

Excimer laser 를 이용한 글라스의 기계적 특성

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The mechanical property of the glasses using excimer laser

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Abstract

Recently, the strength achieved of glass is higher as the fracture toughness by the formation of a heterogeneous phase inside glass. In this study, 38SiO₂-26Al₂O₃-18Na₂O-6CaO-4MgO-8TiO₂ glasses were irradiated to strengthen by crystallization using excimer laser pulse. UV/VIS, Spectroscopy, XRD, nanoindentation and SEM etc, irradiation of laser pulse without heat-treated samples was analyzed. The strength of glass is increased with weight saving of flat panel displays. Samples irradiated by laser had higher value (250 mj/cm²) of elastic modulus which related with strength of glass than values heat-treated samples and these are 1.2~1.5 times higher values than them of mother glass. This process can be applicable to the strengthening of thinner glass plate and it has an advantage over traditional heat-treatment and crystallization method.

Key Words : Excimer laser, Glass, Crystallization

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