



MATERIAL PROPERTIES OF PVB INTERLAYERS USED IN STRATOBEL AND STRATOBEL STRONG LAMINATED GLASS

The material properties in this document comprise data for the PVB interlayers used in AGC laminated glass products. These values can be used for calculation of load resistance and glass deflection in the countries where national legislation does not define other data or methods. These material properties are representative of interlayers and glazings that have been tested according to the mentioned conditions.

Please contact your AGC representative or AGC TAS (tas@eu.agc.com) if you require other properties or for further information.

Louvain-la-Neuve, 28th of May 2020

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Product Manager Laminated Glass

LITERATURE:

EN 16612:2019

EN 16613:2019

Product technical sheet - saflex clear_031720.pdf

Product technical sheet - saflex structural_031720.pdf

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MATERIAL PROPERTIES OF PVB INTERLAYERS USED IN STRATOBEL AND STRATOBEL STRONG LAMINATED GLASS

Loading	Load duration	Temperature range	Young's modulus E (MPa) **	
			Stratobel Strong	Stratobel

WIND

Wind gust (Mediterranean areas)	3 sec.	0°C to 35°C	25	2.5
Wind gust (other areas)	3 sec.	0°C to 20°C	1005	33
Wind storm (Mediterranean areas)	10 min.	0°C to 35°C	1.7	1.1
Wind storm (other areas)	10 min.	0°C to 20°C	254	2.3

PERSONAL LOADS

Balustrade loads - no crowd (e.g. building use categories A, B, C1 and E)	30 sec.	0°C to 30°C	33	2.1
Balustrade loads - crowds	5 min.	0°C to 30°C	7.1	1.4
Maintenance loads	30 min.	0°C to 40°C	1.19	0.80

SNOW

Snow load - external canopies and roofs of unheated buildings	3 weeks	-20°C to 0°C	330	min. 1.2*
Snow load - roofs of heated buildings	5 days	-20°C to 20°C	4.2	1.0

CAVITY PRESSURE VARIATIONS ON INSULATING GLASS UNITS

Summer	6 hours	20°C to 40°C	1.11	0.19
Winter	12 hours	-30°C to 20°C	18	1.2

PERMANENT LOADS

Self-weight, change in altitude etc.	50 years	-20°C to 60°C	N/A	N/A
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NOTES:

* Values for 0°C not available, however higher stiffness has been proven

** The values correspond to the highest temperature in the given temperature range

OTHER MATERIALS PROPERTIES OF INTERLAYERS

	Poisson's ratio at 23°C and 50% RH ASTM D638 (-)	Density at 23°C ASTM D792 (kg/m³)	Thermal conductivity at 63°C ASTM D5930 (W/m.K)
Stratobel	0.5	1070	0.2
Stratobel Strong	0.5	1080	0.196

INTERLAYER THICKNESS

	Nominal thickness (mm)
Stratobel xx.1	0.38
Stratobel & Stratobel Strong xx.2	0.76
Stratobel xx.3	1.14
Stratobel & Stratobel Strong xx.4	1.52
Stratobel & Stratobel Strong xx.6	2.28

MAXIMUM SURFACE TEMPERATURE

Maximum allowed surface temperature for Stratobel Strong is in the range between 70°C and 90°C depending on other conditions like duration of exposure and/or relative humidity index. Aesthetics could be affected by long exposure in hot and/or humid environment. For calculation of load resistance and glass deflection, the surface temperature should be selected accordingly to EN 16612:2019 or valid local regulation.

STRATOBEL STRONG: YOUNG'S MODULUS OF THE INTERLAYER

Load Duration	Young's relaxation modulus E(t) (MPa)										
	Temperature (°C)										
	10	15	20	25	30	35	40	45	50	55	60
3 sec	1727	1585	1005	489	138	25	5.5	2.2	1.4	1.19	1.18
10 sec	1723	1419	828	317	72	12	3.2	1.6	1.2	1.18	1.14
30 sec	1713	1272	649	208	33	6	2.0	1.3	1.2	1.16	1.05
1 min	1698	1168	556	139	19	4	1.7	1.2	1.2	1.13	0.95
5 min	1600	924	324	57	7.1	2.0	1.25	1.2	1.1	0.93	0.71
10 min	1514	816	254	34	4.5	1.7	1.20	1.17	1.07	0.81	
30 min	1356	639	143	15	2.9	1.4	1.19	1.13	0.91		
1 hour	1265	546	94	10	2.2	1.2	1.18	1.08	0.79		
6 hours	988	296	30	3.5	1.40	1.19	1.11	0.80			
12 hours	891	229	18	2.7	1.25	1.18	1.03	0.71			
1 day	776	158	12	2.0	1.20	1.16	0.92				
5 days	539	65	4.2	1.4	1.18	1.04					
1 week	489	52	3.7	1.3	1.18	0.99					
3 weeks	330	21	2.4	1.2	1.14	0.79					
1 month	292	17	2.1	1.2	1.12	0.74					
1 year*	81	3.8	1.2	1.1							
10 years*	16	1.7	1.2	0.9							
15 years*	13	1.6	1.2	0.8							
50 years*	5.9	1.2	1.1								

* values not validated

Values calculated using $E = 3G$ as per EN 16613 par 5.1
For exact values of the Young's modulus available actual Poisson's ratio can be used