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Book review

V. S. Ramachandran, R. M. Paroli, J. J. Beaudoin and A. H. Delgado:
Handbook of Thermal Analysis of Construction Materials.
Noyes Publication/William Andrew Publishing, Norwich, New York USA, 2003

This interesting book is part of the 'Construction Material Science and Technology Series' released by the same publisher. The other books of the series are valuable for the building material industry, particularly to concrete experts, while this one is primarily aimed for those laboratory experts wanting to investigate thermoanalytical properties of building materials, especially those of hydrated cement and concrete.

This handbook is to serve two main purposes: it gives a good introduction to Portland and non-Portland cement concrete, clay-, as well as gypsum-based products, organic and similar construction materials for thermoanalysts; and it also gives a deep insight into different thermal techniques for construction scientists and engineers. The described methods can be used for the characterization and identification of different compounds, kinetics and reaction mechanisms, quality control of raw and finished materials, and can also provide data on the deterioration of these materials. In the preface it is stressed that there hasn't been book available providing comprehensive treatise on the thermal analysis techniques' application to various types of constructive materials. That's why this publication is so useful since information on thermal analysis techniques are dispersed in the literature.

Unfortunately, the shortness of space doesn't permit a thorough analysis of the book, only the main chapters are described. The first chapter deals with thermoanalitical techniques, both 'classical' (DTA, DSC, TG) and 'modern' ones like thermoanalitical analysis, dynamic mechanical analysis, dielectric analysis and conduction calorimetry. Chapter 2 deals with Portland cement paste and concrete, as well as the formation of cement and cement compounds. For thermal analysis experts it is usually not known that the properties of concrete can be changed by concrete admixtures (i.e. accelerators, retraders, plasticizers, air-entraining agents, pumping acids etc.). Their effects on thermal analysis experiments are described in Chapter 4–7.

Supplemantary cementing materials of 'latent' hydraulic behaviour (fly ash, silica fume, natural pozzolanas, etc.) are often added to Portland cement; their effect on thermal analysis is described in Chapter 8. Another interesting and partly novel feature is that non-Portland cement binders are also detailed in this book, including calcium aluminate, phosphate, magnesium oxysulfate cements as well as gypsum, clay-based and organic construction materials, along with sealants, roofing materials and paints.

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Several hundreds of up-to-date references (including publications as recent as 2001) and naturally a detailed index of 25 pages makes the book easy to use for reaserchers. A 25 page detailed index makes the book easy to use for researchers.

This excellent book is recommended not only for thermal analysis experts, but for everybody interested in the laboratory investigation of construction materials. This book will definitely not catch the dust on intersted people's bookshelf.

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