



# Hygard® EX250 sheet

## Blast resistant

Hygard® EX250 explosion resistant glazing is designed and engineered to meet and exceed current GSA and Department of Defense government standards for blast resistant glazing. Glazed monolithically or as the interior lite in dual glazed or IGU system with glass, Hygard EX250 is suitable for commercial and government window applications requiring low to medium levels of transparent security protection against defined pressure loads and shock waves.

## Applications

Government buildings, embassies, military buildings/facilities, chemical plants, airports, mass transit terminals, nuclear plants, power generation facilities, federal courthouse and 911 emergency centers

Typical Properties			
Property	Test Method	Units	Values
<b>PHYSICAL</b>			
Specific Gravity	ASTM D 792	–	1.2
Chemical Resistance	ASTM D 1308	–	Pass
Poisson's Ratio	ASTM E 132	–	0.38
<b>OPTICAL</b>			
Light Transmission @ 0.25"	ASTM D 1003	%	84
Haze	ASTM D 1003	%	<1
Distortion	C 1652	%	<1
<b>SOUND TRANSMISSION</b>			
Sound Transmission Class	ASTM E 90	dB	29
Outdoor/Indoor Sound Attenuation	ASTM E 1332	dB	27
<b>MECHANICAL</b>			
Tensile Strength, Ultimate	ASTM D 638	psi	9,500
Tensile Modulus	ASTM D 638	psi	340,000
Elongation	ASTM D 638	%	110
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 (no failure)
Instrumented Impact @ 0.125"	ASTM D 3763	ft:lbs	>46
Taber Abrasion, 100 Cycles CS-10F	ASTM D 1044		
Delta Haze		%	2
<b>THERMAL</b>			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75 x 10 <sup>-5</sup>
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280
<b>FLAMMABILITY</b>			
Horizontal Burn, AEB	ASTM D 635	in	<1
Ignition Temperature, Self	ASTM D 1929	°F	1070
Ignition Temperature, Flash	ASTM D 1929	°F	870

Physical Performance Data				
Pressure	Impulse	Test Method	Qualified	ATFP*
6 psi	42 psi-msec	GSA/ISC-GSATS01	Performance Condition 2	Meets
6 psi	42 psi-msec	UFC 4-010-01	Protection Level Medium	Meets
6 psi	42 psi-msec	ASTM F 1642	No Hazard Level	Meets
6 psi	42 psi-msec	AAMA 510.06**	Complies	–

\*ATFP - Meets Anti-Terrorism Force Protection requirements.

\*\*Window tested in accordance with the Voluntary Guide Specifications for Blast Hazard Mitigation for Fenestration System AAMA 510-06.

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## Glazing recommendations

- Properly select Hygard EX250 material thickness based on aspect ratio of window
- Rabbet depth should allow for material expansion (approx. 1/16"/ft.)
- Minimum edge engagement of 1.00" is recommended but can vary depending upon frame design
- Use compatible structural sealants, gaskets, and tapes (consult Covestro architectural manual)
- Cut and fabricate Hygard EX250 utilizing approved equipment and techniques (consult Covestro architectural manual)
- Hygard EX250, as one component in a blast resistant window, must be modeled and tested in structural framing which is designed and approved for specified government blast pressure levels and impulses
- Industry standards for modeling confirmation is either shock tube or live explosives open arena testing
- Protective masking on Hygard EX250 should be removed:
  - after glazing installation but not before other trades have completed their work and cleanup
  - before prolonged exposure to direct sunlight, moisture, and high temperatures

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