



evguard<sup>®</sup> laminating film  
Certification of evguard<sup>®</sup> product family

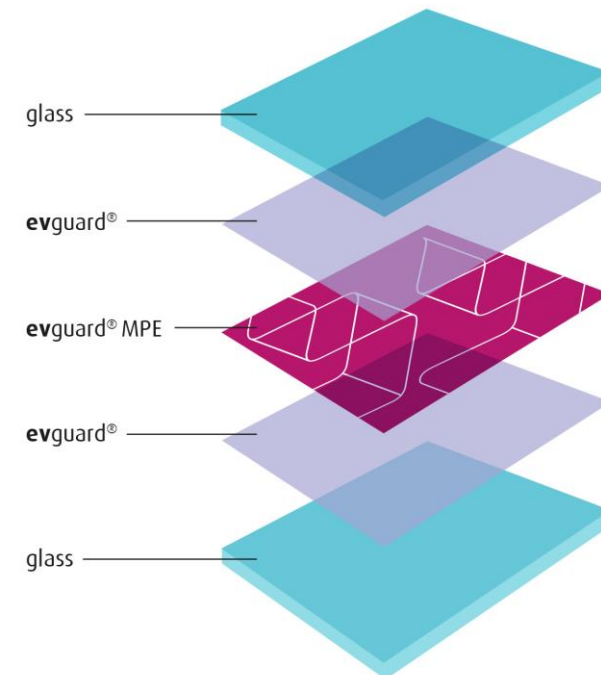
# Description



With its outstanding properties and performances, amongst only few others, **evguard<sup>®</sup>** is a premium laminating film for the glass industry. Having all important certification for Germany, Europe and USA, including DIBT, impact, weathering and sound reduction, it offers an added value to the customers. Due to its three-dimensional cross-linked structure, **evguard<sup>®</sup>** provides an outstanding durability.

Folienwerk Wolfen GmbH also provides **evguard<sup>®</sup>** MPE, a „Modified Co-PolyEster“, that brings significant improvement in terms of strength, stability, durability, shear modulus and printability.

**evguard<sup>®</sup>** MPE is a special high performance multi-layer polyester film for heavy impacts and printed laminated safety glass applications.



# Certifications



DIBt – Deutsches Institut für Bautechnik	Gutachten G-70-21-0003	LSG with evguard®	<i>Approved</i>
American National Standard Institute	ANSI Z97.1	LSG with evguard®	<i>Approved</i>
Weathering Test	DIN EN ISO 12543-4 (Temperature, Humidity & UV Radiation)	LSG with evguard® and evguard® MPE	<i>Approved</i>
	ASTM G155-05a (Optical) ASTM D 1003-11 (Transparency & Haze) ASTM E313-10 (Yellowness Index) ASTM E308-12 (Color Change)	33.2, 33.2.MPE(200)	<i>Approved</i>

# Certifications



Fire Classification & Reaction to Fire	DIN EN 13501-1 (Classification) DIN EN ISO 11925-2 (Ignition) DIN EN 13823 (SBI)	44.2	<i>B-s1-do</i> <i>No ignition</i> <i>No afterburning</i>
Miami-Dade Checklist #0445	ASTM C158 (Flexural Properties) ASTM D1929 (Ignition Temp.) ASTM D2843 (Smoke Density Rating) ASTM D635 (Rate of Burn)	LSG 4.8 mm	<i>Approved</i>
Frost Resistance Test	GOST 30826-2014 (at -70°C, 14 Days)	66.2	<i>Approved</i>
Sound reduction	DIN EN ISO 10140-2	44.1	<i>36 db</i>
		44.2	<i>37 db</i>
		44.2.MPE (200, 400)	<i>37 db</i>
		88.2	<i>40 db</i>

# Certifications



Bake Test	DIN EN ISO 12543-4	44.1	<i>Approved</i>
Boil Water Test	ANSI Z97.1	33.2	<i>Approved</i>
Salt Spray Test	ASTM B117/ISO 9227	44.2 44.2.MPE(200)	<i>Approved</i>
Moisture Absorption	DIN EN ISO 62	evguard®	<i>&lt;0.28 %</i>
Water Vapour Transmission Rate	DIN EN ISO 15106-2, ASTM F 1249	evguard®	<i>&lt;18 g/m<sup>2</sup>/d</i>
Young's Modulus	DMA Analysis	44.1	<i>Temperature range 10 °C to 80 °C</i>

# Certifications



Gel Rate	DIN EN 62788-1-6	evguard®	> 80%
Adhesion Test	DIN EN ISO 8510-2	180° - Adhesion Test (evguard®, 760 µm to glass)	> 29 N/cm
Pummel Test	Internal Standard	44.2 44.2.MPE(200)	≥ 7
Ball Drop Test	DIN 52338 EN 356	44.2 44.3 44.2.MPE(200) 44.2.MPE(400) 44.4.MPE(600) 44.8.MPE(600)	P1A P2A P3A P4A P5A *

\* The in-house test was carried out in cooperation with the Anhalt University of Applied Sciences, Germany

# Certifications



Pendulum Test	DIN EN 12600	44.1	1(B)1
		33.2	2(B)2
		33.1	3(B)3
Miami-Dade Certification	TAS 201-94 (Large Missile)	55.4.MPE(800)	<i>Approved</i>
	TAS 203-94 @ ±120 psf (Cycling)	55.4.MPE(800)	<i>Approved</i>
Bending Strength Test	DIN EN ISO 1288-3	44.1	<i>Temperature range 25 °C to 60 °C</i>
Glass Railing Category B	DIN-EN-1990,1991,1993,1999, DIN 18008-1 till -4 (Germany) UNI 11678:2017, NTC:2018 (Italy)	88.1	<i>Passed</i>
		88.2	
		88.2.MPE	
		(200, 400, 600)	

# Certifications



Tests of Free-Standing Barrier Glass	BS 6180	88.2 1010.2 88.2.MPE(200)	<i>Approved</i>
Deflection & Pendulum Impact Test	AZ/NZS 1170.1	88.2.MPE(600) 88.4.MPE(600)	<i>Approved</i>
Blast Test	ASTM F2912-17 & F 1642-17	IGU	<i>Hazard level H4 (low)</i>
Solar Characterstics (g-value)	DIN EN 410 VDI 2078	66.2 (transparent)	<i>SHGC: 0.80 SC: 1</i>
Comparataive Tracking Indîces (CTI) (for Solid Insulation Material)	DIN EN 60112	evguard® 3 mm	<i>CTI 925</i>