Expert commentary

BS 8500-2:2023 — *Concrete – Complementary guidance to BS EN 206 – Part 2: Specification for constituent materials and concrete*

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1 Overview

BS 8500-2:2023 is the second part of the two-part complementary British Standard to BS EN 206:2013+A2:2021. Is specifies requirements of the constituent materials and concrete defined as having established or accepted adequate performance for use in conditions found in the United Kingdom as well as national provisions, where permitted, by BS EN 206. The standard was first published in 2002 to give producers the required guidance to manufacture concrete to align with BS EN 1992 (Eurocode 2) – Design of concrete structures.

There have been a number of revisions and amendments since it was first published to account for revisions of interrelated standards and to meet the needs of the United Kingdom construction industry. This revision, which wholly replaces BS 8500-2:2015+A2:2019, is a response to the needs of concrete construction and to incorporate cements introduced in a new standard, BS EN 197-5:2021. In an industry not normally known for rapid change and acceptance of innovation, the need to decarbonize concrete has become one of the main priorities for construction and, as a part of that process, the use of lower carbon concrete is essential. This is the first revision of this standard with the main purpose of improving sustainability of concrete.

This commentary highlights the main changes and discusses the reasoning behind those amendments.

1.1 Reasons for change

The main reason for this revision is to include and give guidance to the use of cements and their equivalent combinations introduced in the new standard BS EN 197-5:2021 for the production of concrete. These lower carbon cements use limestone fines to BS 7979:2016 in combination with Portland cement and another addition, such as ggbs, in greater proportions than allowed in BS EN 197-1:2011. This gives producers the opportunity to use less carbon-intensive Portland cement, options for more additions, and to be able to combine more than one of these with Portland cement but at proportions that are familiar to the United Kingdom market. As the UK has a long history of producing cements by blending cementitious materials in the concrete mixer, called "combinations", instead of as a preblended cement from a cement manufacturer, the guidance has to allow for the varying proportions that could be produced from two or three separate silos containing various cements and additions.

A requirement for producing combinations of cements and additions, using the BS EN 206:2013+A2:2021 equivalent performance of combinations concept (EPCC), is that there is a conformity procedure to determine limits of the proportions of cements and additions used. This process is more complicated now with ternary combinations than it was in previous versions of the standard and so the procedure and informative examples have been updated to give the required guidance.

As well as the changes summarized below, the opportunity was taken to correct typographical errors, improve the format of some tables that were difficult to read, update references and to align guidance with other standards.

1.2 Summary of changes

- Inclusion of BS EN 197-5 cements and their equivalent combinations as general-purpose cements
- Redefinition of a production day for air content testing
- Clauses for production, delivery and conformity requirements moved to a new normative annex
- Amendment of the combination conformity procedures for the new equivalent combinations
- Corrections and minor clarifications
- All references have been updated

2 Main Commentary

2.1 Scope of BS 8500-2

The scope of BS 8500-2 is unchanged. It specifies the constituent materials and concrete, as well as specific requirements relating to the types of concrete in BS 8500-2. It is the complementary standard to BS EN 206 and contains the national provisions that are required or permitted by BS EN 206. It also gives guidance for materials, methods of testing and procedures that are outside the scope of BS EN 206, but within United Kingdom experience.

2.2 Terms and definitions

BS 8500-2 does not repeat the definitions given in BS EN 206:2013+A2 or BS 8500-1 as this is a complementary standard that cannot have contradictory requirements. There has been some improvement in the wording of some definitions and some additional information provided as notes.