Description		Growth-Free Zone (MM)*	Surface Inhibition (%)**
1	Inside	0	100
	Outside	0	100

COMMENTS: In the AATCC test method 30, both sides of the sample remained free of growth from the *A. niger* test organism.

All data is based on 2.0 mil film thickness and not to be construed for specification limits. Establishing suitability for any end use is the end user's responsibility, no warranties are expressed or implied. It is the end-user's responsibility to determine suitability for any end use application.

The new antimicrobial PE film inhibits microbial growth greatly reducing stains, odors and product deterioration. It is ideal for potential food, medical and healthcare applications. The film is available for applications including use in pouches, bags and thermal forming layers.