

Guardian DiamondGuard® *Bold. Brilliant. True.*



**ALL GLASS STARTS
OUT BEAUTIFUL.
OURS STAYS THAT
WAY.®**

GUARDIAN DIAMONDGUARD® GLASS, fused with the strength of diamond-like carbon, has an extremely low coefficient of friction that permanently protects it from normal wear. Created with Guardian's patented vacuum deposition process, DiamondGuard® glass provides superior endurance, aesthetics and value in commercial, residential, transportation and OEM applications.

Why DiamondGuard® *At-a-Glance*

<i>Features</i>	<i>Benefits</i>
In high-traffic environments, maintains like-new appearance far longer than ordinary glass	▶ Longer lifecycle; less frequent replacements
High resistance to scratching from contact with everyday items and heavy traffic; high resistance to discoloration from contact with hot objects	▶ Expanded range of commercial and residential applications including tabletops, bars, counters and railings
Resistance to scratching from contact in fabrication and installation	▶ Less waste and greater efficiency
High optical transmission retained after use	▶ Expanded range of applications requiring lasting clarity and endurance

OPTIONS



COLOR

ExtraClear: clear glass with a light greenish tint
 UltraClear: low-iron glass with virtual absence of color and distortion-free strength

SAFETY

Stabilized by controlled cooling; can be laminated for safety glass applications. DiamondGuard® is available in temperable version from 4 to 15mm.

DIMENSIONS

Sizes: 6000x3210, 2550x3210, 2250x3210
 Thicknesses: from 4mm to 15mm; may be specified in other thicknesses upon request

RESTRICTIONS

DiamondGuard is designed for interior applications. Long exposure to UVs could damage the DiamondGuard® layer. This product is not suitable for flooring applications.



		PRE-TEST	POST-TEST MEASUREMENT		
	LIGHT TRANSMISSION (in %)	HAZE*	(Ceramic mug)	(Key ring)	(Cutlery)
Standard Glass					
ExtraClear 10mm	89 ± 0.4	< 0.5%	9.59	3.47	2.20
DiamondGuard® annealed					
Applied on ExtraClear 10mm	84 ± 1.2	< 0.5%	0.20	0.20	0.20
DiamondGuard® tempered					
Applied on ExtraClear 10mm	79.9 ± 2.5	< 0.5%	0.20	0.20	0.20

* The measurement of haze, or reduction of optical clarity, is a universal practice for gauging the clarity of glass and other transparent materials. The lower the haze rating, the greater the optical clarity. Acceptable haze threshold: 0.7 per ASTM: D1003-11.

CUSTOMER EXPERIENCES

In extreme desert environments with blowing sands, the windshields on military vehicles became scratched so significantly—and rapidly—that service personnel were forcibly removing them to improve visibility. When replaced with DiamondGuard® glass, the windshields function for extended periods under these harsh conditions, and provide substantial protection against both scratching and reduced visibility.



In a Las Vegas casino, maintenance crews were replacing mirrors in high-traffic areas every six to eight weeks. New DiamondGuard® mirrors extend this lifecycle to over six months, paying for themselves by eliminating five replacements each year.



LABORATORY PERFORMANCE TESTING

ABRASION TESTING: REPEATED CONTACT

Conclusion: Rigorous testing in Guardian labs shows DiamondGuard® glass maintains like-new clarity after thousands of contacts with everyday items—many times longer than standard glass.

Methodology: Repeated contact with identical objects using identical pressure on standard and DiamondGuard® glass.

ABRASION TEST A**

Base of ceramic mug (25% alumina and 75% silica)

STANDARD GLASS	DIAMONDGUARD® GLASS
Extreme failure after 50 cycles	Minimal failure after 4,000 cycles
Endurance haze: 9.59*	Endurance haze: 0.20*



Top: Standard glass
Bottom: DiamondGuard® glass

ABRASION TEST B**

Key ring (key ring and three aluminum and brass keys)

STANDARD GLASS	DIAMONDGUARD® GLASS
Moderate failure after 100,000 cycles	No failure after 100,000 cycles
Endurance haze: 3.47*	Endurance haze: 0.20*



Top: Standard glass
Bottom: DiamondGuard® glass

ABRASION TEST C**

Cutlery (stainless steel silverware)

STANDARD GLASS	DIAMONDGUARD® GLASS
Moderate failure after 100,000 cycles	No failure after 100,000 cycles
Endurance haze: 2.20*	Endurance haze: 0.20*



Top: Standard glass
Bottom: DiamondGuard® glass

* see prior page

** The performance values shown are average data and individual data point value may vary from this average. The composition and the shape of the material used to perform the test have an impact on the results

WEAR RESISTANCE TEST A**

Cutlery (stainless steel silverware)

STANDARD GLASS	DIAMONDGUARD® GLASS
Failure after 5 passes	Failure after 120 passes

WEAR RESISTANCE TEST B**

Baking dish (borosilicate glass)

STANDARD GLASS	DIAMONDGUARD® GLASS
Failure after 1 pass	Failure after 80 passes

WEAR RESISTANCE TEST C**

Ceramic mug (Aluminiumoxid)

STANDARD GLASS	DIAMONDGUARD® GLASS
Failure after 1 pass	Failure after 2 passes

** The performance data shown are average values. Individual data points may vary from this average. The composition and shape of the material used to perform the tests has an impact on the results of those tests.

WEAR RESISTANCE TESTING

Conclusion: DiamondGuard® glass withstands from 2 to 120 times more wear resistance than ordinary glass depending on the contact material.

Methodology: A sphere of 10mm diameter made of different materials slides accross standard and DiamondGuard glass with a load of 4kg. After a certain number of passes, the glass starts to be damaged and scratched.

CORROSIVES TESTING

Conclusion: Meticulous testing in Guardian labs shows DiamondGuard® glass maintains like-new clarity after extended contact with solvents, acids, bases, oxidizers and a collection of common household corrosives.

Methodology: Exhibited no visual or chemical changes after 24-hour continuous contact with substances such as lighter fluid, ammonia, hydrogen peroxide and permanent marker.

HEAT TESTING

Conclusion: Extensive testing in Guardian labs shows DiamondGuard® glass maintains like-new clarity after prolonged contact with hot cookware removed from boiling water.

Methodology: Sustained contact of 100° C cookware on DiamondGuard® glass.

Industry-wide baseline methodologies

ASTM: D1003-11: Standard test method for haze and luminous transmittance of transparent plastics. **ASTM: C1624-05:** Standard test method for adhesion strength and mechanical failure modes of ceramic coatings by quantitative single point scratch testing.

The performance values shown are nominal and subject to variations due to manufacturing tolerances.

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DiamondGuard® is a featured product from Guardian InGlass, forward-thinking interior glass solutions. To learn more about the breadth of Guardian InGlass products and services, visit guardianinglass.com, a comprehensive glass resource for interior architects and designers. Headquartered in Auburn Hills, Michigan, Guardian Industries is a global leader in float glass, fabricated glass, fiberglass insulation and other building materials for commercial, residential, interior and automotive applications. To learn more, visit guardianinglass.com.