

## Makrolon® FI sheet

## Flame inhibiting

Makrolon® FI sheet is a flame retardant, non-UV stabilized, clear polycarbonate product with a UL 94 V-0 rating at 0.060″ and UL 94 5VA rating at 0.118″. It features high impact strength, superior dimensional stability, high temperature resistance, and high clarity. This lightweight thermoformable sheet is also easy to fabricate and decorate.

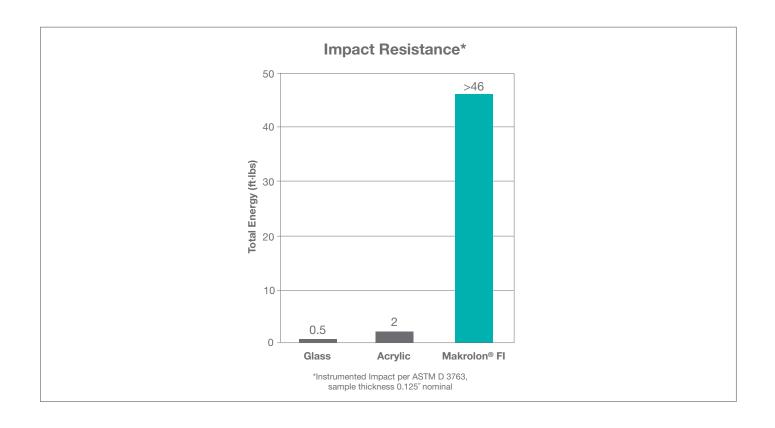
## **Applications**

Electrical devices, equipment housings, switchgear covers, light fixtures

Property         Test Method         Units         Values           PHYSICAL Specific Gravity         ASTM D 792         −         1.25           Light Transmission, Clear @ 0.118"         ASTM D 1003         %         86           Water Absorption, 24 hours         ASTM D 570         %         0.15           Poisson's Ratio         ASTM D 570         %         0.15           Poisson's Ratio         ASTM D 570         %         0.15           MECHANICAL         Tensile Strength, Ultimate         ASTM D 638         psi         9,500           Tensile Strength, Yield         ASTM D 638         psi         9,000           Tensile Modulus         ASTM D 638         psi         340,000           Flexural Strength         ASTM D 638         psi         13,500           Compressive Strength         ASTM D 695         psi         13,500           Compressive Strength, Notched @ 0.125"         ASTM D 256         ft·lbs/in         2           Izod Impact Strength, Unnotched @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 696         in/in/o*F         3.75 x 10°           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270	Typical Properties				
ASTM D 792	Property	Test Method	Units	Values	
Light Transmission, Clear @ 0.118"	PHYSICAL				
Water Absorption, 24 hours         ASTM D 570         %         0.15           Poisson's Ratio         ASTM E 132         –         0.38           MECHANICAL         Tensile Strength, Ultimate         ASTM D 638         psi         9,500           Tensile Strength, Yield         ASTM D 638         psi         9,000           Tensile Modulus         ASTM D 638         psi         340,000           Flexural Strength         ASTM D 790         psi         13,500           Compressive Strength         ASTM D 695         psi         12,500           Izod Impact Strength, Notched @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 3763         ft·lbs         >46           THERMAL           Coefficient of Thermal Expansion         ASTM D 696         in/in/°F         3.75 x 10°           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 60 Hz         ASTM D 150         – </td <td>Specific Gravity</td> <td>ASTM D 792</td> <td>-</td> <td>1.25</td>	Specific Gravity	ASTM D 792	-	1.25	
Poisson's Ratio         ASTM E 132         −         0.38           MECHANICAL         Tensile Strength, Ultimate         ASTM D 638         psi         9,500           Tensile Strength, Yield         ASTM D 638         psi         9,000           Tensile Modulus         ASTM D 638         psi         340,000           Flexural Strength         ASTM D 790         psi         13,500           Compressive Strength         ASTM D 695         psi         12,500           Izod Impact Strength, Notched @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 3763         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 3763         ft·lbs/in         No Break           THERMAL           Coefficient of Thermal Expansion         ASTM D 696         in/in/°F         3.75 x 10°           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270           Heat Deflection Temperature @ 66 psi         ASTM D 150         −         2.96           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 150         −         2.96           Dielectric Constant @ 60 Hz         ASTM D 150 <th< td=""><td>Light Transmission, Clear @ 0.118"</td><td>ASTM D 1003</td><td>%</td><td>86</td></th<>	Light Transmission, Clear @ 0.118"	ASTM D 1003	%	86	
MECHANICAL           Tensile Strength, Ultimate         ASTM D 638         psi         9,500           Tensile Strength, Yield         ASTM D 638         psi         9,000           Tensile Modulus         ASTM D 638         psi         340,000           Flexural Strength         ASTM D 790         psi         13,500           Compressive Strength         ASTM D 695         psi         12,500           Izod Impact Strength, Notched @ 0.125"         ASTM D 256         ft·lbs/in         2           Izod Impact Strength, Unnotched @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 696         in/in/°F         3.75 x 10-5           Heat Deflection Temperature @ 264 psi         ASTM D 696         in/in/°F         3.75 x 10-5           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 495         Seconds         10	Water Absorption, 24 hours	ASTM D 570	%	0.15	
