TUFFAK®

PLASKOLITE

TUFFAK 15 POLYCARBONATE SHEET

EXTENDED ABRASION AND UV RESISTANCE

TUFFAK 15 sheet is a polycarbonate product that offers excellent impact resistance in high risk areas, weathering life, and optical quality. It provides a clear aesthetic advantage over wire glass and metal screens for security glazing. TUFFAK 15 protects against vandalism, forced entry attempts or attacks, and accidental impacts to minimize the risk of theft and glass replacement in damage prone areas. Advanced manufacturing technology has resulted in high optical quality with minimal distortion in clear and standard glazing tints. The abrasion resistant coating, applied to both sides, provides up to twice the life of prior polycarbonate sheet products. TUFFAK 15 sheet has a fifteen (15) year Limited Product Warranty against breakage, yellowing, and loss of light transmission. The terms of the warranty are available upon request.

APPLICATIONS

Educational, psychiatric and medical facilities, retail and government buildings, and transportation centers at risk from breakage and vandalism

TYPICAL PROPERTIES*

Property	Test Method	Units	Values
PHYSICAL			
Specific Gravity	ASTM D 792	–	1.2
Light Transmission	ASTM D 1003	%	86
Chemical Resistance	ASTM D 1308	–	Pass
Taber Abrasion, 100 Cycles CS-10F	ASTM D 1044		
Delta Haze		%	2
MECHANICAL			
Tensile Strength, Ultimate	ASTM D 638	psi	9,500
Tensile Modulus	ASTM D 638	psi	340,000
Flexural Strength	ASTM D 790	psi	13,500
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
Instrumented Impact @ 0.125″	ASTM D 3763	ft·lbs	47
THERMAL			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75×10^{-5}
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280
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.

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
CPSC 16 CFR 1201 Category I and Category II: Safety Standard for Architectural Glazing Materials
Florida Building Code 2017 High Velocity Hurricane Zone Classified Miami-Dade NOA: NOA
ICC-ES Evaluation report ESR-2728
UL 972: Burglary Resistant Glazing Materials, UL File #BP2126
AAMA 501.8: Resistance to Human Impact of Windows Systems Intended for Use in Psychiatric Applications

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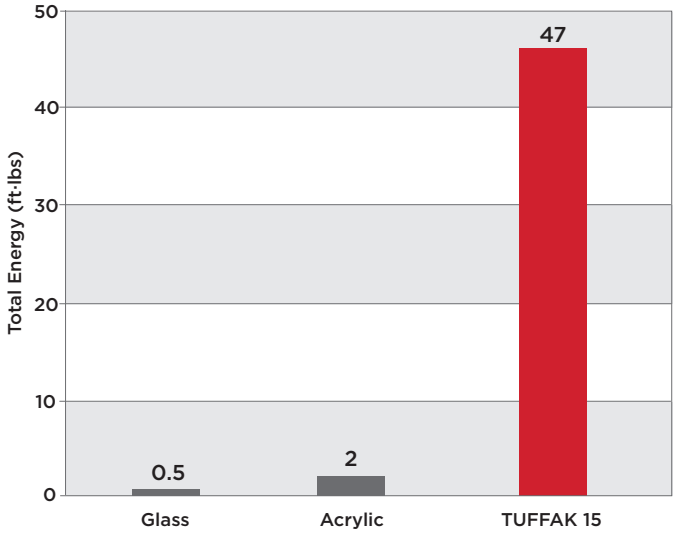
Impact Resistance*



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

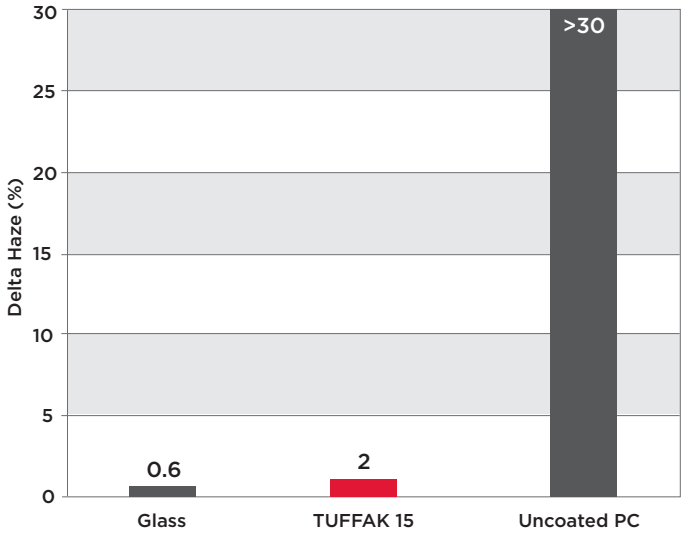
Chemical Resistance*

Chemical Tested	Resistance Time
Acetone	**>24 hrs**
Ammonia (10% concentration)	>24 hrs
Antifreeze (50/50)	>24 hrs
Benzene	>24 hrs
Bleach (Clorox concentrated)	>24 hrs
Chloroform	>24 hrs
Denatured Alcohol	>24 hrs
Di (2-ethylhexyl) phthalate	>24 hrs
Diesel Oil	>24 hrs
Isopropyl Alcohol (IPA)	>24 hrs
Kerosene	>24 hrs
Methyl Alcohol	>24 hrs
Methyl Butyl Ketone	>24 hrs
Methyl Ethyl Ketone	>24 hrs
Methylene Chloride	>24 hrs
Naphthalene, 1-bromo-	>24 hrs
Potassium Hydroxide - Lye (10%)	>24 hrs
Sodium Hydroxide (10%)	>24 hrs
Toluene	>24 hrs
Turpentine	>24 hrs
Unleaded Gasoline (87 Octane)	>24 hrs
Vinegar	>24 hrs
Xylene	>24 hrs
Acids:	
Hydrochloric Acid (20%)	>24 hrs
Nitric Acid (20%)	>24 hrs
Sulfuric Acid (20%)	>24 hrs

*Tested in accordance to ASTM D 1308-02

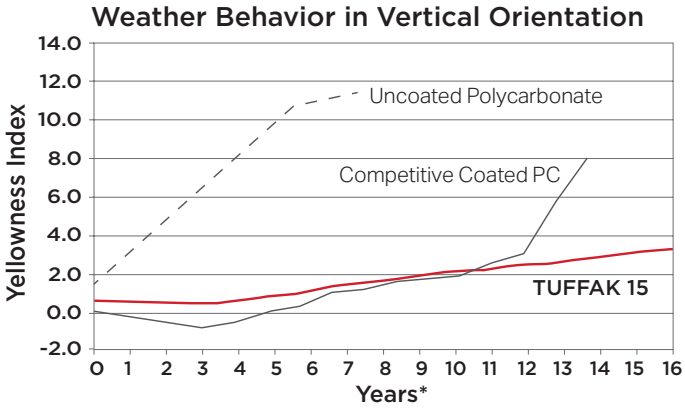
Always keep hazardous chemicals away from uncoated edge of Tuffak Polycarbonate Sheet

Abrasion Resistance*



*Taber Abrasion per ASTM D 1044, 100 cycles using CS-10F wheel

Weather Behavior in Vertical Orientation



*Based upon Xenon WOM accelerated weathering for UV dose at mid-latitude location

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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