



# Bayblend® MTR sheet

## Mass transportation rail low flame, smoke and toxicity

Bayblend® MTR sheet is an opaque product offering a unique combination of low flammability characteristics, robust mechanical properties, and ease of fabrication. Bayblend MTR complies with the flammability and smoke emission requirements for transit materials per the U.S. Federal Railroad Administration, listed in DOT: 49 CFR 238, and meets the criteria in the Bombardier Transportation Standard SMP 800-C for Toxic Gas Generation.

Bayblend MTR has lower specific gravity, higher stiffness, higher strength, and greater toughness than typical non-metallic materials used for mass transportation interior components. This combination of physical properties allows for design of thinner and lighter parts that often do not require secondary reinforcement or stiffeners in the application. Bayblend MTR is available in a variety of textures and colors.

## Applications

Thermoformed rail interior parts such as seating components, wall cladding, window reveals, and ceiling panels

### Typical Properties\*

Property	Test Method	Units	Values
<b>PHYSICAL</b>			
Specific Gravity	ASTM D 792	–	1.3
Moisture Absorption, Equilibrium, 24 hours	ASTM D 570	%	0.1
<b>MECHANICAL</b>			
Tensile Strength, Yield	ASTM D 638	psi	7,900
Tensile Elongation	ASTM D 638	%	11
Tensile Stress at Break	ASTM D 638	psi	7,100
Modulus of Elasticity	ASTM D 638	psi	540,000
Flexural Modulus	ASTM D 790	psi	530,000
Flexural Strength	ASTM D 790	psi	15,000
Izod Impact Strength, Notched @ 0.118"	ASTM D 256	ft·lbs/in	1.5
Instrumented Impact @ 0.118"	ASTM D 3763	ft·lbs	20
Rockwell Hardness	ASTM D 785	–	M60/R116
<b>THERMAL</b>			
Coefficient of Thermal Expansion	ASTM D 696	in/in°F	2.73 x 10 <sup>-5</sup>
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	205
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	217
Vicat Softening Temperature	ASTM D 1525	°F	232
Thermal Resistance R-value	ASTM E 1530	Btu ft <sup>2</sup> ·hr°F	0.90
Thermal Conductivity	ASTM E 1530	Btu in./ft <sup>2</sup> ·hr°F	16.6
<b>ELECTRICAL</b>			
Dielectric Constant @ 1 MHz, @ 0.118"	ASTM D 150	–	2.9
Dielectric Constant @ 60 Hz, @ 0.125"	ASTM D 150	–	3.0
Dissipation Factor @ 1 MHz, @ 0.118"	ASTM D 150	–	0.006
Dissipation Factor @ 60 Hz, @ 0.125"	ASTM D 150	–	0.004
Dielectric Strength	ASTM D 149	V/mil	615
Volume Resistivity @ 0.112"	ASTM D 257	Ohm·cm	4.0 x 10 <sup>15</sup>
Volume Resistivity @ 0.125"	ASTM D 257	Ohm·cm	6.6 x 10 <sup>15</sup>
<b>FLAMMABILITY</b>			
Flame Spread Index	ASTM E 162	Is	<35
Burning Dripping	ASTM E 162	–	None
Smoke Density	ASTM D 662	Ds (1.5 min)	<100
Smoke Density	ASTM E 662	Ds (4.0 min)	<200
Bombardier Toxic Gas Generation	SMP 800-C	–	Pass
Boeing Toxic Gas Generation	BSS 7239	–	Pass

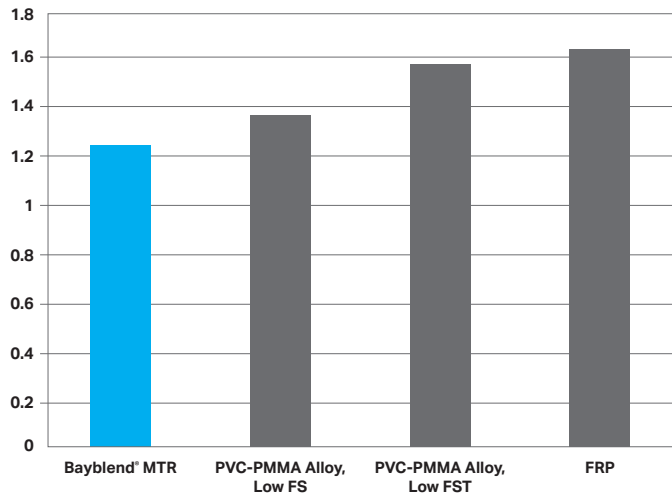
\*Typical properties are not intended for specification purposes.

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## Weight savings

Bayblend® MTR has a lower specific gravity and higher stiffness than typical non-metallic materials used for mass transportation interior components. This unique property profile can provide over 30% weight savings for components designed for specific stiffness when compared with other materials as shown below.

## Specific Gravity of Competitive Materials



## Thermoforming

Bayblend MTR can be thermoformed using conventional tooling and processes for thermoplastic materials such as PVC alloys, ABS, and polycarbonate. Optimal results can be obtained with fluid-heated aluminum tooling. Suggested tooling temperatures are 205°F – 215°F. Depending on geometry Bayblend MTR parts can be formed with and without vacuum-assist and plug-assist. Textures can be achieved via in mold texturing or through retention of texture as supplied using vacuum-forming. Recommended sheet temperature for thermoforming is 320°F – 340°F. For best results, Bayblend MTR should be pre-dried in a desiccated hot-air circulating oven at 180°F – 200°F from 8 to 24 hours depending upon sheet thickness. Prior to placing an order for Bayblend product or designing tooling, Bayer recommends thermoforming Bayblend sample material in a tool that represents the actual part or approximates the desired part geometry to determine optimal forming conditions and assessing part quality.

## Secondary operations

Bayblend MTR can be cut and drilled with standard saws and tooling. Finished parts can be assembled using conventional mechanical fastening techniques or by gluing or welding. Bayblend MTR can be painted and printed using standard paints and inks that are suitable for polycarbonate. No surface pre-treatment is necessary.

Depending on roll pattern, the darker the color the more the sheet can be prone to exhibit visual inconsistencies in gloss due to limitations of pattern roll technologies.



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