

A. Zuttel, A. Borgschulte, L. Schlapbach (eds.): Hydrogen as a Future Energy Carrier

Wiley-VCH, Weinheim, 2008, 427 pp, ISBN 978-3-527-30817-0

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Published online: 20 May 2008
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This book reviews the concepts in which hydrogen is considered as a major fuel in energy chains. Three major aspects of global hydrogen energy technology, namely production, storage and utilization of hydrogen, are thoroughly discussed. The history of the discovery of hydrogen and its use together with comprehensive lists of its physico-chemical properties are presented in separate chapters. Trends in fossil fuel technology and possible solutions to transfer fossil fuel to hydrogen fuel energy technology are also discussed.

Although the book was recently published, it is clear that some of the predictions of future are already dated in this fast moving field. Perhaps the role of biomass to bio-fuel technology is exaggerated since recent criticism of this approach, which can result in a potential rise in food prices and competition for land development, has shown the unsustainable nature of some biofuel technologies. This is now an area for major debate.

The chapter devoted to hydrogen storage describes the main practical technologies, including liquid hydrogen

storage, cryogenic adsorption on high surface areas and the use of hydride nanoparticles. However, less prominent, but scientifically interesting approaches such as hydrogen hydrate clathrates (see e.g. [1]) or low temperature reversible catalytic hydrogenation of pi-conjugated organic molecules are missing (e.g. United States Patent 7351395, <http://www.patentstorm.us/patents/7351395.html>, accessed 29.04.08) do not feature.

In general, the book is well written and is easy to read. Some of the chapters (particular the history of hydrogen in space applications) are very informative for a wide readership. The book should prove useful to students, scientists and engineers and deserves to be read by specialists in energy related technologies.

Reference

1. Lokshin KA, Zhao Y, He D, Mao WL, Mao HK, Hemley RJ, Lobanov MV, Greenblatt M (2004) Phys Rev Lett 93:125

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