



MAKROFOL[®] LM 228 2-4 160005

Characterization

Makrofol LM 228 2-4 160005 is an extruded polycarbonate film.

Properties / Applications

Makrofol LM 228 2-4 160005 is an extruded polycarbonate film filled with light-scattering agent. It displays a smooth homogenous illumination of the front side of a backlight part even if a point source is applied. Typical applications are automotive instrument panels and backlight displays.

Makrofol LM 228 2-4 160005 is available in standard thicknesses of 0.012" and 0.020" (300 microns and 500 microns). The surface structure of Makrofol LM 228 2-4 160005 is one side very fine matte and one side fine matte. As with any product, use of Makrofol LM 228 2-4 160005 in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

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Typical Properties*

Property	Test Method	Unit	Value
General			
Density	ISO 1183 20°C, Method C	g/cm ³	1.2
Thickness	acc. to ISO 4593, 23°C	µm	300, 500
Gloss	ISO 2813, 60° backprinted black	Digits	
top surface			≥ 80
back surface			< 6
Roughness, R3z	acc. to ISO 4287/88, Lm 12.5 mm; lc 2.5	µm	
top surface			< 0.5
back surface	average over 3-5 measurements		< 11
Optical			
Luminous Transmittance	ISO 13467-2	%	
300 µm, back surface			73
300 µm, top surface			72
500 µm, back surface			65
500 µm, top surface			65
Haze	ASTM D 1003	%	
300 µm, back surface			100
300 µm, top surface			100
500 µm, back surface			100
500 µm, top surface			100
Half-Power Angle	following DIN 5036	Degree	
300 µm, top surface			39
500 µm, top surface			51

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Typical Properties* (CONT'D)

Property	Test Method	Unit	Value
Mechanical			
Stress at Break	ISO 527-1,-3	MPa	≥ 50
Machine Direction			≥ 50
Transverse Direction			≥ 50
Strain at Break	ISO 527-1,-3	%	≥ 105
Machine Direction			≥ 100
Transverse Direction			≥ 100
Tensile Modulus	ISO 527-1,-3	MPa	≥ 1,850
Machine Direction			≥ 1,800
Transverse Direction			≥ 1,800
Thermal			
Relative Temperature Index	UL 746 B	°C	80
Electrical			
Surface Resitivity	following DIN IEC 60093	Ohm	10 ¹⁶
Other			
Water Absorption	following ISO 62	%	0.2

**These items are provided as general information only. They are approximate values and are not part of the product specifications.*



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Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling this product. Before working with this product, you must read and become familiar with the available information on its risks, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., safety data sheets and product labels. For further information contact your Covestro LLC representative or the Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

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Document contains important information and must be read in its entirety.

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Product Datasheet