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Modeling of Environment Assisted Delamination I. Quasistatic Case

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In a present paper, a theoretical model of quasistatic growth of delaminations of a protection covering of metal due to diffusion of dissolved in metal atomic hydrogen into the formed cavity is considered. For the case of a penny-shaped delamination the main equation describing its growth is derived. The expression for incubation time and the closed-form solution of the equation are obtained. It is shown that after incubation time the contour of a delamination begins to spread with the finite velocity which doesn't change in process of growth, as well as in the case of a crack in infinite medium.

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