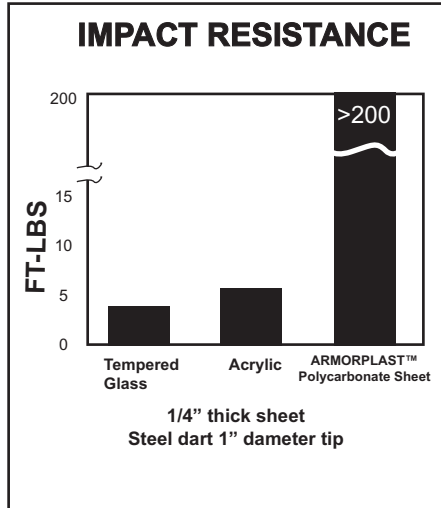


ArmorPlast™ 25 Sheet

ArmorPlast™ AR Polycarbonate Sheet is an abrasion and UV resistant sheet that offers glass-like surface hardness coupled with the impact strength of polycarbonate. Additionally, ArmorPlast™ AR Polycarbonate Sheet offers resistance from yellowing and hazing for longer service life in high profile applications and has a five (5) year Limited Product Warranty against coating failure, yellowing, and hazing. Warranty terms are available upon request.



Chemical Resistance ASTME 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.

Riot Glass will not be responsible for the use of this information relative to actual application. Users must make their own determination of its suitability for their specific application. No warranty is made for the fitness of any product, and nothing herein waives any of the seller's conditions of sale.



TYPICAL PHYSICAL PROPERTIES			
PROPERTY	TEST METHOD	UNITS	ARMORPLAST
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 226.1	%	pass
Taber Abrasion, 100 Cycles CS10F, Delta Haze	ASTM 01044		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 0696	In/in/F	3.75 x 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 x 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
UL 94, Clear @ .060"	UL 94	-	HB
UL 94, Clear @ .236"	UL 94	-	V1

Forced Entry Testing

- ASTM F1233-80
- TEST 5-aa 1
- HPW-TP-0500.03



H.P. White Laboratory, Inc.

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ISO-5.10-FR18.00

ASTM F1233-08

Forced Entry Sequence of Testing

Client: RIOT GLASS

Job No.: 9447

Test Date: 8/22/19

Make: ARMOR PLAST

Model: NA

Size: 30" X 30"

Thicknesses: 0.227",0.227",0.229",0.229"

Sample No.: 1

Weight: 8.8 lbs

Test Sequence	Threat Description	Procedure	Results	Contra Entry	Body Entry
1	Ball Peen Hammer	10 Impacts	No entry	No	No
2	Ball Peen Hammer	10 Impacts	No entry	No	No
3	1.5" Diameter Pipe/Sledge	25 Impacts	No entry	No	No
4	Extinguisher,CO2	1 Minute	No entry	No	No
5	Sledge Hammer	25 Impacts	No entry	No	No
6	Propane Torch Flame	5 Minutes	No entry	No	No
7	Ripping Bar	10 Impacts	4 Holes, No entry	Yes	No
8	120lb Ram	10 Impacts	No entry	No	No
9	4" Diameter Pipe/Sledge	25 Impacts	No entry	No	No
10	Sledge Hammer	25 Impacts	No entry	No	No
11	Propane Torch Flame	5 Minutes	No entry	No	No



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ISO-5.10-FR29.02

Forced Entry Data Record

TEST 5-aa 1

Client: RIOT GLASS, INC

Job No.: 9447 Test Date: 08/21/19

Make/Model/Sample No.: AP 25 SURFACE MOUNT-1

Date Received: 08/15/19

Size: 36" X 83.250"

