

GATSAFE® AR15

GATSAFE® AR15 is a revolutionary high-impact glazing product that will change the perception of transparent glazing with the following features and benefits:

- Virtually unbreakable – Tested to ASTM – F1915 – test methods for Glazing for Detention Facilities and ASTM-F123 – test method for Security Glazing Materials and Systems.
- Virtually Flawless – Superior optics and light transmission compared to any transparent glazing material.
- Surface abrasion resistance equivalent to glass.
- Half of the weight of glass.
- Available in flat sheet in gauges of 6mm (1/4”), 9.5mm (3/8”), 12.7mm (1/2”) – also available in other gauges on request.
- Can be digitally printed directly to the surface.
- The ability to be cut, drilled, and fabricated on or off-site with standard woodworking tools.
- Currently used for windows in safety & security applications, automotive, mass transit, mining, rail, etc.
- 15-year warranty.

APPLICATIONS

- Retail Shopfronts
- Retail Interiors
- Correctional Facilities
- Security Buildings
- Public Buildings
- Police Stations
- Mental Health Facilities
- Aircraft
- Prisons
- Public Transport
- Mass Transit
- High Traffic Areas
- Youth Detention Centres

UNPARALLELED OPTICAL CLARITY

Below are test results from the JIS R3212 test. Light is projected through a grid of 0.314” (8mm) dots placed in front of GATSAFE® AR15 polycarbonate and then cast onto a wall. The variance between original and projected dot size is measured.

Traditional Extruded Polycarbonate

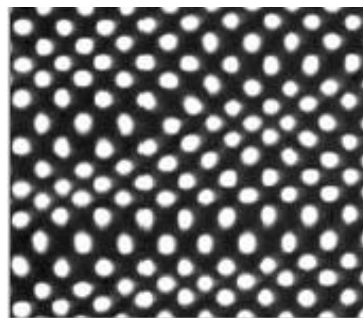


Figure 2: Max 0.47” Ripples (12mm)

GATSAFE® AR15



Figure 1: Max 0.02” Ripples (0.5mm)

GATSAFE® AR15 has the following ISO accreditations with local & international safety glass compliance & certifications

- ISO 9001:2015 & ISO 14001:2015
- AS2080:2019 Australian Safety Glass Standard
- ECE43R European Safety Glass Standard
- ANSI Z 26.1 US Safety Glass Standard
- AS2, AS4, AS5 US Safety Glass Standard
- JIS R 3211 Japan Safety Glass Standard

Superior Weather Protection

GATSAFE® AR15 polycarbonate scored 5000 hours on the Super Xenon weathering test (102 minutes radiation / 18 minutes radiation + rain cycles). GATSAFE® AR15 can last 15-20 years depending on location.

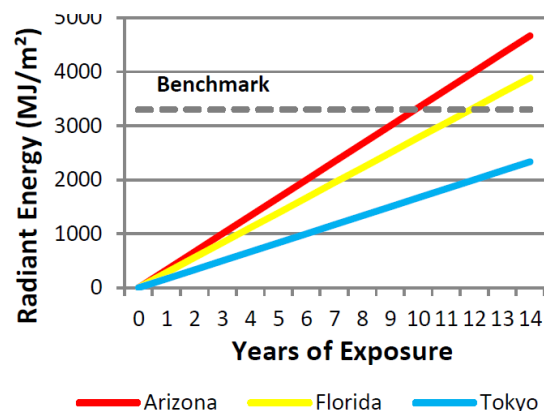


Figure 3: Performance of GATSAFE® AR15 on weatherability test.

