



## Toetab TÜ ja TTÜ doktorikool "Funktsionaalsed materjalid ja tehnoloogiad" (FMTDK)

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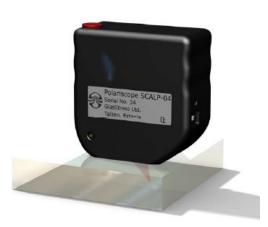
## ON THE DESTRUCTIVE AND NON-DESTRUCTIVE ASSESSMENT OF STRENGTH OF THERMALLY TOUGHENDED GLASS PANELS

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A portable scattered light polariscope SCALP has been developed, which permits measurement of the residual stress profile through the thickness of glass panels.

At a glass factory strength assessment of glass panels of different thermal treatment was carried out using both residual stress measurement with SCALP and the traditional four point bending stress. Linear correlation between the residual surface stress and the bending strength was observed.



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At another glass factory residual stress in glass panels was measured before performing the traditional fragmentation test. The results of the fragmentation test were extremely scattered and had almost no correlation with the values of the residual stress.

It is concluded that most reliable assessment of the strength of glass panels is obtained by measuring the residual stress at the surface.

## References

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- 3. Carré H., Daudeville L.: Analysis of residual stresses and of the load-bearing capacity of tempered glass plates. Proc. 4<sup>th</sup> European Conference on Residual Stresses, Cluny en Bourgogne, 1996, 377-386.