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Book Reviews

Food Engineering Data Book. G. D. Hayes. Longman Scientific and Technical, 1987. ISBN 0-582-49505-9. Price £24·95.

The aim of this publication is to provide a compact and concise data source containing the technical information relating to food engineering and food science. There are five main sections and a brief review of the contents is given to provide a flavour of the text:

—An Introduction dealing with units, dimensions and conversion factors.
—Engineering data; properties of gases, solids, physical properties of refrigerants, heat transfer data, transient heat transfer charts.
—Chemical and physical properties of foods including pH, water contents, viscosities, boiling points, densities and psychrometric charts.
—Food thermal data; thermal conductivity, thermal diffusivity, enzyme inactivation and deactivation, calorific values and dielectric properties.
—Food processing and packaging data; can terminology, sizes and faults, recipes and process details.

At face value the idea of collecting these important data together is excellent. In the preface, the author states that the success of this publication would depend upon its format and presentation. I have some reservations about both the presentation and the content of the data represented. In the preface he also states that he has limited space available, but, throughout the text, poor use is made of it and too many pages have large blank spaces. I also felt that the author has not been very selective or critical about some of the contents, and in many cases tables and diagrams are introduced without any explanations. Some of the material is inappropriate or covered in too much detail for a book of this length, e.g. canning data, recommended

lighting conditions and the physical and thermodynamic properties of thermex, whilst other areas receive scant attention, e.g. irradiation sterilisation kinetics, diffusion properties and microbial reaction kinetics. Even the composition of foods is not particularly well covered.

A few other points that came to my attention are listed. Perhaps my most serious criticism is that references are badly cited and for many of the tables there are no quoted references. How do I pursue a reference cited as Hall (1959) or Saravacos (1968)? I could not find a reference list in the book; had this been omitted? Some of the references are quite old, particularly those on dielectric properties (1954). The definitions given for the dielectric properties do not relate to the values in the text. Some of the tables are poorly captioned or difficult to use because no explanation was provided. The unsteady state heat transfer charts are reproduced without any key to the meaning of the symbols. It would have helped to have just a brief definition of density terms such as Twaddel, Brix and Baume. Data are presented on the physical properties of nitrogen, but why not air or carbon dioxide (there was plenty of space)? Data are presented on the molecular weight and boiling points of forty-two refrigerants, but nothing of the SVP temperature relations or the latent heat values. Eggs are listed as a dairy product; powdered milk contains 12·5% water; the viscosity of milk is 1·6314 cP (no temperature quoted), and in one table the pH of apples ranges between 3·0 and 3·3 and in another table it is 3·8. I was, however, impressed with the table on bulk solids material classification, which is very comprehensive. The book has a good index but here also the space was not well used. Some very useful data have been presented but a brief explanation of some of the terms used would have made it a much more helpful book for students. I think that this text could have been significantly improved if the manuscript had been more closely scrutinised prior to publication. Many of these properties for which data have been presented are extremely complex and it is important to emphasise that foods, being of a biological nature, are subject to considerable variations in composition and physical property values. A simple statement of this fact should have been included for those 'non-food people' who may make use of this book to design food processing systems.

M. J. Lewis

Developments in Sweeteners—3. Edited by T. H. Grenby. Elsevier Applied Science, London, 1988. x + 322 pp. ISBN 1-85166-104-2. Price £43·00.

Trevor Grenby has maintained this third book in the sweetener series at the same high scientific standard. It contains chapters on 'Stevia' (Phillips),