

Introduction

Readers of this volume will not be disappointed with regard to novelties of current and practical interest in fracture toughness and slow-stable cracking. These range from unusual test methods to a puzzling effect of lateral specimen dimensions on K_{Ic} values for an aluminum alloy. Observational techniques include acoustic emission, both in relation to onset of rapid fracture and stress corrosion cracking, tape recordings as an assist for rapid load testing, and use of rubber castings to verify measurements of crack opening stretch. Toughness measurements are reported for white cast irons and cold-rolled steel. The papers dealing with fatigue cracking include a low cycle fatigue viewpoint on fatigue crack growth, effects of shot peening, initiation of fatigue cracking as a function of notch root radius, as well as effects of overloads, mean K , and mechanical fastener pressure.

The development of technology in this field has prospered over the years so that often novel approaches soon become routine techniques to solving problems. This volume is another contribution to the engineer and metallurgist faced with fracture problems.

With two exceptions, all of the papers in this volume were presented at the 1973 National Symposium on Fracture Mechanics held at the College Park campus of the University of Maryland, 27–29 Aug. 1973. The two exceptions were a paper offered for this symposium but not presented and a late submission of a paper from the 1972 symposium. The companion volume, STP 560, covers fracture analysis.

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