



**The Gambia
Standards Bureau**

Standards Standard Specification for Standard Performance Specification for Hydraulic Cement

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THE GAMBIA STANDARDS BUREAU

The Gambia Standards Bureau is a statutory Government specialized Agency established by The Gambia Standards Bureau Act 2010 to standardize products, methods, systems and for connected matters. Hence, the Bureau is the sole National Standardization Body. As such, it has been a member of International Standardization Bodies such as the International Organization for Standardization (ISO) since 2011, International Electrotechnical Commission (IEC) and the Standards and Metrology Institute for Islamic Countries (SMIIC) from 2012.

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Therefore, the functions, of the Bureau are to define, prepare, publish, modify or amend Standards Specifications as well information-dissemination of standards. In addition to providing Testing, Inspection and Certification services for goods, systems and processes independently or in relation to conformity with its Standards Mark, the Bureau also conducts training and research. In Metrology, the Bureau serves as the custodian of primary national reference measurement standards through its National Metrology Laboratories and conducts calibration of measurement devices and physical standards.

The development of Gambian Standards (GAMS) is carried out by the Bureau through Technical Committees composed of a balanced representation of stakeholders, as may be appropriate to the subject in question. The Bureau ensures that Standards are developed in accordance with the *ISO_IEC_Guide_21-1_2005: Regional or National adoption of International Standards and other International deliverables* and the *World Trade Organization Code of good practice for the preparation, adoption and application of standards*. To the greatest extent possible, Gambian Standards are aligned to or are adoptions of relevant international standards.

For further information on and copies of Gambian Standards, please contact The Gambia Standards Bureau.

TECHNICAL COMMITTEE RESPONSIBLE: BUILDING AND CONSTRUCTION MATERIALS COMMITTEE

The Building and construction materials Committee developed this Standard Performance Specification for Hydraulic Cement. The Committee was set up by Bureau in 2016 to work on the development of national standards in the building and civil engineering field.

The BCM consists of representatives from the following Institutions/Organizations:

- Ministry of Transport, Works and Infrastructure
- National Road Authority
- Department of Physical Planning
- Association of Gambian construction Contractors (GACCON)
- University of the Gambia
- Gambia Technical Training Institute
- Insight Training Institute
- GACEM
- Social Security and Housing Finance Cooperation
- GAMWORKS
- Association Real Estates Companies
- Gambia Fire and Rescue Services
- Jah Oil Company
- Salam Cement Company
- Gambia Competition and Consumer Protection Commission
- ABSA Consultancy
- Finish Profiles the Gambia

The Gambia Standards Bureau is the Secretary to the Building and Construction Materials Technical Committee.

FOREWORD

This Gambian Standard was identified and developed by the Building and Construction Materials in response to the clear need at the national level for a detailed and comprehensive Standard Performance Specification for Hydraulic Cement

The standard addresses the following:

- Scope
- References Documents
- Terminology
- Calcification and Use
- Ordering Information
- Chemical Composition
- Physical Properties
- Sampling
- Test Methods
- Testing time Requirements
- Testing by the Manufacturer
- Inspection
- Rejection
- Certification Manufactures Statement
- Package Marking
- Storage
- Uniformity of Source
- Keyword

STANDARD PERFORMANCE SPECIFICATION FOR HYDRAULIC CEMENT

This standard is issued under the fixed designation C1157/C1157M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This performance specification covers hydraulic cements for both general and special applications. There are no restrictions on the composition of the cement or its constituents (See [Note 1](#)).

NOTE 1—There are two related hydraulic cement standards, Specification [C150](#) for portland cement and Specifications [C595](#) for blended cements, both of which contain prescriptive and performance requirements

1.2 This performance specification classifies cements based on specific requirements for general use, high early strength, resistance to attack by sulfates, and heat of hydration. Optional requirements are provided for the property of low reactivity with alkali-silica-reactive aggregates and for air-entraining cements.

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. Values in SI units [or inch-pound units] shall be obtained by measurement in SI units [or inch-pound units] or by appropriate conversion, using the Rules for Conversion and Rounding given in [IEEE/ASTM SI 10](#), of measurements made in other units [or SI units]. Values are stated in only SI units when inch-pound units are not used in practice.

1.4 The text of this standard refers to notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) are not requirements of the standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[C109/C109M](#) Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

[C114](#) Test Methods for Chemical Analysis of Hydraulic Cement

[C150](#) Specification for Portland Cement

[C151](#) Test Method for Autoclave Expansion of Hydraulic Cement

[C183](#) Practice for Sampling and the Amount of Testing of Hydraulic Cement

[C185](#) Test Method for Air Content of Hydraulic Cement Mortar

[C186](#) Test Method for Heat of Hydration of Hydraulic Cement

[C188](#) Test Method for Density of Hydraulic Cement

[C191](#) Test Methods for Time of Setting of Hydraulic Cement by Vicat Needle

- C204 Test Methods for Fineness of Hydraulic Cement by Air-Permeability Apparatus
- C219 Terminology Relating to Hydraulic Cement
- C227 Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
- C359 Test Method for Early Stiffening of Hydraulic Cement (Mortar Method)
- C430 Test Method for Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve
- C441 Test Method for Effectiveness of Pozzolans or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction
- C451 Test Method for Early Stiffening of Hydraulic Cement (Paste Method)
- C595 Specification for Blended Hydraulic Cements
- C596 Test Method for Drying Shrinkage of Mortar Contain- ing Hydraulic Cement
- C1012 Test Method for Length Change of Hydraulic- Cement Mortars Exposed to a Sulfate Solution
- C1038 Test Method for Expansion of Hydraulic Cement Mortar Bars Stored in Water
- IEEE/ASTM SI 10 Standard for Use of the International System of Units (SI): the Modern Metric System