

 GOVERNMENT OF DUBAI	<b>Organization/Unit:</b> إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Document Title:</b> Specific Rules for Certification of Common Cement Products for Use in Concrete as per BS EN 197-1:2011, Through Factory Assessment	عنوان الوثيقة:	
	<b>Doc Ref.</b> DM-DCLD-RD-DP21-2209 (IC)	رقم الوثيقة :	

Issue Date	Rev. No.	Summary Of Amendments
14-03-2018	0	First draft for comments
10-05-2018	0	Reflect DCLD- PCAS staff comments and feedback
23-10-2018	0	Include DCL – Technical committee feedback and comments
11-11-2018	1	Issue for use
26-03-2019	2	Updated format as per new DM logo
04-08-2020	3	Add the options for initial audit by the approved CAB and remotely by PCAS. Adding definition for authorized auditor. Update for the new numbering system and followed terminologies. Add provision for accepting valid test reports. Correction of numbering

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## 1. GENERAL

### 1.1 INTRODUCTION

1.1.1 This document prescribes the Specific Rules for the implementation of the DM Third Party Product Certification scheme through factory assessment as applied to the specific product(s) identified herein, taking into consideration the applicable normative references and standard specifications in addition to the requirements for conformity evaluation as per BS EN 197 Part 2.

1.1.2 The client shall comply with these specific rules, and with those already mentioned in the “General Rules for DM Third Party Product Certification Scheme Through Factory Assessment“, DM-DCLD-RD-DP21-2001 (IC).

### 1.2 SCOPE

This specific rule applies to 27 distinct common cement, 7 sulfate resisting common cements as well 3 distinct low early strength blast furnace cement and 2 sulfate resistance low early strength blast furnace cement and their constituents which are used usually in manufacturing of ready mix concrete.

### 1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

1.3.1 Product name: Cement

1.3.2 Applicable Standard/Normative Reference: BSEN 197-1: 2011 for Composition , Specification and conformity criteria for common cement

1.3.3 Additional References:

ISO 9001, Quality Management System – Requirements

ISO 19011, Guidelines for Auditing Management Systems

### 1.4 DEFINITION OF TERMS

In addition to the definitions given in the Applicable Standard specification (clause 3 and clause 4), Normative Reference, and DM-DCLD-RD-DP21-2001(IC) the following shall also apply:

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- 1.4.1 Independent Testing Laboratory - Dubai Central Laboratory (DCL) or any testing laboratory recognized by DCLD-PCAS.
- 1.4.2 Independent Test – test performed or conducted by the recognized Independent Testing Laboratory
- 1.4.3 Standard Specification – BSEN 197-1: 2011 for Composition , Specification and conformity criteria for common cement
- 1.4.4 Product Quality Assurance Plan – a document being agreed upon both by the client and the DCLD-PCAS, being used to ensure continuous compliance of the certified product.
- 1.4.5 QMS - Quality Management System aligned with the requirements of ISO 9001 Standard
- 1.4.6 Client – Manufacturer of Common Cement Products for Use in Concrete
- 1.4.7 DM Certification Body: Dubai Central Laboratory Department-Products Conformity Assessment Section (DCLD-PCAS)
- 1.4.8 Authorized auditor : is any approved auditor by DCLD-PCAS either internal within DCLD or external (Approved CAB's auditor or approved auditor based on a signed contract)

## 2. REQUIREMENTS FOR CERTIFICATION

### 2.1 APPLICATION

- 2.1.1 The client shall apply to DCLD-PCAS for the Certification and authorization to use the DCL Conformity Mark.
- 2.1.2 Application forms shall be submitted to DCLD-PCAS together with the following documents
- Industrial License
  - Complete product description and specifications (Products Compliance Certificates )
  - Brief Description of Manufacturing Process
  - Copy of the Quality Manual (Controlled Copy)- (If available)
  - Vicinity Map and Factory Layout
  - Valid Certification to ISO 9001 (If available)
  - List of personnel and their designation
  - Total number of effective personnel involved in manufacture of the product (technical, managerial and

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support personnel).

- i. List of available testing equipment and tests conducted internally
- j. Others

2.1.3 Separate application shall be submitted for each product type or group of products that refers to a different specific rules.

## 2.2 FACTORY OPERATION

### 2.2.1 Quality Management System

The client shall have a Quality Management System that is aligned to the requirements of ISO 9001 standard.

