

Tensile properties of a tempered glass plate at the quasi-static state

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Abstract. This paper is concerned with the evaluation of the tensile properties of a tempered glass plate at the quasi-static state corresponding to the strain rate of 0.001 s^{-1} . A tempered glass is used in many electronic devices and components of vehicles. It is important to ensure the safety of the products because the tempered glass is a brittle material and it is broken into many fragments. Many studies have been conducted numerical simulations of glass impact to verify the safety of the glass. Tensile properties of a tempered glass plate are required to obtain accurate results of the numerical simulations. Specimens were obtained from the tempered glass plates for the cover glass of an electrical device. The Instron 5583 was utilized to acquire the tensile properties at the quasi-static state of 0.001 s^{-1} . The digital image correlation (DIC) method was used to measure the strains with a small order of the tempered glass specimens. The tensile properties such as Young's modulus and the fracture strength, were obtained from the experiments with the conventional tensile testing machine.