

BOOK REVIEWS

Concise Encyclopedia of Advanced Ceramic Materials. By R. J. BROOK, Editor. The MIT Press, Cambridge, 1991. xvi + 588 pp. \$150.00.

The latest in a series of reference works *Advances in Materials Science and Engineering*, this joint publication (with Pergamon Press) contains 137 short (averaging 4 pp.) revised, and updated articles based on material first presented in the comprehensive *Encyclopedia of Materials Science and Engineering*.

While the material in this volume is not overly detailed and is heavily weighted toward the engineering aspects of materials, the solid state chemist will find useful overviews of many topics (for example, advanced ceramics, glasses, hot pressing, joining, sintering), as well as introductions to powder metallurgy, solid state reactions, fatigue, and fracture, to name a few.

In general, there is a good balance between theory and practice. However, perhaps because of the large number of contributors (over 130), the depth of each contribution varies considerable. To take two examples, the entry "Niobium Oxides and Niobates" (about $\frac{3}{8}$ of a page) only briefly describes the physical properties of Nb_2O_5 and $LiNbO_3$; on the other hand, "Ferroelectric Materials" (3 pp.) nicely summarizes ferroelectric phenomena and includes a short discussion of representative materials.

Iron Oxides in the Laboratory. By U. SCHWERTMANN AND R. M. CORNELL. VCH Publishers, New York, 1991. xiv + 137 pp. \$95.00.

The subtitle of this neat little book, *Preparation and Characterization*, really sums it up. The authors state their intention to provide workable procedures for the synthesis and identification of pure iron oxides by supplying a number of reliable, well tested recipes for the synthesis of pure iron oxides together with methods of characterizing these materials. They succeed very well.

The first four chapters provide concise introductions to the 13 oxides, oxyhydroxides, and hydroxides of iron, preparative techniques (including treatment after synthesis and chemical analysis), methods of characterization, and general synthetic methods.

These are followed by nine chapters containing detailed and specific recipes for the preparation of goethite, lepidocrocite, ferrosityte, ferrihydrite, akaganeite, hematite, magnetite, maghemite, and iron hydroxy salts. Some sections contain only a page or two, but those devoted to the more common phases (goethite, hematite, magnetite) are more extensive. A fairly detailed bibliography completes out the book.

Unfortunately, due its high cost, it might be difficult to justify adding this book to your personal library. However, it can be considered an essential resource for those working with oxidic iron compounds and should be included in every corporate and academic library.

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