

Book reviews

Explosion Hazards in the Process Industries, R.K. Eckhoff. Gulf Publishing Company, Houston, TX (2005). 451 pp., US\$ 125.00, ISBN: 0-9765113-4-7

Recent readers of this journal have been provided with papers discussing, in the main, environmental topics. Papers discussing chemical hazards such as fire, explosion and spills, currently are in the minority. Such was not the case when the journal began (in the early days of the journal, I was the US editor), but with time, the paper supply in this area and the readers' interests led the journal to publish a preponderance of papers on environmental topics. Indeed, most of the books I review deal with this subject.

Thus, it is a pleasure to return to the journal's roots in publishing this review, although my expertise is not as deep in fire and explosion hazards as it is in chemical hazards/spills. That is not true of the author of this book.

Eckhoff has impeccable credentials in the topic area. His other book, *Dust Explosions in the Process Industry*, is now in its third edition, having originally appeared in 1991. Moreover, he teaches a course on explosive hazards in the process industries using this text.

This book has eight well-written and well-illustrated chapters with the following titles:

1. Introduction;
2. Gas and vapor cloud explosions;
3. Explosions in clouds of liquid droplets in air (spray/mist);
4. Gas and dust explosions caused by smoldering combustion in powder layers and deposits;
5. Dust explosions;
6. Explosives, pyrotechnics, and propellants;
7. Design of electrical apparatuses for hazardous areas;
8. Outline of methods for hazard and risk analysis.

A comprehensive review of the voluminous technical material in this book is beyond my capabilities, so I will focus on a limited number of topics of personal interest and prior knowledge: (1) there is a discussion of methane explosions in coal mines and the historical development of the coal mine lamp by Sir Humphrey Davy, (2) a thorough discussion of the Flixborough explosion in the UK in 1992 when the cyclohexane oxidation section of a caprolactam production plant exploded killing 28, injuring 89, demolishing the entire plant, and damaging 1821

houses and 167 shops and (3) case histories of numerous dust explosions are found in Chapter 5.

The discussion of the Flixborough accident is excellent as is the author's review of numerous other accidents such as the Beek explosion in The Netherlands in 1979, the Arendal explosion in Sweden in 1981, a methane explosion in British Columbia in 1982, and the "West Vanguard" explosion in the North Sea in 1985.

In Chapter 5, not only are the sources and impact of the explosion incidents well covered, but also Eckhoff included numerous photos of the aftermaths.

In summary, I found the book extremely interesting, very well-written, well-illustrated and informative but at the same time alarming as evidenced by the photographs of post-explosion analysis and review. This text should be required reading for anyone dealing with potentially explosive mixtures.

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Wastewater Sludge Processing, I.S. Turovskiy, P.K. Mathai. Wiley-Interscience, Hoboken, NJ (2006). Price US\$ 74.95, 366 pp., ISBN: 0-471-70054-1

As regulations tighten on wastewater discharges, new and more efficient treatment processes are being designed and built. The good news is that wastewater effluent quality is improved; the counterbalancing news is that a problem byproduct, i.e., sludge, is produced. The disposal, but more importantly the beneficial use of that byproduct is the focus of this book.

According to the authors, "The objective of this book is to bring together a wide body of knowledge from the field of wastewater sludge processing and present it in a format that is useful for a textbook for graduate students in environmental