

Book reviews

Emulsions and Solubilization, by Kozo Shinoda and Stig Friberg (John Wiley and Sons, 605 Third Ave., New York, NY 10158, 1986, 174 pp., \$45).

The authors, both with international reputations in surface chemistry, have produced a useful volume that will enhance the reader's understanding of the nature of emulsions and their stabilization by surfactants, particularly nonionics alone or with cosurfactants. Building on the commonly accepted concept of HLB numbers, the authors make a convincing case for the phase inversion temperature of emulsions—they call it the HLB (Temperature)—as a parameter of greater utility in that it reflects the effect of both surfactant and oil structure in a given context.

Phase diagrams liberally illustrate the text. Development of such diagrams is the principal experimental technique that leads to the insights on some of the phenomena underlying the behavior of emulsions. One cannot help but marvel at the wealth of information on emulsions that this relatively simple experimental technique can unlock in the hands of astute investigators.

Regrettably, this volume does not appear to have received the editorial scrutiny that a good text by foreign authors deserves and, in this case, needed. In addition, references to chemical structures are decidedly nonstandard, and the explanation of the many graphs leaves much to be desired. The text contains some serious errors as well as some not-so-serious ones, such as the use of monotonous in place of monotonic.

However, content vanquishes form. Anyone working with emulsions and nonionic stabilizers will benefit from reading this book.

Arno Cahn

Surfactant Biodegradation, 2nd edition (Surfactant Science Series,

Vol. 18) by R.D. Swisher (Marcel Dekker Inc., 270 Madison Ave., New York, NY 10016, 1987, 1085 pp., \$149.50).

When the problem of biodegradability first raised its foamy head in the U.S. in the early 1960s, it was viewed primarily as a matter of aesthetics. In response, the detergent industry undertook to switch to "soft," straight chain surfactants. These promptly cleared our rivers of surfactant foam and appeared to lay the matter to rest. It was not to be.

Concern for the environment has gone global, and with a vengeance at that. The biodegradability of surfactants, and indeed of all chemicals released into the environment, has come to be recognized as one of the critical parameters in determining the acceptability of individual substances. As a result, research on surfactant biodegradability and the output of publications continue unabated.

The second edition of **Surfactant Biodegradability** by R.D. Swisher brings his treatment of the subject up to 1984 in one superb volume. First the statistics: the book has a total of nearly 1,100 pages, including 100 on analytical methods; some 80 on the biological background; nearly 200 on biodegradation test methods; 100 on primary biodegradation as a function of chemical structure; more than 160 on metabolic pathways and ultimate biodegradation of individual surfactant structures; some 150 on biodegradation data on individual surfactants, with supporting references on the conditions, methods and analytical procedures used in obtaining the numerical data; and finally, nearly 190 pages of references, which translate to an estimated 4,000 to 5,000 individual references!

What kind of volume is this? It is simultaneously a reference compendium, a literature review, a critical discussion, a synthesis of many and often disparate findings and a monumental labor of love by an expert who has been living the subject matter for a lifetime.

Beyond an exhaustive treatment of the subject, the book offers some unexpected bonuses: helpful lists of abbreviations, excellent explanations of individual tables, and careful editing (only a dozen or so errors were found). But the biggest bonus of all is the writing itself: learned, evaluative, and balanced with scientific accuracy and caution. At the same time, the style is pleasantly informal and easy to read, with occasional surprising flashes of wry humor.

Anyone concerned with the biodegradability of surfactants (and who in the industry isn't?) should have access to this volume. All the important information is assembled and evaluated here. More than that—and this may not be the least of Dr. Swisher's achievements in writing this truly remarkable book—this volume is anything but a dull compendium. It is *mirabile dictu*—a "good read."

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New book

Detergency: Theory and Technology (Surfactant Science Series, Vol. 20), edited by W. Gale Cutler and Erik Kissa (Marcel Dekker Inc., 270 Madison Ave., New York, NY 10016, 1986, 568 pp., \$99.75 U.S. and Canada, \$119.50 all others).

Other publications

Catalytica has published a study, *Advances in Zeolites and Related Materials*, No. 4185Z, which analyzes recent research and patent development on zeolite synthesis, characterization, synthesis, modification and applications. The report costs \$7,000. Contact: Margaret Calcaterra, Catalytica, 430 Ferguson Dr., Bldg. 3, Mountain View, CA 94043.