

Book Review

Differential Thermal Analysis. M. I. Pope and M. D. Judd, Heyden and Son Ltd., London, 1977, 206 pp., U.S. \$18.00, £9.00, DM 58.00.

This book is sub-titled "A Guide to the Technique and its Applications" and it is probably on this basis that it should be judged. In the preface, the authors expand on this theme and state that the book is intended to show the engineer, scientist or technologist how differential thermal analysis can be used to solve problems encountered in his own particular field of work. In this the authors succeed, but the decision to avoid a detailed mathematical approach is open to question. It does, however, mean that the descriptive nature of the text allows for the salient points to be easily understood.

The book commences with an historical approach, but this chapter also contains an interesting discussion on the nature of DTA and DSC. The chapter on apparatus contains much general information without falling into the trap of becoming a catalogue of slightly out-of-date equipment. There is often a demand that books of this nature should contain a list of commercially available models, but as these commercial models change in detail so rapidly this only serves to make the book out-of-date before it is published. The present authors have avoided this error.

There follow chapters dealing with experimental factors and the interpretation and presentation of data. These two chapters emphasize the fact that the technique is subject to external environmental factors but that, under the correct conditions, the equipment can be calibrated for calorimetric measurements and used in the estimation of heat capacities. Other chapters follow in which the use of DTA is demonstrated in the investigation of phase transitions.

In the study of the thermal decomposition of solids, it is pointed out that the use of DTA is supplemented with data from the TG unit in order to give the most comprehensive results. Other types of chemical reaction which can be studied by DTA are also cited; these include solid–solid reactions, solid–liquid reactions and solid–gas reactions. Other chapters deal with material specification, the determination of adsorbed material on the surface of inorganic solids, studies of catalytic activity, studies of liquid crystals, ferroelectric transitions and polymers. A series of chapters follow which describe applications of DTA in the industrial area, while the final three chapters contain material on coordination compounds, the application of DTA to space studies and the use of DTA in determining kinetic parameters.

This is a book to be recommended. It is written in an easily understood manner and should prove useful to a wide range of practising scientists and engineers, which is exactly as the authors intended.

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