NOTE : Having a certificate of ISO 9001 is not a mandatory requirement; however the structure of the manufacturer's QMS shall be in line with its requirements.

### 2.2.2 Laboratory

The client shall have a quality assurance laboratory to carry out factory production control testing to ensure that the cement products comply with the requirements of the standard specification.

The laboratory can be part of the factory facilities, or, can be through a documented agreement with an accredited external laboratory. As a minimum requirement, the factory shall have the following minimum test equipment to check product compliance with the requirements of standard specification.

1. Compression machine
2. Digital & weighing balances
3. Water bath and hot plate
4. Drying oven & Muffle furnace
5. Mortar mixer
6. Humidity cabinet & Thermo hygrometer
7. Chemical analyzer (Online or portable XRF) and/or Wet chemistry instruments.
8. Soundness and setting time.
9. Blaine fineness apparatus

### 2.2.3 Constituents :

The requirements for the constituents shall comply with clause (5) of the standard specification.

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## 2.3 INITIAL FACTORY AUDIT

2.3.1 Initial factory audit will be carried out by duly authorized auditor(s) which will cover auditing of the quality management system to verify its compliance with the requirements of ISO 9001, in addition to verify the implementation of DCLD-PCAS certification's requirements. Where possible; the audit can be carried out remotely as per (DM-DCLD-RD-DP21-2098 (IC) Guidelines for Remote Audit) or as per the related approved guidelines which are followed by the approved outsourced CAB.

*NOTE: An independent certification to ISO 9001 issued by a QMS certification body recognized by DCLD-PCAS may be considered as having satisfied this requirement; however, DCLD-PCAS reserves the right to carry out verification audit to confirm that the factory is in compliance with the QMS requirements, in addition to the requirements of DCLD certification schemes and rules.*

2.3.2 Factory audit shall be conducted by designated audit team in accordance with ISO 19011 – Guidelines for Auditing Management Systems.

## 2.4 PRODUCT EVALUATION

### 2.4.1 Sampling

2.4.1.1 Sampling for initial testing shall be shall be taken randomly by the authorized auditor from the products to be certified ( sizes and quantity to be determined ) either from production lines or the factory warehouse, in accordance with the requirements of EN1297 Part 7

2.4.1.2 Three sets of sample per product per type shall be subjected to testing; the first set, where possible, will be tested in the plant witnessed by a duly authorized auditor, the second set will be sent to DCLD-PCAS approved Independent Testing Laboratory. The third set will be kept by the manufacturer as reference for future use.

2.4.1.3 Sample(s) for independent test shall be packed/sealed and signed in the presence of the authorized auditor and shall be submitted to DCLD-PCAS approved lab.

2.4.1.4 The minimum sample size shall be as given in the related standard specifications and shall be drawn at random to be representative of the batch or consignment.

### 2.4.2 Product Evaluation and Testing

#### 2.4.2.1 Composition and notation

Composition and notation of common cement: It shall comply with clause (6) of standard specification. The

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products in the family of common cement covered by EN 197-1 and their notation are given in Table (1) in the standard specification. They are grouped into five main cement types as follows :

- CEM I Portland Cement
- CEM II Portland – Composite cement
- CEM III Blast Furnace Cement
- CEM IV Pozzolan Cement
- CEM V Composite Cement

\* Note : The composition of each of the products in the family of common cement shall be in accordance With Table (1) in the standard specification

2.4.2.2 Composition and notation of sulfate resisting common cement (SR- Cements) : the seven products in the family of sulfate resisting common cement , covered by the standard specification are given in Table (2) will be grouped into three main cement types as follows :

**A-Sulfate resisting Portland cement :**

- CEMI – SR0 Sulfate resisting Portland cement (C3A content of the clinker =0%)
- CEMI – SR3 Sulfate resisting Portland cement (C3A content of the clinker  $\leq 3\%$ )
- CEMI – SR5 Sulfate resisting Portland cement (C3A content of the clinker  $\leq 5\%$ )

**B-Sulfate resisting blast furnace cement :**

- CEMIII/B-SR Sulfate resisting Portland cement (No requirement on C3A)
- CEMIII/C-SR Sulfate resisting Portland cement (No requirement on C3A)

**C-Sulfate resisting pozzolan cement :**

- CEMIV/A-SR Sulfate resisting pozzolan cement (C3A content of the clinker  $\leq 9\%$ )
- CEMIV/B-SR Sulfate resisting pozzolan cement (C3A content of the clinker  $\leq 9\%$ )

\*Note : The Composition of each of the seven products in the family of the sulfate resisting Common cement shall be in accordance with Table (2).

2.4.2.3 Composition and notation of low early strength common cements: Low early strength common cements are CEM III blast furnace cements as specified in Table 1 of the standard specification. They differ from other common cements regarding the early strength requirements. Low early strength CEM III cements conforming to the requirements in Table 2 can also be declared as sulfate resisting common cements.

2.4.2.4 Independent test shall only be conducted if the result of the applicable in-plant test shows satisfactory results. DCLD-PCAS may opt to accept available valid test reports conducted by an approved DCLD-PCAS independent laboratory within one year from the date of the initial assessment , in line with the internal quality

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control testing plan of the factory. In such case, the testing of that particular parameter(s) shall be waived accordingly.

2.4.2.5 If the result of the test conducted by the DCLD-PCAS approved independent testing laboratory shows non-conformance to the specified requirements, the provision for rejection specified in the standard shall apply. The retest shall be carried out on the reference sample kept by the manufacturer or on new samples collected by the authorized auditor on which full testing shall be carried out, if necessary.

2.4.2.6 If the re-test passed, the initial product assessment is considered conforming to product specification. If not, the manufacturer will be advised to take corrective action.

2.4.2.7 Only after reassessment and subsequent product compliance shall the client be allowed to use DCL Conformity Mark on his product(s) that have been tested and found complying with the certification requirements.

#### 2.4.2.8 Conformity Criteria

2.4.2.8.1 General Requirements: conformity of the cement products to the standard specification shall be continually evaluated on the basis of testing of spot samples. The properties, test methods and the minimum testing frequencies for the auto control testing by the manufacturer shall be as specified in Table 6 in the standard specification.

2.4.2.8.2 The compliance of the common comments with the requirements of this standard and the stated values (including classes) shall be demonstrated by :

- 1) Initial type testing
- 2) Factory production control by the manufacturer, including product assessment.

2.4.2.8.3 The mechanical requirements of all cement products shall conform to clause 7.1 and as per the related conformity criteria as per clause 9.2 of the standard specification.

2.4.2.8.4 The physical requirements of all cement products shall conform to clause 7.2 and as per the related conformity criteria as per clause 9.2 of the standard specification.

2.4.2.8.5 The chemical properties of all cement products shall conform to clause 7.3 and Table 4: In addition to the related conformity criteria as per clause 9.2 of the standard specification.

2.4.2.8.6 For the durability requirements shall conform to clause 7.4 of the standard specification.

2.4.2.8.7 The factory shall check conformity criteria for cement composition as per clause 9.3 of the standard

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specification. The conformity criteria for properties of the cement constituents shall be as per clause 9.4 of the standard specification.

- 2.4.2.8.8 For single results conformity criteria shall satisfies the values specified in Table 10 of the standard specification
- 2.4.2.8.9 Factory production control (Inspection testing plan ITT) for product testing and evaluation (frequency and volume) shall be made by applicant and submitted for DCL review and approval as per be Table 6 of the standard specification.
- 2.4.2.8.10 The composition of cement shall be checked by the manufacturer at least once per month using a rule, a spot sample taken at the point of release of the cement and shall meet the requirements specified in Table 1 and 2 of the standard specification.
- 2.4.2.8.11 CEM cements shall be designated according to clause 8 of the standard specification.
- 2.4.2.8.12 CEM cements marking and labeling shall be according to clause ZA.3 of the standard specification.

### 3. GRANTING OF THE DCL CERTIFICATION

#### 3.1 CONDITIONS FOR GRANTING THE DCL PRODUCT CONFORMITY CERTIFICATE

- 3.1.1 When the results of the factory audit (clause 2.3) and product evaluation (clause 2.4) show conformity to the requirements specified in the general rule and specific rule, the Certificate of Conformity and authorization to use the DCL Conformity Mark shall be issued to the client for the type(s)/model(s)/brand(s) of the product covered by the assessment.
- 3.1.2 The client shall agree with DCLD-PCAS for the preparation and implementation of a product quality assurance plan / mechanism to ensure continuing compliance with the Standard Specifications and the requirements of this certification scheme. It shall consist of (1) an internal product quality assurance plan, and (2) an independent testing plan.