Thicknesses: NA

Weight: NA

Test Sequence/Designation	Resource/Description (tools)	Procedure (location, duration, etc.)	Results
TEST A-1	BRICK	20 IMPACTS FROM 15'	SHATTERING OF INNER GLASS, NO ENTRY
TEST A-2	STEEL TOE BOOT	10 IMPACTS	MORE SHATTERING OF INNER GLASS, NO ENTRY
TEST B	36" 2X4, 14" WRENCH, 13" CLAW HAMMER	2 MINUTES	NO FURTHER DAMAGE, NO ENTRY
TEST C	3lb 12" HAMMER, 33" 32oz ALUMINUM BAT	3 MINUTES	BACK SPALL LINER CAME OFF HALF WAY OF THE DOOR, ALL GLASS FELL OUT, NO ENTRY
TEST D	12lb SLEDGE	UNTIL FAILURE	TECH STOPPED AFTER 3 MINUTES TOTALLING 8 MINUTES OF OVERALL FE TESTING, NO ENTRY (a,b)
(a) Testing was stopped as the test technician was fatigued and could not safely continue to attack the test sample.			
(b) Technician: D'AMARIO			



H.P. White Laboratory, Inc.

BALLISTIC RESISTANCE TEST

Client : 7414: RIOT GLASS, INC.

Job No. : 000009447 Test Date : 8/21/19

TEST PANEL

Manufacturer : RIOT GLASS, INC.
Size : 36 X 83.250 in.
Thicknesses : NA
Avg. Thick. : NA
Description : AP 25 SURFACE MOUNT

Sample No. : 1
Weight : lbs.
Hardness : NA
Plies/Laminates : NA

Date Rec'd. : 8/15/19
Via :
Returned :

SET-UP

Shot Spacing : PER TEST PLAN 5-AA1
Witness Panel : NA
Obliquity : 0 deg.
Backing Material : NA
Conditioning : AMBIENT

Primary Vel. Screens : 5.0 ft., 20.0 ft.
Primary Vel. Location : 12.5 ft. From Muzzle
Residual Vel. Screens : NA
Residual Vel. Location : NA
Range to Target : 25.0 ft.
Target to Wit. : 0.0 in.

Range No. : 3
Temp. : 72 F
BP : 29.97 in. Hg
RH : 71%
Barrel No./Gun : R3/ .308
Gunner : LINKOUS
Recorder : BONSALL

AMMUNITION

(1) : 7.62mm Ball, M80, CJ, 149 gr.
(2) :
(3) :
(4) :

Lot No. : HPW- 0081
Lot No. :
Lot No. :
Lot No. :

APPLICABLE STANDARDS OR PROCEDURES

(1) : TEST PLAN 5-AA1
(2) : REQUIRED VELOCITY: 2700-2850 FPS
(3) :

Shot No.	Ammo.	Time 1 (usec)	Velocity 1 (ft/s)	Time 2 (usec)	Velocity 2 (ft/s)	Avg. Vel. (ft/s)	Penetration	Footnotes
1	1	5431	2762	5434	2760	2761	Bullet	
2	1	5448	2753	5447	2754	2754	Bullet	
3	1	5430	2762	5425	2765	2764	Bullet	
4	1	5487	2734	5487	2734	2734	Bullet	(a)
5	1	5441	2757	5444	2755	2756	Bullet	(b)



H.P. White Laboratory, Inc.

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ISO-5.10-FR29.02

Forced Entry Data Record

HPW-TP-0500.03

Client: RIOT GLASS, INC

Job No.: 9447 Test Date: 08/21/19

Make/Model/Sample No.: ARMOR PLAST
Size: 36 X 48
Thicknesses: 0.231", 0.231", 0.231", 0.231"
Weight: 17.4lbs

