



DESIGNED,
DEVELOPED
AND MADE
IN GERMANY

evguard® laminating film
High temperature behavior

Description



One of the key properties of laminated glass is the behavior at high temperature. There are a lot of applications for laminated safety glass with demand for high temperature resistance, i.e. automotive, electronic devices or architecture.

The international standard DIN EN ISO 12543-4 is used for determination of the behavior of laminated glass at high temperature. For this purpose, laminated glass is exposed to a temperature of 100 °C for two hours. Afterwards, the laminated glass is inspected for any kind of change or delamination.





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Facts

Laminated glass samples were tested at IFT Rosenheim according to the standard DIN EN ISO 12543-4 for behavior at high temperature. The samples have been exposed to a temperature of 100 °C for two hours. This test is known in industry as “bake test”.

None of the specimen showed any kind of failure, bubbles or delamination.

To investigate the behavior of glass laminates at temperatures beyond the international standard test DIN EN ISO 12543-4, further tests were carried out.

Due to its crosslinking behavior, **evguard**® laminating film behaves differently compared to other laminating films. To prove the behavior of laminated glasses with **evguard**® laminating film, laminated glass samples were exposed to temperatures ranging from 100 °C to 240 °C in intervals of 20 °C. The glass laminates passed the test up to at least 200 °C without any delamination effects or visual changes. Also at a final test at a temperature of 240 °C, no delamination was detected, only slight yellowing was observed.



Conclusion

Glass laminates made by using laminating films from the **evguard**® product family were tested for its behavior at high temperatures. A bake test was carried out at temperatures from 100 °C to 240 °C.

This test was passed successfully when **evguard**® laminating film was used for the laminates. The test results demonstrate impressively the outstanding behavior of the laminating films of the **evguard**® product family for use in laminated safety glasses.

Bake test	evguard®	evguard® Milky-White	evguard® Black opaque
100°C (2 hours)	No delamination or visual changes ¹⁾		
180°C (2 hours)			
200°C (2 hours)			
240°C (2 hours)	No delamination, slight yellow shade at the edges, no further observations		

¹⁾ Results for **evguard**® laminating film confirmed and certified by IFT Rosenheim (100°C, 2 hours), see Report 12-001424-PR02.

