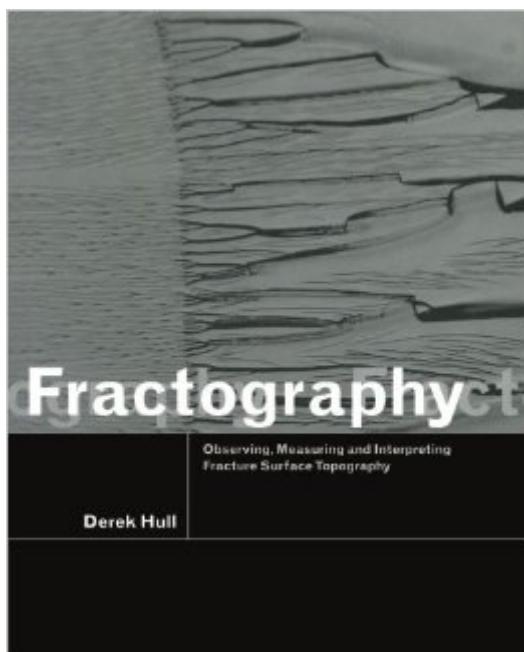


The book was found

Fractography: Observing, Measuring And Interpreting Fracture Surface Topography



Synopsis

Fracture surfaces are produced when a solid breaks. The appearance of the surface, particularly the topography, depends on both the type of material broken and the conditions under which it was broken, such as stress, temperature, or environment. Fractography describes the ways of studying these surfaces. Coverage includes all the information needed to understand the deformation and fracture in all types of solids and to interpret the topographical features in terms of the microstructure and the way it was tested. It also provides details on how to design clear and unambiguous experiments that involve many aspects of fracture in a wide range of solids. This book is an invaluable resource for undergraduate and graduate students, as well as researchers, industrial scientists, engineers, and anyone with an interest in materials science.

Book Information

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This book describes the methods of studying fracture surfaces, from simple examination with a hand lens to optical microscopy and scanning electron microscopy. There is a great deal of analysis of pictures of fractures, mainly of test samples, in the work, largely directed at understanding the role of crazing in polymers. Most of the analysis is directed at rigid thermoplastics like PMMA and polystyrene, on which Hull has spent much time examining their properties. Metals also are included with specific reference to fatigue, an ongoing problem with real engineering structures. However, the book fails in one respect, the examination and analysis of real products, and this is its main failing. Much effort is spent by investigating product failure, and fracture is a key aspect of such work, but

Hull fails to tackle this important and growing aspect of fractography in any depth. A few case studies are discussed at the end of the book, such as the spectacular failure of a large storage tank by chemical attack, but it remains an isolated example. It is a good reference work to have available, but readers who are interested in case studies will have to look elsewhere. We have published two books recently which help to readdress the balance in Forensic Materials Engineering: Case Studies and Forensic Polymer Engineering where failure cases are described in detail with the practical engineering lessons to be drawn.

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