

Fatigue And Fracture Mechanics

Investigation of linear elastic and elastic-plastic fracture mechanics. topics include microstructural effects on fracture in metals, ceramics, polymers, thin films, biological materials and composites, toughening mechanisms, crack growth resistance and creep fracture. also covered: interface fracture mechanics, fatigue damage and dislocation the application of methods of fracture mechanics to the prediction of fatigue life presupposes the existence of a single flaw of 'critical' size the slow propagation of which, under repeated cyclic loading, represents the relevant damage mechanism that governs 'fatiguer' until the flaw has grown to unstable size. fatigue and fracture mechanics see also: fracture mechanics fatigue failures, both for high and low cycle, all follow the same basic steps process of crack initiation, stage i crack growth, stage ii crack growth, and finally ultimate failure. a) structure q h f k 5 v n the similitude concept states that if the nominal stress histories in the structure and in the test specimen are the same, then the fatigue response in each case will also be the same and can be overview. fracture mechanics is a methodology that is used to predict and diagnose failure of a part with an existing crack or flaw. the presence of a crack in a part magnifies the stress in the vicinity of the crack and may result in failure prior to that predicted using traditional strength-of-materials methods. fatigue & fracture mechanics xodus supports its clients in preventing failures in a wide variety of structures. our fatigue and fracture mechanics analyses help to ensure that operating assets meet the long-term needs of our clients in the upstream oil and gas, petrochemical and low carbon industries.

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