

## BOOK REVIEW

Holló J., László E., Hoschke Á.: Plant  $\alpha$ -1,4 Glucan Phosphorylase

Publishing House of the Hungarian Academy of Sciences, Budapest 1972. 211 pp.

The extraordinary importance of enzymes in biological and biochemical processes, their increasing use in the fields of science, industry, agriculture, and health explains the extended scientific work concerned with enzymes. The row of publications recapitulating their results has been completed by a highly valuable and interesting book: with this monography. Since more than a decade, authors have been concerned with the isolation of various enzymes of animal, plant and micro-organism origin, study of their reaction kinetics and of their industrial use. Based on their wide biochemical, enzymological and biotechnological experience, they present  $\alpha$ -1,4 glucan phosphorylase according to an up-to-date, complex concept.

This monography recapitulates our knowledge on the occurrence of this enzyme, reviews preparation and purification methods of phosphorylases. The authors were the first to apply molecule filtration and ion exchange technique to separate phosphorylase. A special chapter is devoted to the structure and features of  $\alpha$ -1,4 glucan phosphorylase, to the comparison of major peculiarities of other phosphorylases of vegetal, animal and other origin, pointing out similarities and differences. Within this chapter, stress is laid on functional groups of enzymes, on their detection methods and on problems of chemical inhibition, with a detailed description of research results and experiences by authors. A high-niveau, interesting chapter is that on the molecular mechanism of the phosphorylase effect, detailing thermo-dynamics and kinetics of enzyme-catalysed reactions. The concluding chapter presents great many analytical and preparative methods, likely to be of help for those doing research in this scope.

The new book may be of interest not only for those concerned with glucose and glucose polymers but also for chemists, biotechnologists, biologists, physicians interested in fields of enzymology.

*Dr. R. Lásztity*

G. Liptay: Atlas of Thermoanalytical Curves (TG, -DTG, -DTA Curves Measured Simultaneously) Vol. 1:

Akadémiai Kiadó (Budapest) and Heyden and Son Ltd. (London, New York, Rhine)  
1972. Preface, 1--50 diagrams.

Thermoanalytical methods have come to a great importance in the last decade. In each field of chemistry there is a continuously increasing demand to establish the behaviour of compounds and substances of various compositions upon thermal effects.

Simultaneous measurements by the two most widely spread thermoanalytical methods, i.e. thermogravimetry (TG) and differential thermoanalysis (DTA) on the same sample permitted to follow thermal processes from the weight and enthalpy changes of the sample. Completion and refinement is offered by the DTG-curve (derivative thermogravimetric curve) obtained from the TG curve by derivation.

The chief merit of the Atlas series, starting with this volume, is to list the results obtained by the complementary thermoanalytical methods, difficult to compare so far, on the basis of original diagrams recorded simultaneously for this purpose.

In composing this book, consideration was given to the peculiarity of thermoanalytical methods, namely that results are highly affected by experimental conditions. Therefore, for each case diagrams recorded with two different parameter sets are given. Results obtained with a larger sample at a relatively higher heating rate are indicated by a black curve on a white sheet, whereas diagrams obtained with substantially smaller samples and at a lower heating rate are represented by red curves on transparent plastic sheets. The two curves recorded with the two different parameter sets can be superimposed, and give thereby considerably

more information to the user, emphasizing in each case that the thermal decomposition curve may change with changing experimental conditions.

In addition to the numerical values established on the basis of the TG-curve, dimensional units have been assigned also to the DTG- and DTA-curves, so as to show the quantitative features of thermal decomposition processes.

At the backside of the white sheet the most important experimental parameters, formula purity and origin of the substance investigated, are given (the constants of the instruments are contained in the Appendix). In addition, eventual interpretations of single processes are given in the Note, together with practical instructions.

References are given for almost every substance, to yield more detailed information on the thermic properties of the substance.

