

Methane conversion (Studies in Surface Science and Catalysis, 36), edited by D.M. Bibby, C.D. Chang, R.F. Howe, and S. Yurchak, ISBN 0-444-42935-2, Elsevier Science Publishers B.V., Amsterdam, 1988, pp. 741 + XIII, Dfl.375.-.

This enormous book represents the proceedings of a symposium on the production of fuels and chemicals from natural gas, held in Auckland, New Zealand, in April 1987. It assembles a large amount of information, with an emphasis on Antipodean practice which will undoubtedly be new to many people. It is very much concerned with application and practice, rather than with chemistry of an organometallic kind.

The first section deals with methane conversion to syngas and methanol, and syntheses from methanol. The next deals with other possible ways to exploit methane, for example via oxidative coupling and dehydrogenation. The discussion then turns to zeolites and other catalysts, and the final section deals with the commercialization of the gas-to-gasoline process.

This is a beautifully produced book. Organometallic chemists will not find it of great value, but it will certainly assist those who are looking for material for teaching, or who wish to gain general background information. Physical chemists interested in heterogeneous catalysis will undoubtedly find it more useful.

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Compendium of Chemical Terminology: IUPAC Recommendations; compiled by V. Gold, K.L. Loening, A.D. McNaught, and P. Sehmi, Blackwell, Oxford, etc., 1987, viii + 456 pages. £45.00 (hard cover) ISBN 0-632-01765-1; £29.50 (soft cover) ISBN 0-632-01767-3.

This book represents the fruits of several years of effort by its compilers, initiated by the late Professor Victor Gold. He saw the desirability of bringing together in accessible form all the definitions of chemical terms approved by various IUPAC committees and, assisted by P. Sehmi, had assembled much of the relevant material by the time of his death in 1985. There was still much to do, however, in editing and organizing the material, and this was done by K.L. Loening and A.D. McNaught, with facilities provided by the Royal Society of Chemistry.

The compilation is a most valuable addition to the chemical literature. At last authoritative definitions are available for many chemical terms, from *absolute activity* to *Z-values*, and these are presented so clearly and straightforwardly that one can actually read through them with pleasure to improve one's general chemical background. Advanced students would, in fact, find such reading an excellent aid to their revision before examinations.

The book is so useful that one must regret that its coverage is not much more complete. The scope was limited partly by the fact that entries are restricted to items considered by IUPAC committees, and partly by the lack of adequate resources. IUPAC and the major national chemical societies, (perhaps with financial contribution from major scientific publishers) should now fund this activity on an appropriate scale without delay.

The decision to use only definitions agreed by IUPAC committees has meant that coverage of organic is favoured over that of inorganic usage. For example, the term *axial* is defined only in its organic sense, by reference to cyclohexanes, and *addition* refers only to reactions at multiple bonds. Inorganic and organometallic chemists would do well, however to adopt the use of *extrusion reaction* instead of the commonly used *deinsertion reaction* as the reverse of an *insertion reaction*.

A few definitions are to my mind somewhat unsatisfactory. For example, I could make no sense of the second part of the definition of *leaving group*, and the definition of *metathesis* does not cover some aspects of the common usage of the term. I am also a little surprised by the definition of *recrystallization* and the example given (“processes in which the crystal size increases, or the initial structure of the crystal changes. For example, a binary solid may decompose into its components and/or an amorphous mass may crystallize”) since in my group recrystallization is often used to produce *smaller* crystals suitable for X-ray diffraction studies. But such entries (my lack of appreciation of which may in many cases arise from my own inadequate knowledge or understanding) are exceptional, and serve only to emphasize the validity and clarity of the great majority.

This is a book of which one can, with greater justification than usual, say that it should be in all chemical libraries. The authors/compiler note in their Preface that “the book represents only a first step towards a comprehensive and truly authoritative chemical dictionary”, and it is greatly to be hoped that the preparation of future volumes will be treated by the chemical community as a matter of urgency, and funded generously.

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