Book Reviews

Risk Analysis and Reduction in the Chemical Process Industries. By J. M. Santamaría Ramiro and P. A. Braña Aísa. Translated by J. Hutchinson. Blackie Academic & Professional: London. English language edition 1998. 370 pp. Hardcover. ISBN 7514-0374-1.

The original Spanish language version of this book was published in 1994 with the primary aim of serving as a textbook for chemical engineering students. The authors (one industrial, the other from academia) believed at that time that the book would also be of use to students of other disciplines and "professionals". To a great extent the authors achieved their aim.

Over 10 chapters and a useful appendix, covering analysis of some major accidents, this book brings together many of the main methods used in the chemical process industries for the analysis and reduction of risk. For the analysis of risk it provides an overview of techniques such as HAZ-OP, HAZAN, fault tree analysis, the Dow fire and explosive index, and quantitative risk analysis (QRA). For the consequences there are chapters on design, operation, maintenance, and the consequences of fires, explosions, and releases of material. It therefore provides a worthy overview of the subject.

This book was both timely and welcome in 1994 but has probably suffered in waiting four years to be published in English. This is for two main reasons: Firstly, progress in the field of process safety has been rapid in the last years and some issues are not treated in any depth (calorimetry, intrinsically safe reactions, reaction modelling, loss prevention). Secondly, in the last four years there have been a number of English language publications in the field. For example, the second edition of Frank Lees's *Loss Prevention in the Process Industries* is rightly regarded as *the* comprehensive work, and Geoff Wells's *Hazard Identification and Risk Analysis* covers much of the well-respected process safety MSc course available through the University of Sheffield in the UK.

The book is heavily biased towards the chemical engineer and engineering solutions, and readers of OPRD may find this a frustration. However, the book is accessible to the non-expert and will provide useful background information for those involved in scale-up especially when in multidisciplinary teams for process plant modifications, new process start-up, HAZ-OP, etc., when "technical" jargon can be intimidating. In this regard credit is due to the translator, who has been able to maintain the technical content and retain readability, providing an introduction to nomenclature and techniques. Mathematics is provided, but it is not overly demanding and is unlikely to deter the student or non-expert reader.

I did have some differences of opinion...I'm not sure whether with the authors or the translator. The descriptions of DSC as an adiabatic test and the VSP as "the most advanced diagnostic test" are debatable. In addition, whilst each chapter has a bibliography, there are some references which are conspicuous by their absence, even for 1994.

Paul Lambert

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Organosilicon Chemistry III. From Molecules to Materials. Edited by Ed Auner and J. Weis. Wiley-VCH: Weinheim. 1997. 716 pp. ISBN 3-527-29450-3. £70.00.

This volume contains lectures and poster contributions of the III Münchner Silicontage held in April 1996 and follows the format of the first and second volumes. Whilst most of the lectures were from academics, there were a few from industry, with the companies Dow Corning, Rhone-Poulenc, Huls, Th Goldschmidt, Wacker, and Shin-Etsu being represented. The most interesting chapter for process R & D chemists is on "The Direct Process to Methylchlorosilanes—Reflections on Chemistry and Process Technology" by B. Pachaly and the editor J. Weis, both from Wacker Chemie. The methylchlorosilane business is worth $6 billion per annum, and in 1995 1.25 million tonnes were made. The chapter gives some insight into the direct process, discovered in 1940 and still used today. It involves the direct reaction of silicon with alkyl halides in the presence of copper in a fluidised bed reactor, but the mechanism is poorly understood and is still under investigation in both industrial and academic laboratories. The Wacker process for making methylchlorosilanes is described in detail with line diagrams.

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