

Cement replacement materials

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Editor: R. N. Swamy

Glasgow, Surrey University Press, 1986. 150 × 229 mm. pp. xii, 259. Typeset, casebound, illustrated. ISBN 0 903384 52 3. Price £32.00.

During the past decade, a number of significant initiatives in book publishing have aimed at closing the gap between science-based advances in physics and chemistry and engineering practice. The present volume continues that trend. Its seven chapters, each written by an acknowledged expert, deal with the principal blending constituents employed in the formulation of blended cements. The materials surveyed include natural pozzolans, including thermally-active materials, slags, condensed silica fume, rice husk ash and fly ash. The organization and structure of the book is such that very little overlap of factual material occurs between chapters. The coverage is authoritative and comprehensive: references to other published papers are

drawn from a wide range of sources. Engineers seeking a more in-depth explanation of the action of specific blending agents, or considering how best to exploit hitherto-unfamiliar materials for this purpose, will find the book extremely useful.

It is inevitable that a few errors will creep in. Many of the chapters contributors are clearly unfamiliar with mineralogical notation and chemical formulae. Moreover, in a book of this price, one would expect a better quality of photographic reproduction.

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Research on the manufacture and use of cements

Proceedings of the Engineering Foundation Conference, July 28–August 2 1985, New England College, Henniker, New Hampshire

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New York, Engineering Foundation, 1986. 214 × 138 mm. Reproduced typesetting, illustrated, paperback. ISBN 0 939204 32 0.

Eighteen papers have been published in the Proceedings, covering the areas of kiln chemistry, modelling of hydration-dependent characteristics, mechanisms of cement hydration, effects of chemical and mineral admixtures, glass fibre-cement composites and the management of cement and concrete research. The majority of these are review-type or discussion papers and present a useful state-of-the-art (in 1985) message to those involved in cement research work. Unfortunately some of the individual papers have reproduced badly, which tends to detract from the otherwise generally neat presentations of the papers. Also the proceedings was published in the year after the Conference, which was an unfortunate delay.

A number of interesting developments have been reported, which include mathematical modelling of cement hydration. Papers by Parrott, Osbaeck and Jennings *et al.* discuss such applications to cement hydration for explaining microstructural development and concomitant engineering properties. It is shown that, although this type of work is still in its infancy, the results being obtained are encouragingly realistic. The use of back-scattered electron imaging in the study of cement and concrete, as described by Scrivener, for examining and quantifying the microstructure of cement pastes and concrete could have useful practical applications.

Another important area discussed is that of cement-admixture interactions. It has become increasingly recognized that admixtures can profoundly influence cement hydration behaviour and microstructural development. Papers by Ramachandran, Jennings and Taleb, and Sakai and Daimon discuss these chemical and physical effects for various admixture types. Contributions by Hewlett and Edmeades, Helmuth and Roy reflect areas of more direct practical concern in relation to performance of lignosulphonate plasticizers, effects of mineral admixtures on concrete durability and chemical features of alkali-silica reaction mitigation by mineral admixtures, respectively.

A novel feature of the Proceedings is the inclusion of papers on increasing the payoff for research in the cement and concrete industries by Tresouthick and a case study of university-industry cooperation in cement and concrete research by Idorn.

Overall the Proceedings represent a useful collation of scientific papers that can be recommended for reading by cement researchers. It is a pity that they could not have been issued at the time of the Conference.

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