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BOOK REVIEW

Phase Transfer Catalysis—Selected Problems and Applications

Yuri Goldberg (Institute of Organic Synthesis, Latvian Academy of Sciences, Riga, Latvia), Gordon and Breach Science Publishers, 1992, 456 pp. \$170.

One may wonder why a book on phase transfer catalysis (ptc) is reviewed in a journal devoted to supramolecular chemistry. Historically, the two are intertwined. Simultaneous with the development of crown ethers by Pedersen, cryptands by Lehn, and spherands by Cram, the area of phase transfer catalysis was developing under the aegis of Brandstrom, Makosza, and Starks. In the early 1970's, when crown ether chemistry was truly in its infancy, it became obvious that crown ethers could complex and solubilise cations, thus drawing into organic solutions poorly solvated and thus activated anions. Nucleophilic substitution was enhanced as were other reactions of considerable importance. The two fields co-developed and their influence on each other is obvious.

The present volume is, according to the preface, an updated and revised rendering of the Russian version of this book that appeared in 1989. The book is divided into the following chapters. 1. Basic principles of phase transfer catalysis (23 pp); 2. Phase transfer catalysis in the chemistry of nitrogen-containing heterocycles (102 pp); 3. Phase transfer catalysis in organometallic chemistry (63 pp); 4. Metal-complex catalysis under phase transfer conditions (99 pp); 5. Triphase catalysis

(31 pp); 6. Asymmetric phase transfer catalysis (49 pp); 7. Non-typical variants of phase transfer catalysis (45 pp); Conclusion.

The book is not a comprehensive treatise on ptc and was obviously not meant to be. The "Fluka Compendium" on ptc is a reaction summary only and now three large volumes. Duplicating that would be a daunting and unnecessary task. Instead, emphasis is placed on syntheses involving nitrogen heterocycles and also on organometallic or metal-organic reactions. This appears to reflect both the author's own interests and recent trends in the field. Also included are discussions of methodology (approaches) that were not either available or well enough understood to be included in earlier monographs on the subject.

Some 1333 references are included that cover patents as well as papers. These citations are from work published as recently as 1990. Many of the references are to work published in former East-bloc sources and this is a useful and diversifying element.

Overall, this book is a useful, if not comprehensive, reference to phase transfer catalysis. Its coverage of the subjects chosen for inclusion is good and the volume will be of value to all those having even a passing interest in this important synthetic technique.

G. W. Gokel