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Book Reviews

Polymer handbook (4th Edition)

J. Brandrup, E.H. Immergut, E.A. Grulke (Eds.); Wiley, New York, 1999, xiii + 2288 pages, ISBN 0-471-16628-6 (£226-00)

The purpose of the 'Polymer Handbook' is to bring together the data and constants needed in theoretical and experimental polymer research. The contributors have taken on the arduous task of searching the literature and compiling the data that polymer chemists, polymer physicists, and polymer engineers are likely to need, and have focused upon data generated in the ten years since publication of the previous edition. This handbook concentrates on synthetic polymers, polysaccharides and derivatives, and oligomers. Only fundamental constants and parameters that refer to the polymer molecule, that describe the solid state of polymer molecules, or that describe polymer solutions, are included. Constants that depend on processing conditions or on sample history are not included.

The 500 + tables in this handbook are divided into eight sections. The first section lists the IUPAC nomenclature rules for polymers and the International System of Units. Although several naming conventions exist in the scientific and technical literature, IUPAC names permit a consistent listing of all polymers. The second section contains data and constants needed for polymer synthesis, kinetic mechanisms, and thermodynamic studies of polymerisation and depolymerisation reactions. The next two sections contain physical constants of monomers and solvents, and oligomers, respectively. The fifth section lists the physical constants of many important commercial polymers (such as PE, PP, PAN, PVC, PVA, PMMA, PS, PET, polyamides, cellulose, etc).

Sections 6 and 7 cover the solid state properties of polymers and the properties of polymer solutions, respectively. Solid state properties covered include crystallographic data, glass transition temperatures, crystallisation rates, miscibility, heat capacities, permeability, refractive indices and radiation resistance. Solution properties covered include viscosity–molecular weight relationships, sedimentation and diffusion coefficients, solvents and non-solvents dipole moments, heats of solution, and gelation properties. The final section lists the commonly used abbreviations or acronyms for polymers (thermoplastics, thermosets, fibres, elastomers and additives) and Chemical Abstract Registry Numbers, and gives suggestions for electronic data searching for polymer information.

This colossal volume is designed to facilitate easy information retrieval and to prevent the reader from having to search through multitudes of literature for information. It is therefore recommended as a valuable source of information on polymer properties for all researchers with interests in polymer science.

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Frying of food

Dimitrios Boskou, Ibrahim Elmadfa; Technomic Publishing Co., Inc., Lancaster, 1999, xii + 276 pages, ISBN 1-56676-786-5

A significant amount of scientific research has been focused on naturally occurring nutritive and non-nutritive antioxidants. This is due to global interest in the relationship of dietary antioxidants to the possible prevention of many diseases, in the etiology of which oxidation mechanisms are involved. A growing awareness that certain ingredients in food may favourably modify diet-related problems has been triggered by changes in lifestyles in the modern industrialised world.

Frying of food deals with some of the chemical, biochemical, physiological and nutritional aspects of frying. The book covers oxidation, nutrient and non-nutrient antioxidants, biologically active compounds and high temperatures. The text concentrates on the nature of the heated fat and the presence of oxidation retardants, especially those naturally occurring in oils or obtained