SINGAPORE STANDARDS COUNCIL

SS EN 197-1 : 2008
(ICS 91.100.10)

SINGAPORE STANDARD

Specification for cement

– Part 1 : Composition, specifications and conformity criteria for common cements

(This national standard is the identical implementation of EN 197-1 : 2000 and is adopted with permission of CEN, Avenue Marnix 17, 1000 Brussels)

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– Part 1 : Composition, specifications and conformity criteria for common cements

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Meinhardt Infrastructure Pte Ltd
National University of Singapore
Ready-mix Concrete Association of Singapore
Setsco Services Pte Ltd
Singapore Concrete Institute
WAK Consultants Pte Ltd
WP Brown Pte Ltd

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National Foreword

This Singapore Standard was prepared by the Technical Committee on Building Structure and Sub-structure under the purview of the Building and Construction Standards Committee.

This standard is the result of the review of the following Singapore Standards:

SS 26 : 2000 – Specification for ordinary Portland cement
SS 476 : 2000 – Specification for high slag blastfurnace cement
SS 477 : 2000 – Specification for Portland blastfurnace cements

The SS EN 197 series of standards replaces these standards. This series comprises the following additional parts:

– Part 2 Conformity evaluation

– Part 4 Composition, specifications and conformity criteria for low early strength blastfurnace cements

This standard is identical to EN 197-1 : 2000 – 'Cement – Part 1 : Composition, specifications and conformity criteria for common cements' incorporating CEN Amendments (A1 : 2004 denoted by <A1>, A3 : 2007 denoted by <A3>) and informative guidelines in Annexes NA to NG and ZZA for SS EN 197-1. It is adopted with permission of CEN, Rue de Stassart 36, B-1050 Brussels.

Attention is drawn to the following:

1. Where reference is made to European Standards, it has been replaced by 'Singapore Standard' where applicable.

2. The comma used as a decimal marker has been replaced by a full point on the baseline.

3. The National Foreword replaces the Foreword of EN 197-1.

This standard is a part of the series SS EN 197 'Cement' which comprises

Relevant EN test methods are listed in Clause 2. The temperature used in the test method specifications is only for conformity testing requirements and may not represent the temperature when the material is used in concrete. The guidelines for testing temperature and humidity to be adopted for Singapore are given in Annex ZZA of this standard.

The detailed requirements for evaluating the conformity of common cements with this standard, including certification of conformity by a third party, are given in SS EN 197-2 : 2008 – 'Cement – Part 2 : Conformity evaluation' with following guidelines:

– Recommended sampling plan for imported cement (Annex ZZA in SS EN 197-2). Since most cements are imported into Singapore where the manufacturer may not have production control as set out in EN 197-2, this alternate approach is intended to ensure that quality of cement imported for use in Singapore will have equivalent assurance of quality compared to cement that may be manufactured within Singapore.

This Singapore Standard forms a part of a group of related construction standards, which will include design and construction in concrete. The standards will include SS EN 1992-1 for the design of concrete structures, SS EN 206-1 and its complementary standards (SS 544 : Parts 1 and 2), for the specifications and associated test methods for the constituent materials of concrete, including the BS EN 196 series of test methods for cement.

Purchasers are recommended to specify common cement which has been manufactured and supplied to a nationally recognised third party product quality certification scheme.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

At the time of publication, this standard is expected to be used as a reference in the Building and Construction Authority's 'Approved Document – Acceptable Solutions'.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. SPRING Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The changes in Singapore Standards are documented through the issue of either amendments or revisions.*
2. *Compliance with a Singapore Standard does not exempt users from legal obligations.*

Specification for cement – Part 1 : Composition, specifications and conformity criteria for common cements

Introduction

It is recognised that different cements have different properties and performance. Those performance tests now available (i.e. setting time, strength, A1> soundness and heat of hydration) <A1 have been included in SS EN 197-1. In addition, work is being carried out by CEN/TC 51 to identify any additional tests which are needed to specify further performance characteristics of cement. Until further performance tests are available it is necessary that the choice of cement, especially the type and/or strength class in relation to the requirements for durability depending on exposure class and type of construction in which it is incorporated, follows the appropriate standards and/or regulations for concrete or mortar valid in the place of use.

1 Scope

SS EN 197-1 defines and gives the specifications of 27 distinct common cement products and their constituents. The definition of each cement includes the proportions in which the constituents are to be combined to produce these distinct products in a range of six strength classes. The definition also includes requirements the constituents have to meet and the mechanical, physical and chemical A1>including, where appropriate, heat of hydration requirements<A1 of the 27 products and strength classes. SS EN 197-1 also states the conformity criteria and the related rules. Necessary durability requirements are also given.

NOTE 1– In addition to the specified requirements, an exchange of additional information between the cement manufacturer and user may be helpful. The procedures for such an exchange are not within the scope of SS EN 197-1 but should be dealt with in accordance with national standards or regulations or may be agreed between the parties concerned.

NOTE 2 – The word "cement" in SS EN 197-1 is used to refer only to common cements unless otherwise specified.

2 Normative references

SS EN 197-1 incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to SS EN 197-1 only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 196-1, *Methods of testing cement – Part 1 : Determination of strength.*

EN 196-2, *Methods of testing cement – Part 2 : Chemical analysis of cement.*

EN 196-3, *Methods of testing cement – Part 3 : Determination of setting time and soundness.*

EN 196-5, *Methods of testing cement – Part 5 : Pozzolanicity test for Pozzolanic cements.*

EN 196-6, *Methods of testing cement – Part 6 : Determination of fineness.*

EN 196-7, *Methods of testing cement – Part 7 : Methods of taking and preparing samples of cement.*

A1>EN 196-8, *Methods of testing cement – Part 8 : Heat of hydration – Solution method.*

EN 196-9, *Methods of testing cement – Part 9 Heat of hydration – Semi-adiabatic method.*<A1