Tensile Strength, Ultimate         ASTM D 638         psi         9,500           Tensile Strength, Yield         ASTM D 638         psi         9,000           Tensile Modulus         ASTM D 638         psi         340,000           Flexural Strength         ASTM D 790         psi         13,500           Compressive Strength         ASTM D 695         psi         12,500           Izod Impact Strength, Notched @ 0.125"         ASTM D 256         ft-lbs/in         2           Izod Impact Strength, Unnotched @ 0.125"         ASTM D 256         ft-lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 3763         ft-lbs /in         No Break           Instrumented Impact @ 0.125"         ASTM D 696         in/in/°F         3.75 x 10-5           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270           Heat Deflection Temperature @ 66 psi         ASTM D 648         °F         280           ELECTRICAL           Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 257         Ohm-cm         8.2 x 10 <sup>16</sup> Dissipation Factor @ 60 Hz         ASTM D 495         Seconds         10           Tungsten El	Poisson's Ratio	ASTM E 132	-	0.38	
Tensile Strength, Yield	MECHANICAL				
Tensile Modulus         ASTM D 638         psi         340,000           Flexural Strength         ASTM D 790         psi         13,500           Compressive Strength         ASTM D 695         psi         12,500           Izod Impact Strength, Notched @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 3763         ft·lbs         >46           THERMAL           Coefficient of Thermal Expansion         ASTM D 696         in/in/°F         3.75 x 10⁻           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270           Heat Deflection Temperature @ 66 psi         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 257         Ohm·cm         8.2 x 10¹⁶           Dissipation Factor @ 60 Hz         ASTM D 150         -         -         -           Arc Resistance         -         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         120 </td <td>Tensile Strength, Ultimate</td> <td>ASTM D 638</td> <td>psi</td> <td>9,500</td>	Tensile Strength, Ultimate	ASTM D 638	psi	9,500	
Flexural Strength	Tensile Strength, Yield	ASTM D 638	psi	9,000	
Compressive Strength         ASTM D 695         psi         12,500           Izod Impact Strength, Notched @ 0.125"         ASTM D 256         ft·lbs/in         2           Izod Impact Strength, Unnotched @ 0.125"         ASTM D 256         ft·lbs/in         No Break           Instrumented Impact @ 0.125"         ASTM D 3763         ft·lbs         >46           THERMAL           Coefficient of Thermal Expansion         ASTM D 696         in/in/°F         3.75 x 10-°           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270           Heat Deflection Temperature @ 66 psi         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         -         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹6           Dissipation Factor @ 60 Hz         ASTM D 495         Seconds         10           Arc Resistance         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 149         V/mil         380	Tensile Modulus	ASTM D 638	psi	340,000	
Izod Impact Strength, Notched @ 0.125"   ASTM D 256   ft·lbs/in   2     Izod Impact Strength, Unnotched @ 0.125"   ASTM D 256   ft·lbs/in   No Break Instrumented Impact @ 0.125"   ASTM D 3763   ft·lbs   >46     THERMAL	Flexural Strength	ASTM D 790	psi	13,500	
Izod Impact Strength, Unnotched @ 0.125"	Compressive Strength	ASTM D 695	psi	12,500	
Instrumented Impact @ 0.125"	Izod Impact Strength, Notched @ 0.125"	ASTM D 256	ft·lbs/in	2	
THERMAL           Coefficient of Thermal Expansion         ASTM D 696         in/in/°F         3.75 x 10⁻⁵           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270           Heat Deflection Temperature @ 66 psi         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 150         −         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         −         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹⁶           Dissipation Factor @ 60 Hz         ASTM D 150         −         0.0009           Arc Resistance         −         −         −           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125″         ASTM D 149         V/mil         380           FLAMMABILITY         Flame Class @ 0.060″         UL 94         −         V-0           Flame Class @ 0.118″         UL 94         −         5VA           FAA Flammability         FAR 25.853         −         Pass	Izod Impact Strength, Unnotched @ 0.125"	ASTM D 256	ft·lbs/in	No Break	
Coefficient of Thermal Expansion         ASTM D 696         in/in/°F         3.75 x 10°5           Heat Deflection Temperature @ 264 psi         ASTM D 648         °F         270           Heat Deflection Temperature @ 66 psi         ASTM D 648         °F         280           ELECTRICAL           Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         -         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹6           Dissipation Factor @ 60 Hz         ASTM D 150         -         0.0009           Arc Resistance         -         -         -         0.0009           Arc Resistance         -         -         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10	Instrumented Impact @ 0.125"	ASTM D 3763	ft·lbs	>46	
