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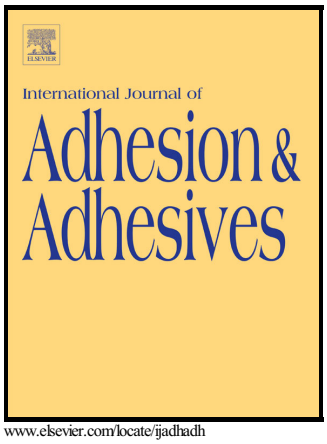

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ABSTRACT

Laminated safety glass is widely used in construction and as automotive windshield. When the glass plies break under dynamic loading, the adhesion between the glass plies and the interlayer is key to achieving the required safety performance. However, direct measurement of the interfacial adhesive properties is not possible with the existing test methods. In corresponding calculations, material behaviour is often simplified, which leads to inaccurate results. In this article, a finite element model for the 90° peel testing of laminated glass is studied. Hydrogen bonding at the interface between poly-vinyl butyral (PVB) interlayer and glass is represented in the model by a cohesive zone. It is seen that the experimentally measured peel force can successfully be matched by the simulations, but several combinations of variables can give the same result. Therefore, a parameter study is performed to establish the influence of each variable. It is found that the peel arm, consisting of the PVB and an aluminium backing foil, can not be regarded as a thin film. Furthermore, the exact shape of the traction-separation law governing the cohesive zone has negligible influence on the simulation results, whereas the combination of interfacial strength and fracture energy fully