

The Republic of the Union of Myanmar

Ministry of Construction



MOC Standard Specifications and Testing Methods

of

Ordinary Portland Cement

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Standard Specification and Testing Methods of Ordinary Portland Cement

(Standard for Ministry of Construction)

1. Scope

These specification and testing methods cover ordinary Portland cement for use in construction.

The physical properties and chemical composition and testing methods of Ordinary Portland Cement are mentioned. The physical properties can be known by conducting the testing method described in this standard for Ministry of Construction (MoC).

This standard Testing Method 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. Objectives

- To specify the quality of both locally manufactured and imported products and of services in Myanmar, leading to improve protection of consumers.
- To support the use of standards in all spheres of economic activity, aim at achieving an efficient economy, better social and environmental protection, and an enhanced quality of life for citizens.
- To develop and implement an effective National Quality Infrastructure System to fit the needs of the country.

3. Chemical Composition of Ordinary Portland Cement

Magnesium Oxide (MgO)	Sulfur Trioxide (SO ₃)		Loss on Ignition	Insoluble Residue
	When (C ₃ A) is 8 % or Less	When (C ₃ A) is more than 8 %		
6.0 % (max.)	3.0 % (max.)	3.5 % (max.)	3.0 % (max.)	0.75 % (max.)

4. Specification of Physical Properties for Ordinary Portland Cement

Sr No.	Name of Testing	Specification
1.	Air Content of mortar volume	12%(max)
2.	Fineness, Specific surface (a) Turbidimeter Test (b) Air permeability Test	160m ² /kg (min) 280m ² /kg (min)
3.	Autoclave expansion	0.8% (max)
4.	Compressive Strength	3days -12.0Mpa 7days -19.0Mpa
5.	Time of Setting (minutes) (a) Gillmore Method (i) Initial Setting Time (ii) Final Setting Time (b) Vicat Method (i) Initial Setting Time (ii) Final Setting Time	 ≥ 60 minutes ≤ 600 minutes ≥45 minutes ≤ 375 minutes

5. Testing Methods and Apparatus for Physical Properties of Ordinary Portland Cement

Sr No.	Name of Testing	Test Method	Apparatus
1.	Air Content of mortar volume	ASTM C-185	<ul style="list-style-type: none"> - Flow Table, Flow Mold and Caliper (conform to C-230) - Cylindrical Measure (76± 2mm inside dia and 88mm depth) - Mixer, Bowl and Paddle (conform to C-305) - Straightedge (not less than 200mm Long) - 2kg balance (conform to C-1005) - Glass Graduates (250ml) - Tapping Stick (16mm dia, 152mm long) - Tamper (Conform to C-109) - Spoon & Bowl
2.	Fineness, Specific surface (a) Turbidimeter Test (b) Air permeability Test	ASTM C-115 ASTM C-204	<ul style="list-style-type: none"> - Wagner Turbidimeter - Microammeters - Sieve (conform to C-430) - Stirring Apparatus - Timing Buret - Weighting Device & Weights (conform to C-114) - The Blaine Air Permeability Apparatus - Permeability Cell - Disk - Plunger - Filter paper - Manometer (U-tube type) & - Manometer Liquid - Timer
3.	Autoclave expansion	ASTM C-151	<ul style="list-style-type: none"> Weighting Device & Weights (conform to C 1005) - Glass Graduates (conform to C490)

			<ul style="list-style-type: none"> - Moulds (25.4 by 25.4 mm cross section) (conform to C 490) - Flat Trowel - Autoclave - Rupture Disk - Length Comparator (conform to C490)
4.	Compressive Strength	ASTM C-109	<ul style="list-style-type: none"> - Weighting Devices & Weights (conform to C 1005) - Glass Graduates - Specimen Molds(for 50mm cube Specimens) - Mixer, Bowl and Paddle(conform to C305) - Flow Table and Flow Mold (conform to C230) - Tamper - Trowel - Moist Cabinet or Room (Conform to C511) - Mortar Compression Testing Machine
5.	Time of Setting (a) Gillmore Method (i) Initial Setting Time (ii) Final Setting Time (b) Vicat Method (i) Initial Setting Time (ii) Final Setting Time	 ASTM C-266 ASTM C-191	<ul style="list-style-type: none"> - Trowel with straight edge - Mixer, Bowl, Paddle and Scraper (conform to C 305) - Glass Graduates (conform to C490) - Mass Determining Devices (conform to C 1005) - Plane Non- absorptive Plates - Gillmore Needles - Scales (the permissible variation at a load of 9.8N within $\pm 0.01N$) - Weights (1,2,5,10,20,50,100,200,250,300,500g) - Glass Graduates (conform to C490) - Vicat Apparatus



Flow Table



Wagner Turbidimeter (Fineness Test)



Blaine Air Permeability Apparatus
(Fineness Test)



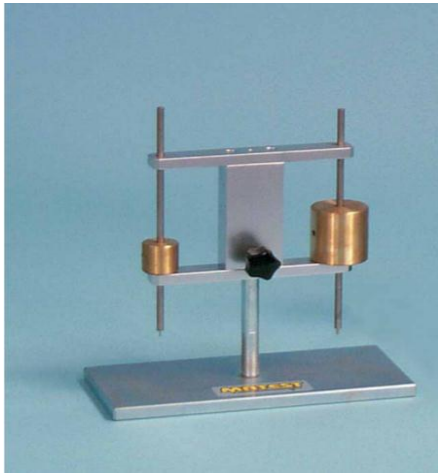
Autoclave Expansion



Specimen Moulds
(Compressive Strength Test)



Mortar Compression Testing Machine



Gillmore Apparatus(Setting Time Test)



Vicat Apparatus (Setting Time Test)

6. Referenced Documents

ASTM Standard:

C150-00	Standard Specification of Protland Cement
C185-99	Standard Test Method for Air Content of Hydraulic Cement Mortar
C115-96a	Standard Test Method for Fineness of Portland Cement by the Turbidimeter
C204-00	Standard Test Method for Fineness of Hydraulic Cement by Air Permeability Apparatus
C151-00	Standard Test Method for Autoclave Expansion of Portland Cement
C109/109M-02	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or 50mm Cube Specimens)
C266-99	Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles
C191-99	Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle