

# TUFFAK AR PRODUCT DETAILS

TUFFAK AR polycarbonate sheet is an abrasion and enhanced UV resistant sheet that offers glasslike surface hardness coupled with the impact strength of polycarbonate. Additionally, TUFFAK AR polycarbonate sheet offers enhanced resistance from yellowing and hazing for longer service life in high profile architectural glazing.

## APPLICATIONS

Typical applications for TUFFAK AR polycarbonate sheet include school, hospital and bus shelter glazing, and is also used extensively in correctional and psychiatric facilities. TUFFAK AR polycarbonate sheet also performs well for view windows and machine guards in harsh chemical environments. However, due to its abrasion resistant coating, TUFFAK AR polycarbonate sheet cannot be formed like TUFFAK GP and TUFFAK SL polycarbonate sheets.

Typical Physical Properties			
Property	Test Method	Units	TUFFAK
PHYSICAL			
Specific Gravity	ASTM D792	-	1.2
Light Transmission, Clear 1/8"	ASTM D1003	%	86
Light Transmission, Gray/Bronze	ASTM D1003	%	50
Chemical Resistance	ANSI Z26.1	-	pass
Taber Abrasion, 100 Cycles CS10 F, Delta Haze	ASTM D1044	%	1-2
MECHANICAL			
Tensile Strength, Ultimate	ASTM D638	psi	9,500
Flexural Strength	ASTM D790	psi	13,500
Compressive Strength	ASTM D695	psi	12,500
Modulus of Elasticity	ASTM D638	psi	340,000
Poisson's Ratio	-	-	0.38
Izod Impact Strength, Notched @ 1/8"	ASTM D256	Ft-lbs/in	12-16
Izod Impact Strength, Unnotched @ 1/8"	ASTM D256	Ft-lbs/in	60 (No failure)
Instrumented Impact, 1/8"	ASTM D3763	Ft-lbs	>45
THERMAL			
Coefficient of Thermal Expansion	ASTM D696	In/in/F	$3.75 \times 10^{-5}$
Heat Deflection Temperature, @ 264 psi	ASTM D648	F	270
Heat Deflection Temperature, @ 66 psi	ASTM D648	F	280
ELECTRICAL			
Dielectric Constant, @ 10 Hz	ASTM D150	-	2.96
Dielectric Constant, @ 60 Hz	ASTM D150	-	3.17
Volume Resistivity	ASTM D257	Ohm-cm	$8.2 \times 10^{16}$
Dissipation Factor, @ 60 Hz	ASTM D150	-	0.0009
Dissipation Factor, @ 1 MHz	ASTM D150	-	0.01
Arc Resistance	ASTM D495	Seconds	
Stainless Steel Strip Electrode			10-11
Tungsten Electrodes			120
Dielectric Strength, in air, 125 mils	ASTM D149	V/mil	380
FLAMMABILITY			
Horizontal Burn, AEB	ASTM D635	Inches	<1
Ignition Temperature, Self	ASTM D1929	F	1070
Ignition Temperature, Flash	ASTM D1929	F	870
Flame Class @ .060"	UL 94	-	HB
Flame Class @ .236"	UL 94	-	HB

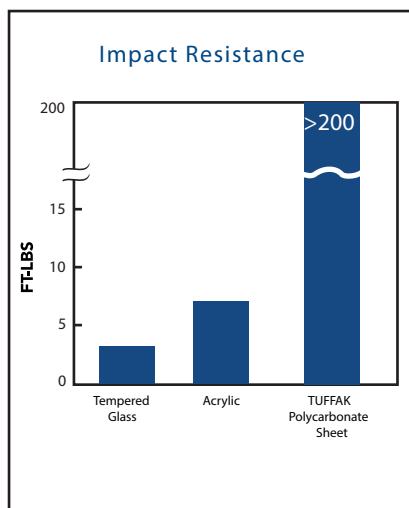
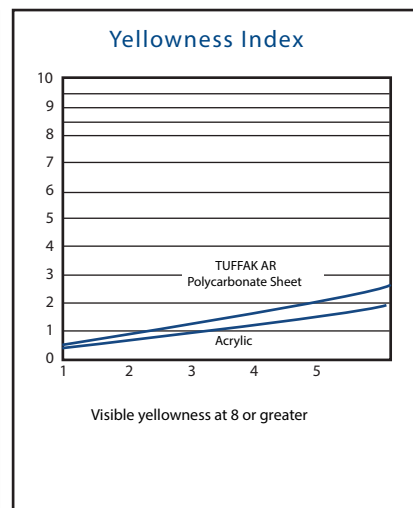
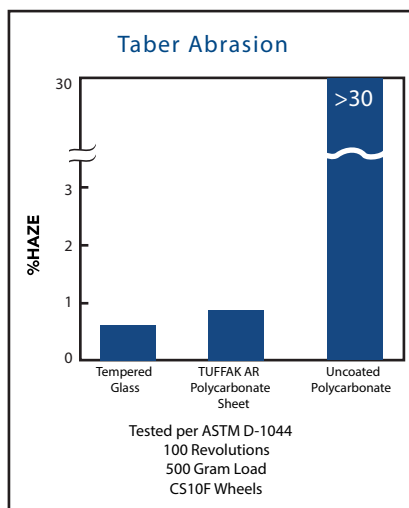
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## HIGH IMPACT STRENGTH

TUFFAK AR polycarbonate sheet is virtually unbreakable with 250 times the impact strength of float glass and 30 times that of acrylic.

## CODE COMPLIANCE

TUFFAK AR polycarbonate sheet products satisfy major building code requirements for a CC-1 rating in construction applications (BOCA, ICBO, SBCCI, AND DADE COUNTY). TUFFAK AR polycarbonate sheet products are listed with Underwriters Laboratories for the UL flammability standard and the UL972 standard for burglary resistant glazing materials. TUFFAK AR polycarbonate sheet is approved for Consumer Product Safety Commission (CPSC 16 CFR 1201) categories I & II and ANSI Z97. 1-1984 Safety Glazing Standards. Additionally, TUFFAK AR polycarbonate sheet meets the requirements for FRA Type I & II Transportation Glazing.



**Chemical Resistance  
ASTM D-1308**

CHEMICAL	RESISTANCE TIME
Acetone	>24 hrs
Ethylene Dichloride	>24 hrs
Unleaded Gasoline	>24 hrs
Hydrochloric Acid (10%)	>24 hrs
Methyl Alcohol	>24 hrs
Methylene Chloride	>24 hrs
Methyl Ethyl Ketone	>24 hrs
Nitric Acid (100%)	<24 hrs
Sodium Hydroxide (10%)	<24 hrs
Sulfuric Acid (1%)	>24 hrs
Toluene	>24 hrs
Isopropanol	>24 hrs
Kerosene	>24 hrs