

Book review

Analysis of Hardened Concrete: A Guide to Tests, Procedures and Interpretation of Results – Concrete Society Technical Report TR32, 2nd edition

Concrete Society. Concrete Society, Blackwater, Camberley, UK, 2014, ISBN 978-1-9044-8282-6, £75.00, 76 pp.

This is a Concrete Society technical report comprising five chapters and four appendices written by a working group of 17 members, together with six corresponding members. As such, it is comprehensive and relevant to present-day practices.

The subject may seem somewhat pedestrian, but it is important because it provides information that can be used to judge the well-being of a structure, enabling the identity of who is responsible to be determined when there is a problem. The report is primarily concerned with the analysis of Portland-cement-based concrete covering a range of components that represent modern concretes, namely 'combination' or 'composite' cements. The five chapters are complemented by 219 listed references and selected sources of further information.

After an introduction, chapter 2 covers sampling and specimen preparation. These are the two most important steps if one is to have confidence in the results. Chapter 3 covers the deterioration of various constituents, for example, cement type, aggregates, admixtures together with mineral additions, coatings, surface treatments and fibres. Chapter 4 deals with concrete's properties such as cement content, water to cement

(w/c) ratio, air content, chloride, sulfate and alkali contents, including the measurement of the depth of carbonation. Contentious aspects such as precision and accuracy, along with interpretation of results, are dealt with thoroughly.

As you might expect, methods and techniques evolve and improvements are made resulting from experience in applying the methods. As a consequence, chapter 5 covers research issues relating to BS 1881-124 and the application of various techniques for analysing newer types of concrete, for example, low-carbon concrete and the presence/dosage of modern chemical admixtures.

The report has four appendices covering a glossary of terms, health and safety issues and the micrometric determination of mix proportions. Appendix D deals with laboratory trials in two stages, putting the analytical procedures to test. Graphically presented results covering a range of tests are given, conclusions drawn and recommendations made to underwrite improvements affecting the issues of accuracy when current procedures are applied to contemporary concrete.

All of the chapters are enhanced with visual presentations and copious tabulated data. Presentation is of a high quality and comprehensive.

All in all, this report is professional in its approach and should appeal to analytical concrete technologists and practising engineers, as well as consultants and researchers.

Peter Hewlett