

 GOVERNMENT OF DUBAI	Organization/Unit:	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document Title:	Certification of Lightweight Aggregates for Structural Concrete as per ASTM C330 / C330M - 17a	عنوان الوثيقة:	
	Doc Ref.	DM-DCLD-RD-DP21-2155 (IC)	رقم الوثيقة :	

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Issue Date	Rev. No.	Summary Of Amendments
07-02-2008	0	First draft for comments
10-02-2008	0	Second draft for approval
15-04-2008	1	Issue for use
28-06-2010	2	Document reference number and format is changed according to the new IMS, statement for the independent testing plan was changed, and the statement for surveillance was shortened by referring the appropriate procedure, RD-DP21-2096 (IC) and updated as per current version.
28-05-2019	3	Updated as per new DM template and logo
06-09-2020	4	Add the options for initial audit by the approved CAB and remotely by CQPS. Adding definition for authorized auditor. Update for the new standard edition, new numbering system and followed terminologies. Major restructure of the specific rule format and clauses. Add provision for accepting valid test reports
26-09-2021	5	Removal of the documents in clause 2.1.2, in addition to further amendment in the provision for accepting valid test reports (clause 2.4.1.4), in line with DM 30% reduction of requirements (both service and specialized). Modifications in the auditing part for the factories already certified against ISO 9001 to opt for auditing only the areas of production and monitoring stages of product realization, quality control and final product testing and evaluation.
07-10-2022	6	Changing section name as per the new organizational structure, and replace HOU by CQPSM (Section's Manager), also addition of surveillance in the clause 2.4.1.4
27-03-2023	7	Full re-structuring and transfer of common provisions to the general rule. Clauses are re-numbered and document title has been revised accordingly. Use of New DM Logo

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1. INTRODUCTION

- 1.1 This document prescribes the specific rule for certification of the product(s) as identified herein, in accordance with the requirements of DM Third Party Product Certification Scheme Through Factory Assessment, taking into consideration the applicable normative references and standard specification, in addition to the requirements for conformity evaluation, as stated below.
- 1.2 The applicant/client shall comply with this specific rule, and to all provisions under the “**General Rule for DM Third Party Product Certification Scheme Through Factory Assessment**”**DM-DCLD-RD-DP21-2001 (IC)**.
- 1.3 This specific rule **is an integral part of the general rule** and both shall always be read together.

2. SCOPE

- 2.1 This specific rule specifies the requirements for lightweight aggregates for structural concrete.
- 2.2 The type of aggregates covered by this specific rule are those described under section 3 of the standard specification.
- 2.3 This specific rule does not -by itself- permit the use of the below product in the construction sites. However, it does provide the necessary general conformity assessment criteria, which are required for the evaluation and issuance of the certification and the authorization of the use of the DCLD Conformity Mark. Other relevant requirements issued by the regulatory bodies if any; shall always be fulfilled.

3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

- 3.1 Product name: Lightweight Aggregates for Structural Concrete
- 3.2 Applicable standard/Normative reference: ASTM C330 / C330M - 17a
Standard Specification for Lightweight Aggregates for Structural Concrete
- 3.3 Additional reference:
ISO 9001 Quality Management System – Requirements
ISO 19011 Guidelines for Auditing Management Systems

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4 DEFINITION OF TERMS

- 4.1 In addition to the definitions given in ASTM C330/C330M and the General Rule of the scheme [DM-DCLD-RD-DP21-2001 (IC)], the following shall apply:-
- 4.1.1 Standard Specification – ASTM C330 / C330M - 17a Standard Specification for Lightweight Aggregates for Structural Concrete.

5 REQUIREMENTS FOR INITIAL CERTIFICATION

- 5.1 The process of application, initial assessment and product sampling shall be in line with the related provisions in the general rule and the standard specifications.
- 5.2 The factory shall have a laboratory with the following testing equipment as a minimum:
- Weighing Scale
 - Compressive strength testing equipment
 - Tensile strength testing equipment
 - Sieves
 - Gauge length
- 5.3 Product Evaluation and testing
- 5.3.1 Sampling of lightweight aggregates shall be done in accordance with section 6 of the standard specification.
- 5.3.2 The tests to be carried out shall be in accordance with the Test Method mentioned in Standard Specification as follows, when applicable;

5.3.2.1 CHEMICAL COMPOSITION

- **Organic Impurities** - when determined in accordance with specified test method shall conform to the requirements specified in section 4.1.1 of the standard specification.
- **Staining** - when determined in accordance with specified test method shall conform to the requirements specified in section 4.1.2 of the standard specification.
- **Loss on Ignition** - when determined in accordance with specified test method shall conform to the requirements specified in section 4.1.3 of the standard specification.

5.3.2.2 PHYSICAL PROPERTIES

- Lightweight aggregate shall be tested for:

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- **Clay Lumps and Friable Particles** - when determined shall conform to the requirements specified in section 5.1.1 of the standard specification.
- **Grading** of aggregates shall conform to the requirements of Table 1 of the standard specification.
- **Loose Bulk Density** - when determined in accordance with specified test method shall conform to the requirements specified in Table 2 of the standard specification, using a 14 L (1/2 ft³) measure.

b. Concrete specimens containing lightweight aggregate shall be tested for:

- **Compressive Strength** - when determined in accordance with specified test method shall conform to the requirements of section 5.2.1 of the standard specification.
- **Density** - when determined in accordance with specified test method shall conform to the requirements specified in section 5.2.1 of the standard specification.
- **Splitting Tensile Strength** - when determined in accordance with specified test method and in section 8.2 of the standard specification shall conform to the requirements specified in section 5.2.1 of the standard specification.
- **Natural Aggregates** - when used to replace part, or all, of the lightweight aggregates shall comply with the applicable requirements of DM Advisory Note No. 001. The test report shall record the proportion of all ingredients together with the characteristics of the natural aggregates to ensure compliance with these minimum requirements.
- **Drying Shrinkage** - when determined in accordance with section 8.4 of the standard specification shall conform to the requirements specified in section 5.2.3 of the standard specification.
- **Popouts** - when determined shall be prepared in accordance with section 8.4 and section 8.5 of the standard specification and tested in accordance with specified test method and shall show no surface popouts.

5.3.3 Number of tests

- a. Number of test on *aggregates* shall be in accordance with section 7.1 of the standard specification.
- b. Number of tests on *concrete* shall be in accordance with section 7.2 of the standard specification.

5.3.4 The results of testing must meet the requirements as per the standard specification.

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6 GRANTING OF THE DCLD CERTIFICATION

- 6.1 The DCLD product conformity certificate and the authorization to use the DCLD conformity mark shall be granted upon conformance with all related provisions in the general rule.
- 6.2 Fees shall be as per DM-DCLD-RD-DP21-2097 (IC) and other relevant provisions in the general rule.
- 6.3 DCLD-CQPS shall carry out surveillance of certified clients based on the approved periodic plans and related provisions in the general rule.
- 6.4 Appeals, disputes and complaints shall be in line with the relevant provisions in the General Rule.

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