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Book review

Maintenance Free Batteries: A Handbook of Battery Technology, published by John Wiley, Chichester, 2nd edn., 1997, 520 pp., price £70, ISBN 0-8638-0198-6.

This book is the second edition of the much acclaimed volume on maintenance-free batteries that was first published in 1993. In this new edition, the author has sought an improved structure for the material and has expanded the scope to include newly emergent technology, most notably in the nickel metal hydride battery area.

An unusual approach of the work, which bears upon the structure of the book, is the simultaneous consideration of three major battery types: lead acid, nickel cadmium, and nickel metal hydride. These are covered, one after the other, first from the viewpoint of fundamental science and later from a technological point of view. Inevitably, there are some duplications. However, structured in this way, the book provides a special opportunity for comparing and contrasting battery reactions and characteristics. This, in turn, should lead to an enhanced appreciation of the subtle processes involved in maintenance-free batteries and the manner in which such batteries need to be operated in order to obtain optimum performance.

A wealth of valuable physical and chemical data is provided and many useful worked examples are included.

Particularly valuable is the treatment of balance between positive grid corrosion and hydrogen evolution in the valve-regulated lead acid battery.

The authority of the work would have been greater if the significant number of presentational defects (grammatical and typographic errors) in the text had been eliminated. It is important that a major scientific work such as this book should be grammatically correct throughout in order for its text to be most readily understood by its readers. Unfortunately, irregular syntax and quaint phraseology occur intermittently, references are sometimes incomplete and reference formats are not uniformly followed. Abbreviations such as 'nom.', which occur repeatedly, should have been eliminated. It is not clear why the Peukert equation is not mentioned in the book, and the view that, "the valve-regulated lead acid battery is inferior to conventional lead acid batteries as far as rapid charging is concerned" is probably ill judged in the light of results recently published in the literature.

In summary, the book contains much extremely valuable information which merits a higher standard of presentation.

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