

研究論文

レーザプロービング法による強化ガラス表面の
Rayleigh 波位相と残留応力の関係

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Relationship between Phase of Rayleigh Wave and Residual Stress of
Tempered Glass Measured by the Laser Probing Method

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Laser light probing method is introduced in the ultrasonic measurement system to find out the effects of residual stress on the phase of Rayleigh wave. Tempered glass having surface residual stress is used to examine the effects to the phase of Rayleigh wave. The reflected laser light from the surface of sample tempered glass is obtained by optical sensor (APD) via the two polarized plates. Vector signal analyzer (VSA) analyzed the phase of 5MHz Rayleigh wave detected by the APD. The phase of Rayleigh wave on the tempered glass can be obtained from a phase slope. The phase of Rayleigh wave rapidly changes at the residual stress area. Change of polarity of stress which is corresponded to this area, is also revealed. Possibility of quality evaluation of such as a tempered glass by the laser light probing method is suggested.

Keywords : Laser probing method, Rayleigh wave, Tempered glass, Residual stress, Phase slope