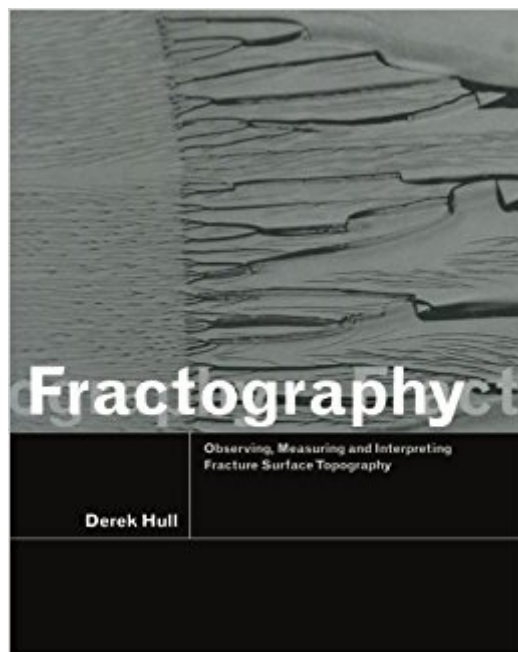




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Fractography: Observing, Measuring And Interpreting Fracture Surface Topography



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

Paperback: 386 pages

Publisher: Cambridge University Press; 1 edition (November 13, 1999)

Language: English

ISBN-10: 0521646847

ISBN-13: 978-0521646840

Product Dimensions: 8 x 0.8 x 10 inches

Shipping Weight: 2.1 pounds (View shipping rates and policies)

Average Customer Review: 3.5 out of 5 stars 7 customer reviews

Best Sellers Rank: #263,162 in Books (See Top 100 in Books) #8 in Books > Engineering & Transportation > Engineering > Materials & Material Science > Fracture Mechanics #41 in Books > Engineering & Transportation > Engineering > Materials & Material Science > Strength of Materials #235 in Books > Engineering & Transportation > Engineering > Materials & Material Science > Materials Science

Customer Reviews

"This book is an attractive one containing nice fractographs and clear illustrations....It is well organized and covers the very basic fundamentals working up to a very detailed and concise description of the mechanisms in play and the evolution of the fracture morphology...an excellent reference for those working in brittle materials and should be added to the other cornerstone books in the field." Applied Mechanics Reviews; Derek Hull expounds these components of fractography with great skill and authority. He gives equal weight to the experimental techniques and to the interpretive principles, and interweaves them so that he achieves remarkable integrity

and narrative flow. Every page reveals first-hand experience. The illustrations are exemplary, and beautifully reproduced ... Lectures based on the book should engage the enthusiastic attention of every student of materials science, whether a graduate student or not... By virtue of its elegant exposition, and the integrity of its point of view, I believe that wherever fracture, fast or slow, of whatever material, is a topic of interest, Hull's book will be an essential reference. and many scientists will be pleased to display it on their coffee-tables, alongside other equally elegant but much less profound works. It is a classic.” Contemporary Physics

Fracture surfaces are produced by breaking a solid. The appearance of the surface depends on the type of material and on the conditions under which it was broken. This book covers important aspects of the study of such fracture structures. The subject has numerous applications in a wide range of materials, and is particularly relevant in materials science and to inter-disciplinary subjects involving materials science, including physics, chemistry, engineering, biomimetics, earth sciences, biology and archaeology.

Greetings.Over all 4 star book.What else I would expect?A few SEM photographs intermingled with theoretical notes;this will make the user understand the crystallography better.Again, dedicate some pages for different types of failures and attach SEM photographs - may be as an appendix.Overall a good book.I would recommend for all new SEM starters and those who have practical exposure to various modes of SEM operation.I enjoyed the the book all the same and preserve the book among my large collection.regards.Subbarayan.T.K.India.

A very interesting book in which the fractography approach is based on physical metallurgy concepts.

Great insight into fracture surfaces and the nature of failure..Clear descriptions, figures and schematics to lead an educational topic about fracture.

Don't buy it. just time and money put it in the Street.

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. Case studies have also been published from the journal *Engineering Failure Analysis* in *Failure Analysis Case Studies II*. All three books show how fractography aids the investigation of fractured products.

The more comprehensive manual, *Metals Handbook Vol 12 Fractography*, is a virtual atlas. This book, while less extensive, represents an updated look at an old topic. Gotta keep up in this profession.

It is not easy to find engineering books with soul. For a book to have a soul, the author should know deeply what he writes about and feel and transmit in a clear way the beauty of his knowledge. This is a complete treatise on fractography that can be applied to any material, and used in different fields of Engineering and Science. It presents the ideas on several levels of depth. The text is supported by very descriptive diagrams, which reflect the rich experience of more than 30 years of research. Doctor Hull is also author of a book about dislocations and another on composite materials

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