#### 3.1.3 Internal product quality assurance plan

The client shall have an internal product quality assurance plan giving details of the tests to be carried out at the factory. This will include as a minimum, the following details: (1) location of sampling; (2) frequency of sampling; (3) quantities of samples; (4) tests to be carried out; (5) results acceptance criteria; and (6) responsible person to carry out the activity

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The plan shall take into consideration the production process, the volume of production, the criticality of the test to be specified, and other relevant factors

### 3.1.4 Independent testing plan

The client shall agree to an independent testing plan to be carried out on samples which are collected in accordance with DM-DCLD-RD-DP21-2096 (IC) – Surveillance of Certified Clients under the Factory Assessment Scheme, and implemented by DCLD-PCAS.

### 3.2 ISSUANCE OF DCL CONFORMITY MARK

If the conditions mentioned in clause 3.1 above have been complied, the client shall be issued a DCL Certificate of Conformity and a Scope of Certification that covers the type(s) and size of the products that are certified and will be authorized to use the DCL Conformity Mark on the certified products.

### 3.3 RESPONSIBILITIES OF THE CERTIFIED CLIENT

3.3.1 The client shall ensure that his product, for which the Certificate of Conformity has been issued, conforms at all times to the requirements of the General Rule and Specific Rules and shall maintain to the satisfaction of DCL, a system of quality control including inspection and testing.

3.3.2 The client shall give the duly authorized auditor(s), access during working hours, without prior notification, to the premises of the factory where certified product is manufactured, for the purpose of evaluating the materials, production processes, finished products, quality assurance facilities, records and others in accordance with the requirements of the scheme.

3.3.3 The client shall inform DCLD-PCAS in writing of any change of management, transfer of plant site, modification in the product, manufacturing process or factory's quality management system.

3.3.4 Upon transfer of plant site, the certificate of conformity shall be deemed valid only after factory and product audit at the new site has been satisfactorily completed.

3.3.5 Any infraction stated in the terms and conditions of the certification scheme and the use of DCL Conformity Mark shall constitute sufficient grounds for suspension, withdrawal and termination of certification in accordance with DM-DCLD-IMS-RD-07.

3.3.6 Any dispute that may arise in connection with the Terms and Conditions of the certification scheme shall be settled in accordance with DM-DCLD-IMS-RD-08 Appeals, Disputes, and Complaints Procedure.

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3.3.7 The client shall pay all applicable fees related to the certification process.

#### 3.4 USE OF THE DCL CONFORMITY MARK

3.4.1 The design and use of the DCL Conformity Mark shall be in accordance with the Terms and Conditions for the Use of the DCL Conformity Mark, DM-DCLD-IMS-RD-13

3.4.2 The client shall submit a product-marking proposal for approval by DCLD-PCAS. The proposal shall include drawings and/or diagrams showing the location and size of the marking for each size of the product/product container, where applicable

3.4.3 The Certificate of Conformity and the authorization to use the DCL Conformity Mark is non-transferable.

#### 4. SURVEILLANCE

4.1 DCLD-PCAS shall carry out periodic surveillance to ensure consistent compliance with the requirements of this certification scheme as per DM-DCLD-RD-DP21-2096 (IC) – Surveillance of Certified Clients under the Factory Assessment Scheme.

4.2 Testing as part of the surveillance shall be in accordance with the Independent Testing Plan (clause 3.1.4) that has been agreed between DCLD-PCAS - and the client..

#### 5. FEE SCHEDULE

5.1 The client shall pay the applicable fees and charges related to the granting of the certificate of conformity and the authorization to use the DCL Conformity Mark based on DCL Official Fee Structure , DM-DCLD-RD-DP21-2074(IC).

5.2 The fees for this certification scheme shall include but not limited to the following;

- 5.2.1 Application Fee
- 5.2.2 Initial Assessment Fee
- 5.2.3 Certification Fee
- 5.2.4 Marking Fee
- 5.2.5 Surveillance Fee
- 5.2.6 Annual Renewal Fee
- 5.2.7 Testing Fee
- 5.2.8 Outsource Activity Fee , where applicable

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