Date Received: 08/15/19

Test Sequence/Designation	Resource/Description (tools)	Procedure (a) (location, duration, etc.)	Results
LEVEL 1/SEQUENCE 1	12lb SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 1/ SEQUENCE 2	4" DIA. PIPE/SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 1/SEQUENCE 3	EXTINGUISHER, CO2	1 MINUTE	NO DAMAGE, NO ENTRY
LEVEL 1/SEQUENCE 4	12lb SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 1/SEQUENCE 5	1.5" DIA PIPE/SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 6	120lb RAM	10 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 7	4" DIA. PIPE/SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 8	12lb SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 9	EXTINGUISHER, CO2	1 MINUTE	NO DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 10	12lb SLEDGE	25 IMPACTS	NO DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 11	PROPANE TORCH	5 MINUTES	3" X 4" HOLE, NO ENTRY
LEVEL 2/SEQUENCE 12	CHISEL/HAMMER	25 IMPACTS	Cuts on 3" X 4" HOLE, NO ENTRY
LEVEL 2/SEQUENCE 13	ANGLE IRON/SLEDGE	25 IMPACTS	NO FURTHER DAMAGE, NO ENTRY
LEVEL 2/SEQUENCE 14	GASOLINE	8 OUNCES	NO FURTHER DAMAGE, NO ENTRY

(a) Technician: BONSALL, D'AMARIO, MILLER

ArmorPlast™ 25 Sheet

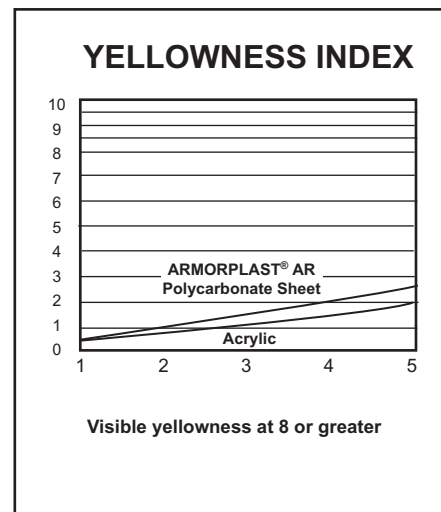
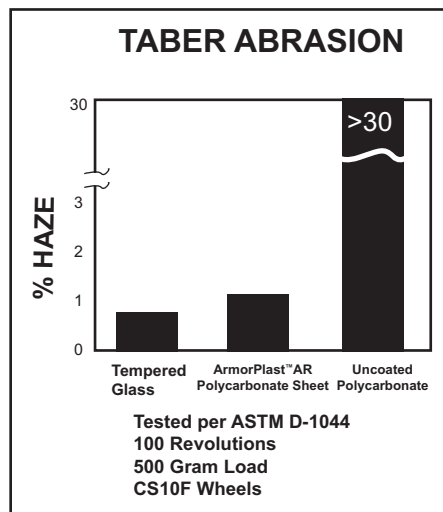


CODE COMPLIANCE:

ArmorPlast™ AR Polycarbonate Sheet products satisfy major building code requirements for a CC-1 rating in construction applications (BOCA, ICBO, SBCCI, and Dade County). ArmorPlast™ AR Polycarbonate Sheet products are listed with Underwriters Laboratories for the UL flammability standard and the UL972 standard for burglary resistant glazing materials. ArmorPlast™ AR Polycarbonate Sheet is approved for Consumer Product Safety Commission (CPSC 16C FR1201) categories I & II and ANSI Z97.1-1984 Safety Glazing Standards.

APPLICATIONS:

Typical applications for ArmorPlast™ AR Polycarbonate Sheet include school, hospital, and retail store glazing, and is also used extensively in correctional and psychiatric facilities. ArmorPlast™ AR Polycarbonate Sheet also performs well for view windows, and machine guards in harsh chemical environments. However, due to its abrasion-resistant coating, we recommend that ArmorPlast™ AR Polycarbonate Sheet only be used in flat applications.



The manner in which you use and the purpose to which you put and utilize our products, technical assistance, and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information, and recommendations to determine to your own satisfaction whether our products, technical assistance, and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Riot Glass.

Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent. With respect to health, safety, and environment precautions, the relevant Safety Data Sheets (SDS) and product labels must be observed prior to working with our products.

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