

TUFFAK SK1 HD prismatic and smooth polycarbonate sheet

SKYLIGHT HD - HIGH DIFFUSION

TUFFAK SK1 HD polycarbonate sheet combines high light transmission and excellent light diffusion characteristics with a weatherable UV cap layer in a single product. Sunlight is uniformly dispersed without hot spots, making it the material of choice for daylighting applications. The product is available in white and with smooth or prismatic texture. TUFFAK SK1 HD can be drape or thermoformed for use in contoured applications such as domed skylights. In either flat or contoured geometries, it has significantly higher impact resistance compared to acrylic, impact modified acrylic or glass (Figure 1). TUFFAK SK1 HD polycarbonate sheet has a ten (10) year limited product warranty against breakage. The terms of the warranty are available upon request.

APPLICATIONS

Skylights, sloped, vertical and curved glazing, glazed archways, covered pedestrian walkways, barrel vaults, awning and entryway canopies

Typical Properties*

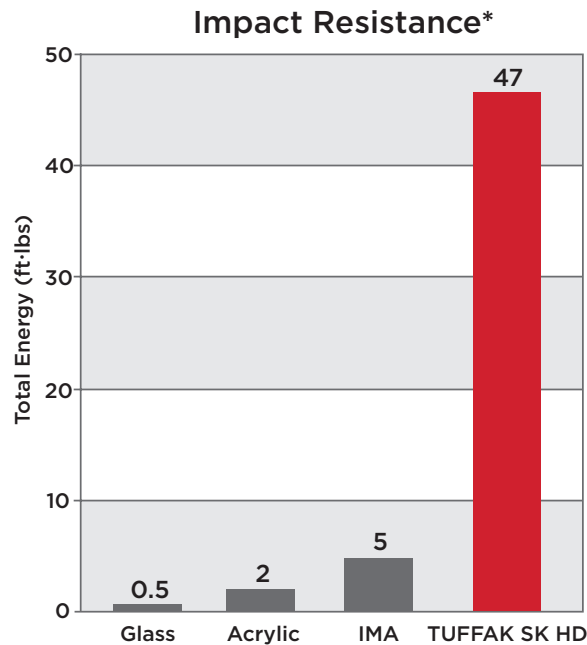
Property	Test Method	Units	Values
PHYSICAL			
Specific Gravity	ASTM D 792	-	1.2
Refractive Index	ASTM D 542	-	1.586
Light Transmission @ 0.118"	ASTM D 1003	%	72
Haze	ASTM D 1003	%	100
Water Absorption, 24 hours	ASTM D 570	%	0.15
Poisson's Ratio	ASTM E 132	-	0.38
MECHANICAL**			
Tensile Strength, Break	ASTM D 638	psi	9,500
Tensile Strength, Yield	ASTM D 638	psi	9,000
Tensile Modulus	ASTM D 638	psi	340,000
Elongation	ASTM D 638	%	110
Flexural Strength	ASTM D 790	psi	13,500
Flexural Modulus	ASTM D 790	psi	345,000
Compressive Strength	ASTM D 695	psi	12,500
Compressive Modulus	ASTM D 695	psi	345,000
Izod Impact Strength, Notched @ 0.125"	ASTM D 256	ft-lbs/in	16
Izod Impact Strength, Unnotched @ 0.125"	ASTM D 256	ft-lbs/in	60 (no break)
Instrumented Impact @ 0.125"	ASTM D 3763	ft-lbs	47
Shear Strength, Yield	ASTM D 732	psi	6,000
Shear Modulus	ASTM D 732	psi	114,000
Rockwell Hardness	ASTM D 785	-	M70 / R118
THERMAL			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75 x 10 ⁻⁵
Coefficient of Thermal Conductivity	ASTM C 177	BTU-in/hr-ft ² -°F	1.35
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280
Brittleness Temperature	ASTM D 746	°F	-200
FLAMMABILITY			
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

**Some properties characterized using non-textured sheet

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Figure 1.
Impact Resistance
Comparison



*Instrumented Impact per ASTM D 3763, sample thickness is 0.125" nominal
Smooth Surface - No Pattern

Regulatory code compliance and certifications

ANSI Z97.1-2009, 2015: American National Standard for Safety Glazing Materials Used in Buildings -
Safety Performance Specifications and Methods of Test, Class A, Unlimited

Florida Building Code 2017, 6th Ed.
High Velocity Hurricane Zone Classified
Miami-Dade NOA: NOA

Hail Impact Resistance (FM 4431) Class 4 Severe Rating - Pass

IBC 2012 Rating for Horizontal Burn Rate ASTM D635-10 - CC1

IBC 2012 Self Ignition Greater than 650°F ASTM D1929-13a - Pass

UL 94: Flammability File #E87887

UL 746C: Suitability for Outdoor Use, UL File #E87887

UL 972: Burglary Resistant File #BP2126

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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