For each pair of diagrams prepared for this special purpose, the name and the working place of the recorder are indicated. In the first volume of the series, which contains also a brief introduction and directions for use, 50 pairs of diagrams are presented, involving those for inorganic compounds, complex compounds, analytical precipitates, minerals, rocks, organic compounds, drugs and fossil coals.

It can be considered as a merit that not only diagrams of "pure compounds" of stoichiometric composition, but also those of natural or technical substances which used to be investigated by thermoanalytical methods are given. Thus, practical users too obtain information and a basis of comparison.

The publication of nice presentation will be of interest not only for those engaged expressly in thermoanalytical work, but also for researchers and plant engineers.

*I. Porubszky*

**L. Vajta—I. Szabó: Chemical Technology (for Students in Mechanical Engineering)**

Tankönyvkiadó, Budapest, 1970. 316 pp.

In the early period of their studies (involving chemical technology), students in mechanical engineering are known not to be very eager in the study of chemical technology, in lack of an intellectual horizon sufficient to realize the importance of chemical technology in relation to mechanical engineering practice. In the past, a somewhat abstract treatment of the matter of instruction was also often to blame, leaving the interactions of this and other subjects without consideration.

Accordingly, students in mechanical engineering must be taught chemical technology by carefully selected chapters, weighting their proportions in view of mechanical engineering practice and taking interactions with other subjects into consideration. In addition to manufacturing processes, the products themselves are to be presented together with quality requirements.

Obviously, the authors undertook not an easy task by engaging themselves to write a textbook expressly for mechanical engineering students. From the outset, completeness had to be renounced of, just as had proportioning of chapters according to their relative importance in chemical technology. The material had to be composed instead, taking the quoted and other points of view in mind such as lack of adequate chemical knowledge. The reviewer is pleased to state that the authors mastered their task and produced a textbook, more than simply providing the required knowledge, but likely to make the students interested and improving thereby study achievements. The merit of the authors is not lessened by the fact that the Department under their direction has been teaching chemical technology to mechanical engineering students for almost a century, permitting them conclusions drawn from accumulated experience, from curriculum modernizations, and from lecture notes by the staff of the Department. The compilation and weighting of post experience and incorporation is in itself an achievement worthy of respect.

The matter of instruction most important for mechanical engineering practice is discussed in nine chapters. The first four — occupying over 40% of the volume, in conformity with their significance and role in mechanical engineering — treat fuels and their applications, under the headings Firing Technology, Furnaces, Chemical Technology of Wood and Coal, Petroleum and Natural Gas Industry. Engine fuels and lubricants are discussed in detail. The next chapter deals with the chemical technology of water, with a special stress laid on impurities and purification, softening and desalting of water. In the following chapter, silicate applications in ceramics and in the building industry are discussed, including glass industry and enamel industry. The next chapter gives a thorough and comprehensive treatment of protection

against corrosion, becoming more and more one of the most relevant problems of mechanical engineering practice. This is followed by an equally timely chapter on plastics and their applications. The final chapter surveys the chemical technological problems in nuclear power stations.

Utmost relevancy and due proportioning of the material for students of mechanical engineering appears from this short survey. A commendable approach from the aspect of energetics runs through the book. In spite of its limited size, the authors contrived to give a survey of the world's and Hungary's most important fuel sites and present the importance of individual fuel types. It is praiseworthy that the petroleum, gas and petroleum product pipelines in Hungary are shown on a small map contributing to the general education of the students.

Understanding is greatly enhanced by the exemplary, perspicuous figures and tables, e.g. the coloured figures demonstrating the effect of admixed or not engine oils on a piston each.

It should be mentioned that the matter of instruction gets completeness from an earlier collection of exercises\* by these and other authors which also contains many nomograms and diagrams.

Finally, the style of the book should be spoken of with appraisal. Though concise, it makes this well-written and beautifully made-up book a pleasant — I might even say delectable — piece of reading.

*J. Varga*

\* *Korach—Vajta—Szebényi—Ackermann: Kémiai Technológiai feladatok. Tankönyvkiadó, Budapest 1966.*