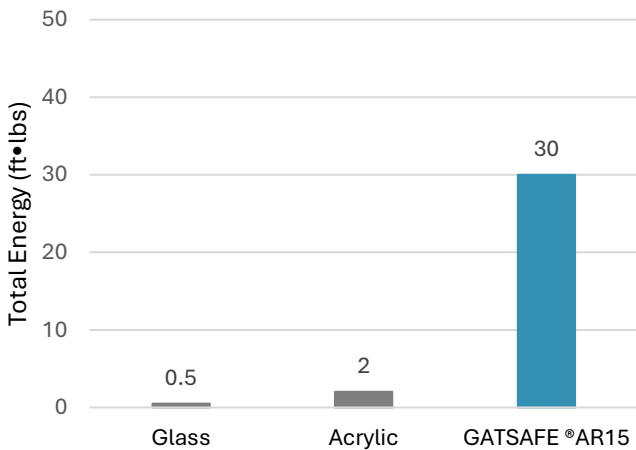
High Performance Plastic Solutions

GATSAFE® AR15 Optical Polycarbonate

Typical Properties

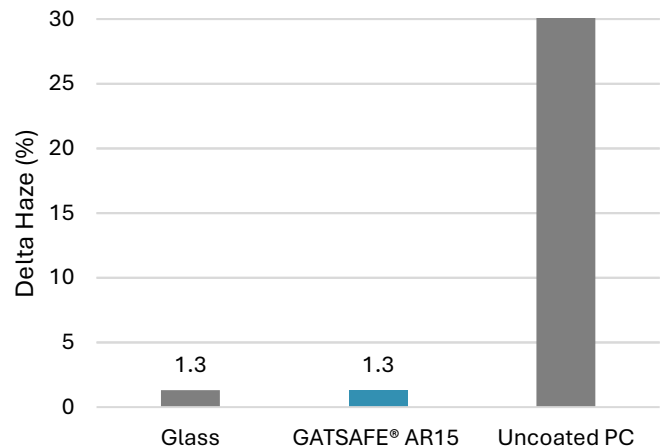
Typical Properties*							
Property	Test Method	Units	Values	Property	Test Method	Units	Values
PHYSICAL				THERMAL			
Specific Gravity	ASTM D 792	-	1.2	Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75x10 ⁻⁵
Refractive Index	ASTM D 542	-	1.586	Coefficient of Thermal Conductivity Heat	ASTM C 177	BTU.in/hr.ft ² .°F	1.35
Light Transmission, Clear 3mm	ASTM D 1003	%	92	Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Water Absorption, 24 hours	ASTM D 570	%	0.15	Deflection Temperature @ 66 psi	ASTM D 648	°F	280
Poisson's Ratio	ASTM E 132	-	0.38	Brittleness Temperature	ASTM D 746	°F	-200
Chemical Resistance	ASTM D 1308	-	Pass	Shading Coefficient, Clear @ 0.236"	NFC 100-2010	-	0.97
Taber Abrasion @ 1000 Cycles, Delta Haze	ASTM D 1044	%	1.3	Shading Coefficient, Grey or Green @ 0.236"	NFC 100-2010	-	0.77
CS-10F Wheel @ 500g load				U factor @ 0.236" (summer/winter)	NFC 100-2010	BTU/hr.ft ² .°F	0.85/0.92
				U factor @ 0.375" (summer/winter)	NFC 100-2010	BTU/hr.ft ² .°F	0.78/0.85
MECHANICAL				ELECTRICAL			
Tensile Strength, Ultimate	ASTM D 638	psi	9500	Dielectric Constant @ 10 Hz Dielectric	ASTM D 150	-	2.96
Tensile Strength, Yield	ASTM D 638	psi	9000	Constant @ 60Hz	ASTM D 150	-	3.17
Tensile Modulus	ASTM D 638	psi	340000	Volume Resistivity	ASTM D 257	Ohm.cm	8.2x10 ¹⁶
Elongation	ASTM D 638	%	110	Dissipation Factor @ 60 Hz	ASTM D 150	-	0.0009
Flexural Strength	ASTM D 790	psi	13500	Arc Resistance	-	-	-
Flexural Modulus	ASTM D 790	psi	345000	Stainless Steel Strip Electrodes	ASTM D 495	Seconds	10
Compressive Strength	ASTM D 695	psi	12500	Tungsten Electrodes	ASTM D 495	Seconds	120
Compressive Modulus	ASTM D 695	psi	345000	Dielectric Strength, in air @ 0.125"	ASTM D 149	V/mil	380
Izod Impact Strength, Notched @ 0.125"	ASTM D 256	ft.lbs/in	16	FLAMMABILITY			
Izod Impact Strength, Unnotched @ 0.125"	ASTM D 256	ft.lbs/in	No Break	Horizontal Burn, AEB	ASTM D 635	in	<1
0.125" Instrumented Impact	ASTM D 3763	ft.lbs	47	Ignition Temperature, Self	ASTM D 1929	°F	1022
Shear Strength, Ultimate	ASTM D 732	psi	10000	Ignition Temperature, Flash	ASTM D 1929	°F	824
Shear Strength, Yield	ASTM D 732	psi	6000	Flame Class @ 0.060"	UL 94	-	HB
Shear Modulus	ASTM D 732	psi	114000	Flame Class @ 0.236"	UL 94	-	HB
Rockwell Hardness	ASTM D 785	-	M70/R118				

Impact Resistance*



*Instrumented Impact as per ASTM D3763, sample thickness is 0.118" nominal

Abrasion Resistance*



*Taber Abrasion per ASTM D1044, 100 cycles using CS_10F wheels at 500g load

Chemical Resistance

Test Method* (soft cloth soaked with...)	Result
Ammonium Hydroxide	0% Change in Haze
Hydrochloric Acid	
Acetone	
Kerosene	
Toluene	

* Vigorous rub for 2 minutes

*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.