the reader are very well undertaken. The strength of this series has been to provide clear and practical examples, with diagrams and photographs where required. This has continued, and has been improved, in this edition. There are a large number of useful and relevant worked examples throughout the text. In addition, dozens of additional problems are available at the end of the book, with Volume 4 containing the solutions, thus allowing for deeper student practice.

Coulson and Richardson's Volume 1, 6th edition, should continue, in future, to not only be an invaluable tool for the undergraduate chemical engineers and scientists, but also useful for chemical engineering teachers, and those in industry who wish to brush up on fundamental principles.

Reference

[1] R.H. Perry, C.H. Chilton, Perry's Chemical Engineers' Handbook, McGraw-Hill, USA, 1997.

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Surfactants: Fundamentals and Applications in the Petroleum Industry

Cambridge University Press, 2000, pp. 621, £85.00 (US$ 140.00) (hardback), ISBN 0-521-64067-9

This book has the potential to be a useful reference book for researchers in the petroleum industry in the future. As it is presently written, however, the book needs heavy editing because it is verbose and important technical learning points are many times hard to extract. The book is an amalgam of well-demonstrated facts with speculations and it is sometimes difficult to distinguish between them.

Also, there are flaws in its technical content. For example the book omits to mention that emulsion aging affects demulsification treatment. Perhaps more seriously, it also lacks a thought-provoking discussion of the surfactant-screening techniques that were developed for low-tension processes and which are currently being used in bio-remediation studies.

During the past 28 years, I have screened surfactants for many household (cosmetics, detergents, etc) and oil-field applications (low-tension processes, foams, etc.). So far, I have found that a practical way of screening surfactants is by conducting either salinity scans or oil scans [1]. Salinity and oil scans can be tailored by creative researchers to quickly learn about physicochemical behavior of the surfactants being considered. In addition, salinity and oil scans are excellent as quality control tools for surfactant manufacturing. These phase behavior techniques are well described by Shah and Schechter [2].

Since the equivalent carbon number (EACN) concept, mentioned, by Schramm, in Chapter 2, was developed by conducting oil scans and surfactant selection on Chapter 11 was developed according to salinity scans, I suggest that Schramm's book should also contain a chapter somewhat similar to that on phase behavior techniques in Shah and Schechter's book.

In view of the serious reservations I have expressed above, I would hesitate to recommend purchasing this book in its present form.

References

[1] Maura C. Puerto, Ronald L. Reed, A three parameter representation of surfactant–oil–brine interaction, Soc. Petroleum Eng. J., May 1990, pp. 198–204.
[2] D.O. Shah, R.S. Schechter (Eds.), Improved Oil Recovery by Surfactant and Polymer Flooding, Academic Press, New York, 1977.

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Molecular Modelling Applications in Crystallisation

Allan S. Myerson (Ed.); Cambridge University Press, 1999, 354 pp., £70 (US $110) (hardback), ISBN: 0-521-55297-4

This book provides a view of the current state of applications of computer modelling to crystallisation. It includes chapters on computer modelling and the basics of crystallisation, followed by a series of case studies of modelling applications.

The first chapter, An Introduction to Molecular Modelling, includes a detailed account of statistical mechanics and its relation to thermodynamics, before proceeding to intermolecular forces, potential functions and the techniques of Monte Carlo, molecular mechanics and molecular dynamics. The treatment is detailed and rigorous, but this may be a potential deterrent to someone just wanting to get a feel for the techniques available. At the same time the chapter has two significant omissions — it neglects to explain how electrostatic interactions are computed (of significance when modelling ionic materials), and it does not describe the techniques based on lattice energy minimisation which are widely used in the simulation of crystal structures and morphology. I will return to these points later when considering applications.

The chapter on crystallisation basics provides a useful summary of crystallographic concepts (structures, space