tonnage of steel that is required on the shift. There is a butterfly valve that can be turned so that all of the dirty gas just goes right out of the stack. Since it is at night, there are no complaints from people in the surrounding area or from the environment board. You are the engineer working on the control of the precipitators, not in the production department.

What should you do? (K. H.)

Case 5

I am a fourth year engineer seeking employment. In January, I am offered a job by company X and am given ten days to accept their offer. I accept their offer.

Two weeks later I receive a better offer, in pay and position. I take the second offer and tell the first company that I am unable to work for them.

1. Is this ethical?
2. Would the situation change if I was offered another job in May just before I was to report for company X?
3. Does a company expect this to happen?

ChE letters

SAFETY PROBLEM CHALLENGED

Dear Sir:

I read with interest Professor Jan Mewis' article, "How Much Safety Do We Need in ChE Education."

Unfortunately, the equation used by Professor Mewis to solve the tank overflow problem is not rigorous, and can give outrageously bad results. A rigorous derivation and the correct solution to the protective system problem can be found on p. 459 of *Reliability Engineering and Risk Assessment*, by E. J. Henley and H. Kumamoto, Prentice-Hall Inc., Englewood Cliffs, NJ, 1981.

I agree with Professor Mewis that all engineers should receive some training in reliability and safety analysis. Short courses, such as given by the AIChE are, in my opinion, adequate. In many European countries risk studies such as those mandated in the nuclear industry are required of all industry. I think this is very unfortunate. You really can't legislate safety; it is an individual and corporate responsibility.

Ernest J. Henley
University of Houston

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ChE book reviews

FUNDAMENTALS OF FLUIDIZED-BED CHEMICAL PROCESSES
by J. G. Yates
Butterworth Publishers, 10 Tower Office Park, Woburn, MA 01801, 1983; $49.95

Reviewed by L. T. Fan
Kansas State University

This lucidly written book contains five chapters. The first, which is the longest, deals with some fundamental aspects of fluidization. The modeling of fluidized-bed reactors is discussed in the second chapter; the majority of available models are compiled. The last three chapters cover the application of fluidization technology. More specifically, chapter three focuses on the well-known Fluidized Catalytic Cracking Process and chapter four on the combustion and gasification of coal. The last chapter outlines a number of miscellaneous processes, including production of several chemicals, sulphide ore roasting, and reduction of iron ores.

Continued on page 144.

meter, an XPS spectrometer, a static chemisorption apparatus, differential reactors with gas chromatography, a mercury porosimeter, and a temperature-programmed desorption system.

Since we also discuss bulk and surface structures and Miller indices notation, cork ball models have been used for these structures. Close-up videotapes of the various structures and of zeolite structures will allow students to study them at their leisure. The bulk structures that demonstrate Miller indice notation were prepared using templates for the different symmetries [12].

SUMMARY

Eleven kinetics and catalysis demonstrations have been briefly described. By videotaping these demonstrations, we are able to easily use them each year in a catalysis and kinetics course. Videotaping improves the demonstrations, makes them more visible and safer, and results in better use of class time. □

ACKNOWLEDGMENTS

We would like to thank John Ma for his help on some of these demonstrations and Professor David E. Clough for obtaining the videotaping system and encouraging us to use it.

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REVIEW: Fluidized-Bed Processes

Continued from page 109.

The book is intended mainly for use by final-year undergraduate students or graduate students in chemical engineering. In view of its contents, however, the book should be regarded more as a reference monograph than as a classroom text. The book will also be a useful reference for researchers, development engineers, and designers in the field of fluidization technology. In fact, the book can be recommended to anyone who wishes to be initiated into the science and art of fluidized-bed chemical processes.

The book is indeed concise, containing only 222 pages. Obviously it is extremely difficult, if not impossible, to cover all aspects of fluidized-bed chemical processes in detail in a book of this size. Unfortunately, some topics of current importance are omitted. Examples are the stochastic behavior of fluidized-bed chemical processes and the performance of relatively shallow and wide fluidized bed (or the so-called horizontal fluidized bed). According to Bukur, Carem and Amundson (Chapter 11 of *Chemical Reactor Theory: A Review,* Edited by Lapidus and Amundson, Prentice-Hall, Inc., Inglewood Cliffs, NJ, 1977), "It is our view that probably no deterministic model will ever describe such reactors with any precision." The horizontal flow fluidized beds have been used extensively to process solid materials because these fluidized beds tend to yield better quality and higher conversion of solid products than conventional vertical fluidized beds. □

PROBABILISTIC ENGINEERING DESIGN: PRINCIPLES AND APPLICATIONS

by James N. Siddall
Marcel Dekker, Inc., 1983; 544 pages, $65.00

Reviewed by Ernest J. Henley
University of Houston

Probabilistic design and risk analysis have been my 'bread and butter' research activities for the past fourteen years. It's been a lonely road: most chemical engineering academicians appear to have convinced themselves, and each other, that the path to the podium lies in double-precision, deterministic models (based, frequently, on experimental evidence as reliable as the Las Vegas gaming tables). At our shop, the required BS course in statistics has gone the way of under-