

Chemical Process Safety: Fundamentals with Applications, by D.A. Crowl and J.F. Louvar, Prentice Hall, Englewood Cliffs, NJ 07632, 1990, ISBN 0-13-129701-5, 426 pages, \$64.00.

This text is designed to teach and apply the fundamentals of chemical process safety. It is appropriate for an industrial reference, a senior level undergraduate course or a graduate course in chemical process safety.

It is recognized that few universities will have required courses in chemical process safety, but there is little doubt the subject will become of increasing importance as the chemical processes become more complex, and the penalty for unwanted incidents becomes economically and legally important, no matter how small or large the operation.

To have a "safety program" is hardly adequate; one should have an effective outstanding program in which everyone in the organization feels a strong responsibility for safety; the older concept of safety committees is obsolete. To illustrate, three significant disasters (Flixborough, Bhopal, and Seveso) are analyzed in terms of what went wrong and who should have taken steps to prevent them.

The volume then discusses toxicity, especially as the materials can enter biological organisms and their effects, dose vs. response, the role of industrial hygiene in the operations, evaluation and control measures, toxic release and dispersion models, fires and explosions, designs to prevent fires and explosions, ventilation guidelines, relief systems and sizing, hazards identification and surveys, and last but not least risk assessment—including fault trees and accident investigation. Formal safety reviews are discussed in terms of the plant equipment and personnel. Material Safety Data Sheets are discussed in considerable detail.

This volume is not for easy reading, but goes into the details using graphs, mathematics, and tables. For anyone, preferably with a technical background, the volume will cast new concepts and depth on process safety—sometimes ignored with economic and personal loss of major consequence.

HOWARD H. FAWCETT

Industrial Waste Gases: Utilization and Minimization, Prepared by RCG Hagler, Baily Inc., Washington, DC for the U.S. Department of Energy, Technomic Publishers Co., Lancaster, PA, 1990, ISBN 0-87762-774-6, 144 pp., \$49 (SFr 64).

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