Heat Deflection Temperature @ 264 psi	THERMAL				
Heat Deflection Temperature @ 66 psi         ASTM D 648         °F         280           ELECTRICAL         Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         -         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10 <sup>16</sup> Dissipation Factor @ 60 Hz         ASTM D 150         -         0.0009           Arc Resistance         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY         Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass	Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75 x 10 <sup>-5</sup>	
ELECTRICAL           Dielectric Constant @ 10 Hz         ASTM D 150         -         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         -         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹8           Dissipation Factor @ 60 Hz         ASTM D 150         -         0.0009           Arc Resistance         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Past           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270	
Dielectric Constant @ 10 Hz         ASTM D 150         −         2.96           Dielectric Constant @ 60 Hz         ASTM D 150         −         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹6           Dissipation Factor @ 60 Hz         ASTM D 150         −         0.0009           Arc Resistance         −         −         −         −           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125″         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060″         UL 94         −         V-0           Flame Class @ 0.118″         UL 94         −         5VA           FAA Flammability         FAR 25.853         −         Pass	Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280	
Dielectric Constant @ 60 Hz         ASTM D 150         -         3.17           Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹6           Dissipation Factor @ 60 Hz         ASTM D 150         -         0.0009           Arc Resistance         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Past           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	ELECTRICAL				
Volume Resistivity         ASTM D 257         Ohm·cm         8.2 x 10¹¹⁵           Dissipation Factor @ 60 Hz         ASTM D 150         -         0.0009           Arc Resistance         -         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125″         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060″         UL 94         -         V-0           Flame Class @ 0.118″         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060″ - 0.125″         Part 1, a (i) - 60 sec         -         Pass	Dielectric Constant @ 10 Hz	ASTM D 150	_	2.96	
Dissipation Factor @ 60 Hz         ASTM D 150         -         0.0009           Arc Resistance         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	Dielectric Constant @ 60 Hz	ASTM D 150	_	3.17	
Arc Resistance         -         -         -           Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	Volume Resistivity	ASTM D 257	Ohm-cm	8.2 x 10 <sup>16</sup>	
Stainless Steel Strip electrode         ASTM D 495         Seconds         10           Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	Dissipation Factor @ 60 Hz	ASTM D 150	_	0.0009	
Tungsten Electrodes         ASTM D 495         Seconds         120           Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	Arc Resistance	_	_	-	
Dielectric Strength, in air @ 0.125"         ASTM D 149         V/mil         380           FLAMMABILITY           Flame Class @ 0.060"         UL 94         -         V-0           Flame Class @ 0.118"         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060" - 0.125"         Part 1, a (i) - 60 sec         -         Pass	Stainless Steel Strip electrode	ASTM D 495	Seconds	10	
FLAMMABILITY           Flame Class @ 0.060°         UL 94         -         V-0           Flame Class @ 0.118°         UL 94         -         5VA           FAA Flammability         FAR 25.853         -         Pass           @ 0.060° - 0.125°         Part 1, a (i) - 60 sec         -         Pass	Tungsten Electrodes		Seconds	120	
Flame Class @ 0.060" UL 94 - V-0 Flame Class @ 0.118" UL 94 - 5VA FAA Flammability FAR 25.853 @ 0.060" - 0.125" Part 1, a (i) - 60 sec - Pass	Dielectric Strength, in air @ 0.125"	ASTM D 149	V/mil	380	
Flame Class @ 0.118" UL 94 - 5VA FAA Flammability FAR 25.853 @ 0.060" - 0.125" Part 1, a (i) - 60 sec - Pass	FLAMMABILITY				
FAA Flammability FAR 25.853  @ 0.060" - 0.125" Part 1, a (i) - 60 sec - Pass	Flame Class @ 0.060"	UL 94	-	V-0	
@ 0.060" - 0.125" Part 1, a (i) - 60 sec - Pass	Flame Class @ 0.118"	UL 94	-	5VA	
	FAA Flammability	FAR 25.853			
@ 0.060" - 0.125" Part 1, a (ii) - 12 sec - Pass	@ 0.060" - 0.125"	Part 1, a (i) - 60 sec	-	Pass	
	@ 0.060" - 0.125"	Part 1, a (ii) - 12 sec	-	Pass	



## Makrolon® FI sheet





ISO 9001:2008 and ISO 13485:2003 Certified

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