

ON RELIABILITY OF THIN FILM ON SUBSTRATE SYSTEMS

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An analysis of the mechanical stability of a film on a substrate system is presented in the following. The film on substrate consisted of a titanium oxyde layer, deposited on a polycarbonate substrate. The analysis is based on in-situ microtensile tests, which allow to follow how the film develops irreversible damage (cracking and deadhesion), when progressively pulled in tension. Following "in-situ" this degradation, the critical parameters which correspond to the initiation of a irreversible damage mechanism can be determined. Associated to analytical models, the determined parameters allow to compare a predictive behaviour of the film on substrate system, to the real one, which is given by the experiments.