(Relevant toxic and flammable properties and appropriate precautions to take during their handling, use and disposal are given in the next two (Chapters 4 and 5). These chapters are entitled "Toxic Chemicals" and "Flammable Chemicals". In these chapters, three long but very useful chapters are found:

1. Hygiene Standards, TLV, STEL, TWA for approximately 1000 chemicals.
2. Properties of flammable chemicals: specific gravity, vapor density, flashpoint, ignition temperature, boiling point, melting point, water solubility in vapor pressure of approximately 800 chemicals.
3. Discusses explosive characteristics of combustible solids: ignition temperature, minimum explosive concentration, minimum ignition energy, maximum explosion pressure, maximum rate of pressure-rise and maximum oxygen concentration to prevent ignition for approximately 400 chemicals.

Reactive hazards are discussed in Chapter 6 while Chapters 7 and 8 deal with the specific hazards of cryogenic materials and chemicals under pressure. The unique problems associated with radioactive chemicals are discussed in Chapter 10.

The book ends with three general chapters. Chapter 11 deals with administrative methods of controlling work place (laboratory) hazards. Discussed are chemical spacing, ventilation, maintenance, confined space entry, emergency procedures, spill response, first aid, personal protection, etc.

Chapter 12 deals with the legal obligations of manufacturers, suppliers and importers of chemicals in marketing and transportation. The final chapter, Chapter 13, is devoted to "Pollution and Waste Disposal".

The book ends with sections on conversion tables (for units), a bibliography and an index.

GARY F. BENNETT

Managing Risks in the Public Interest, by N.C. Lind, J.S. Nathwani and E. Siddall, Institute for Risk Research, Waterloo, Ontario, Canada, 1993, 242 pages

Scientists and engineers are often exasperated and frustrated by the vast misallocation of resources which often occurs in our society by the existing approach to risk assessment and risk reduction. According to the authors, "There is ample evidence that our collective response to risk tends to be dominated by the sensational, particularly if the risk is of a new technological origin. Sensational reporting not only commands the disproportionate attention of legislators and policy-makers but also leads to the expenditures of vast resources with little gains. . . . Sober scientific assessment of the level of actual harm involved in most of the dramatic and sensational cases (for example PCBs, asbestos, alar, [radon and nuclear power], trichloroethylene, [incinerator dioxan emissions], etc. invariably confirm a low level of risk." Thus, they suggest that even a modest degree of consistency in the way we manage the burden of risks could yield enormous benefits in redirecting resources to more useful and productive results.

To this end, the authors develop a proposed approach to risk evaluation which is an extension of cost/benefit analysis concepts.

They discuss and offer deference to the Human Development Index developed by the United Nations which rank-orders the nations of the world by three indicators of the quality of life: gross domestic product (GDP) per person, life expectancy, and adult literacy. The proposed method uses a product of life expectancy and GDP to the 1/6 power as a 'life product' index. Example applications of this index are developed to justify a large new petrochemical complex or to show that a nuclear power plant poses a greater net positive benefit than a hydroelectric project or to a fossil fuel plant burning imported fuel. However, the recommended approach is far too blunt an instrument in comparison with quantitative risk assessment technology for justifying smaller projects to install mitigation systems.

Risk assessment practitioners in engineering and the physical sciences would benefit from reading this book since it provides, essentially, an excellent review of the literature on risk assessment in the 'social sciences': law, economics, political science, and epidemiology.

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