

## TUFFAK GP-R DC POLYCARBONATE SHEET

### GENERAL PURPOSE

TUFFAK GP-R DC (Renewable) sheet is a transparent polycarbonate sheet product with 65% post-industrial recycled content, and is the ideal option where recycled sheet is preferred or specified. It features outstanding impact strength, superior dimensional stability, high temperature resistance, and high clarity. This lightweight thermoformable sheet is also easy to fabricate and decorate. TUFFAK GP-R DC sheet is offered with a five (5) year Limited Product Warranty against breakage. The terms of the warranty are available upon request.

### APPLICATIONS

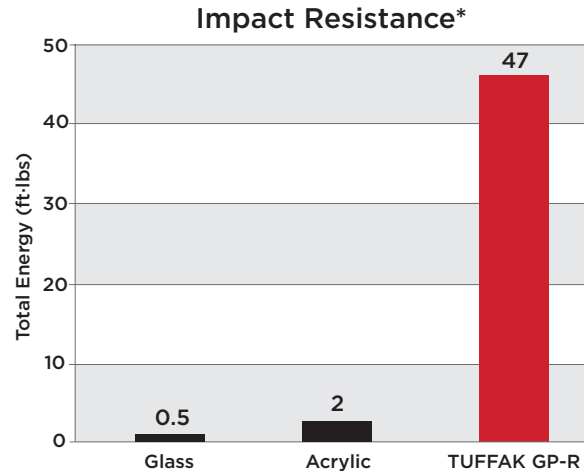
Data centers

### TYPICAL PROPERTIES\*

Property	Test Method	Units	Values
<b>PHYSICAL</b>			
Recycled Content	ISO 14021	%	65
Specific Gravity	ASTM D 792	-	1.2
Refractive Index	ASTM D 542	-	1.586
Light Transmission, Clear @ 0.118"	ASTM D 1003	%	86
Water Absorption, 24 hours	ASTM D 570	%	0.15
<b>MECHANICAL</b>			
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
Flexural Modulus	ASTM D 790	psi	345,000
Instrumented Impact @ 0.125"	ASTM D 3763	ft-lbs	47
Rockwell Hardness	ASTM D 785	-	M70 / R118
<b>THERMAL</b>			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75 x 1
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280
Shading Coefficient, clear @ 0.236"	NFRC 100-2010	-	0.97
U factor @ 0.236" (summer, winter)	NFRC 100-2010	BTU/hr-ft²·°F	0.85, 0.92
U factor @ 0.375" (summer, winter)	NFRC 100-2010	BTU/hr-ft²·°F	0.78, 0.85
<b>FLAMMABILITY</b>			
Horizontal Burn, AEB	ASTM D 635	in	<1
Ignition Temperature, Self	ASTM D 1929	°F	1022
Ignition Temperature, Flash	ASTM D 1929	°F	824

\*Typical properties are not intended for specification purposes.

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\*Instrumented Impact per ASTM D 3763, sample thickness 0.125" nominal

## Standard Products Comparison

Property		Polycarbonate	Acrylic	Glass
Impact Resistance	Drop Ball Test, 0.5 lb	No Break	1.75 ft-lbs	0.7 ft-lbs
Cold Bend	Bend Radius	100x material thickness	180x material thickness	Not possible
Sheet Weight	0.125"	0.78 lb/ft <sup>2</sup>	0.75 lb/ft <sup>2</sup>	1.60 lbs/ft <sup>2</sup>
Thermal Expansion Rate	-	3.75 x 10 <sup>-5</sup> in/in/°F	4.10 x 10 <sup>-5</sup> in/in/°F	5.0 x 10 <sup>-6</sup> in/in °F
Shading Coefficient	0.236" clear sheet	0.97	1.01	1.03
U Factor - Summer	0.236"	0.85 BTU/hr-ft <sup>2</sup> ·°F	0.83 BTU/hr-ft <sup>2</sup> ·°F	0.92 BTU/hr-ft <sup>2</sup> ·°F
U Factor - Winter		0.92 BTU/hr-ft <sup>2</sup> ·°F	0.91 BTU/hr-ft <sup>2</sup> ·°F	1.02 BTU/hr-ft <sup>2</sup> ·°F
Sound Transmission Class	0.236"	29	30	27

These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use are beyond our control. We recommend that the prospective user determines the suitability of our materials and suggestions before adopting them on a commercial scale.

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