

# Directions Governing the Inspection of Cement

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Article 1 These Directions are stipulated for the inspection of cement commodities.

Article 2 The commodities of cement covered: Portland cement and blended hydraulic cements imported to Taiwan or manufactured and sold in Taiwan.

Article 3 The inspection methods for cement commodities are monitoring inspection and management-system-based monitoring inspection.

Article 4 Inspection standards and inspection items:

1. Portland cement: In accordance with CNS 61, the inspected items are as follows:

(1) All chemical compositions and physical characteristics. For physical characteristics of three-day mean age compressive strength, the Bureau of Standards, Metrology and Inspections, Ministry of Economic Affairs (hereinafter referred to as "the BSMI") may stipulate compressive strength monitoring plans for other periods.

(2) Contents of additives.

2. Blended hydraulic cement: In accordance with CNS 15286, the inspected items are as follows:

(1) All chemical compositions must be in accordance with the prescribed standards.

(2) Physical characteristics:

(A) Autoclave expansion and shrinkage.

(B) Time of setting.

(C) Cement mortar air content.

(D) Three-day mean age compressive strength[excluding IS ( $\geq 70$ ) and IP (LH)].

3. The BSMI may stipulate compressive strength monitoring plans for other periods.

Article 5 The relevant regulations for monitoring inspection (including management-system-based monitoring inspection):

1. Application:

- (1) Monitoring inspection: The obligatory inspection applicant shall apply to the BSMI or its branch (hereinafter referred to as the inspection authority) for inspection by submitting an inspection application form before the commodities are imported or domestically manufactured commodities are shipped out of the production premises.
- (2) Management-system-based monitoring inspection:
  - (A) An applicant must register for monitoring system, submit the application form, attach the quality management system certificates recognized by the BSMI or with certification bodies recognized by the BSMI and a list of basic inspection facilities to the inspection authority to apply for management-system-based monitoring inspection.
  - (B) An applicant must also prepare basic inspection facilities, such as autoclave, Le chatelier pycnometer, constant temperature and humidity incubator, air permeability apparatus, Vicat apparatus, compression machine(25 tons), Gilmore apparatus, flow table and muffle furnace (high temperature furnace that can be used constantly up to 1200 degrees). The applicant only needs to submit either a Vicat apparatus or a Gilmore apparatus, but the Gilmore apparatus is required for blended hydraulic cement.

## 2. Commodity inspection mark regulations:

- (1) Cement commodities must have the commodity inspection mark "C" imprinted by the BSMI on its smallest unit of packaging. The obligatory inspection applicant that received a commodity batch number or manufacturing date on its smallest unit of packaging provided by the management-system-based monitoring inspection may print its own commodity inspection mark in accordance with Article 3 of the Regulations Governing the Use of the Commodity Inspection Mark, which includes a graphic symbol with an identification number. The identification number is comprised of a Roman letter "Q" and the monitoring inspection registration number.
- (2) Bulk cargo may be exempt from the labelling commodity inspection mark.

## 3. Regulations for inspection:

- (1) Monitoring inspection: batch-by-batch examination. The obligatory inspection applicant who has passed three consecutive sampling inspections for commodities with the same origin, same manufacturing site or brand and the same types will be subject to a random-selected batch inspection one out of every two batches. The obligatory inspection applicant who fails to pass random-selected batch inspection will be subject to batch-by-batch examination.
- (2) Management-system-based monitoring inspection:
  - (A) The commodities of cement manufactured and sold in Taiwan: A production premise shall perform the inspection to its commodities and

issue, by countersigning, the monitoring inspection certificate if compliance is demonstrated after the inspection.

- (B) The commodities of cement imported to Taiwan: A production premise shall perform the inspection to its commodities and the obligatory inspection applicant shall submit a copy of registration certificates for the production premises under management-system-based monitoring inspection and the inspection records to the BSMI for approval before issuing the monitoring inspection certificates.
- (C) Management-system-based monitoring inspection production premise must insert columns for slag, fly ash and limestone content, in addition to the inspection record. The BSMI may inspect or conduct random sampling inspections whenever necessary.

4. Principles for the delivery of samples and confirming the content of the additives:

- (1) Imported commodity (including monitoring inspection and follow-up batch-by-batch examination for commodities that failed monitoring inspection): Upon receipt of the samples, the Inspection Authority will mix them and divide into three portions: one portion will be subject to chemical composition and the content of the additives inspection by the Inspection Authority (for slag, only the sulfide sulfur content in the original cement sample will be quantified), one portion will be subject to physical characteristics inspection by specialised cement laboratory of the BSMI (Taichung or Hualian branch) and one portion will be subject to inspection by the BSMI's specialized slag laboratory of the BSMI (Hualian branch).
- (2) Domestic commodities (including management-system-based monitoring inspection production premise, Domestic production premises and follow-up batch-by-batch examination for commodities that failed monitoring inspection): Upon receipt of the samples, the Inspection Authority will mix them and divide them into three portions: one portion will be kept by the Inspection Authority for future inspection, one will be subject to physical characteristics, chemical composition and additive content inspection (for slag, only the sulfide sulfur content in the original cement sample will be quantified) by a specialised cement laboratory and one portion will be subject to inspection by a specialized slag laboratory.
- (3) Fly ash and limestone content will be inspected in accordance with CNS 12459. sulfide sulfur content in the original cement sample will be quantified in accordance with Article 7.3 of CNS 12459 and a ratio of one to hundred shall be used as the estimated content for slag. If the quantity of fly ash and limestone together is less than six percent, but the quantity slag estimate, fly ash and limestone content together exceed six percent, the additive content for such a commodity is deemed to be questionable.
- (4) The Inspection Authority or specialised cement laboratory must inform the specialised slag laboratory to confirm commodities found to contain

questionable additive content. The obligatory inspection applicant will also be informed that the period of inspection will be extended for five working days and the "Specialized Laboratory Management System" inspection extension process will be carried out at the same time.

- (5) The specialised slag laboratory must provide the inspection results to the Inspection Authority within five working days after receiving telephonic notification.
5. Period of inspection: Five working days after the receipt of sample. However, if commodities with questionable additive content are found, they will be subject to further inspection by a specialised slag laboratory and the inspection period will be extended for another five working days.
6. The error amount permitted for additive inspection is one percent, which means that inspection results below six percent are compliant and any result exceeding six percent is deemed to be non-compliant.