Issue Date	Rev. No.	Summary Of Amendments
22/01/2005	0	First draft for comments
06/02/2005	0	Final draft for approval
19/02/2005	1	Issue for use
26/06/2006	2	Reviewed with the requirements of the current version of the standard (2006) and found to be suitable.
10/11/2008	3	Reviewed with the requirements of the current version of the standard (2008) and found to be still suitable.
25/06/2009	4	Reviewed with the requirements of the current version of the standard (2009) and found to be still suitable.
09/08/2009	5	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).
10/06/2010	6	Reviewed with the requirements of the current version of the standard (2010) and found to be still suitable.
16/08/2011	7	Reviewed with the requirements of the current version of the standard (2011) and found to be still suitable. Provision for minimum required density for block insert thermal insulation in 7.2.1.1 Upgrading RD-DP21-2098 to IMS-RD-13 in clause 10.1
13/12/2011	8	Reviewed with the requirements of the current version of the standard (2011) and found to be still suitable. Amended as per new documentation structure.
19/03/2012	9	Typographical corrections and updating referenced document
11/07/2013	10	Reviewed with the requirements of the current version of the standard (ASTM C578-12b) and found to be still suitable
06/04/2014	11	Reviewed with the requirements of the current version of the standard (ASTM C578-14) and found to be still suitable
19/06/2016	12	Reviewed with the requirements of the current version of the standard (ASTM C578-15) and found to be still suitable. Provision for carrying water absorption test has been amended
15/03/2017	13	Re-calculated the Thermal Transmittance values to 35°C and incorporated the Tables within the Specific Rules as Annex A.
01/07/2017	14	Amendment to align the fire test requirement with the UAE Fire and Life Safety Code 2016. Reviewed with the requirements of the current version of the standard (ASTM C578-16) and found to be still suitable. Update to comply with the font type (Dubai).
16/07/2017	15	Added Annex A - Tables from the UAE Fire and Life Safety Code of Practice 2016
14/11/2018	16	Amendment to align the fire test requirement with the UAE Fire and Life Safety Code 2018. Reviewed with the requirements of the current version of the standard (ASTM C578-18) and found to be still suitable.
21/03/2019	17	Revision of scope to reflect that the DCL certification of rigid cellular polystyrene thermal insulation material does not cover compliance to the requirements of UAE Fire & Life Safety Code of Practice 2018.
21/07/2020	18	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

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.

1.1.2 The applicant shall comply with these specific rules, and to 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

1.1.2 This specific rule specifies requirements for the types, physical properties and dimensions of rigid cellular polystyrene thermal insulation made by molding (EPS) or extrusion (XPS) as per the products mentioned in the standard

1.2.2 This specific rule does not cover compliance to the requirements of UAE Fire & Life Safety Code of Practice 2018.

1.2.3 For certification of Rigid Cellular Polystyrene compliance to the requirements of UAE Fire & Life Safety Code of Practice 2018, the Specific Rules DM-DCLD-RD-DP21-2210 (IC) shall apply.

1.3 PRODUCT IDENTIFICATION AND APPLICABLE STANDARD/NORMATIVE REFERENCE

1.3.1 Product name: Rigid Cellular Polystyrene Thermal Insulation

1.3.2 Applicable standard/Normative reference: ASTM C 578-18 Standard Specification for Rigid Cellular Polystyrene Thermal Insulation

1.3.3 Additional reference:

ISO 9001 Quality Management System – Requirements
ISO 19011 Guidelines for Auditing Management Systems

1.4 DEFINITION OF TERMS

The definitions given in ASTM C 168, ASTM C 578, ASTM C 390, DM-DCLD-RD-DP21-2001 (IC) and in addition, the following shall apply:

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 – ASTM C 578-18 Standard Specification for Rigid Cellular Polystyrene Thermal Insulation

1.4.4 Product Quality Assurance Plan – a document being agreed upon both by the Client and 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 rigid cellular polystyrene thermal insulation

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

a. Industrial /Trade License
b. Complete Product Description and Specifications
c. Brief Description of Manufacturing Process
d. Copy of the Quality Manual (Controlled Copy), (If available)
e. Vicinity Map and Factory Layout
f. Valid Certification to ISO 9001 (if available)
g. List of key personnel and their designation
h. Total number of effective personnel involved in manufacture of the product (technical, managerial and 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 rigid cellular polystyrene thermal insulation 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 laboratory shall have the following testing equipment:

a. Weighing Scale

b. Dimensional measuring instruments

c. Trueness & Squareness measuring equipment

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 and Testing

2.4.1.1 Sampling for initial testing 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 ASTM C390.

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 client 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.

2.4.2 Product Evaluation and testing

2.4.2.1 The tests to be carried out shall be in accordance with the Test Method mentioned in section 11 of the Standard Specification as follows, when applicable;

2.4.2.1.1 Dimension and Density as per ASTM C 303 or ASTM D 1622

Note: For Block Insert Thermal Insulation, minimum density required is 25 kg/m³

2.4.2.1.2 Trueness and Squareness as per ASTM C 550 *(if applicable on the product)*

2.4.2.1.3 Workmanship, finish and appearance as per ASTM C 578

2.4.2.1.4 Thermal Resistance as per ASTM C 177, C 518, C 1114, C 1363 or ASTM C 1045 or ASTM C 1058

2.4.2.1.5 Compressive Resistance as per ASTM C 165 Procedure A or ASTM D 1621

2.4.2.1.6 Flexural Strength as per ASTM C 203, Method I, Procedure A

2.4.2.1.7 Water Vapor Permeance as per ASTM E 96

2.4.2.1.8 Water Absorption as per ASTM C 272 (Note: Test shall be carried in accordance with clause 11.8 of ASTM C578 and specimen thickness shall be the original product thickness)

2.4.2.1.9 Dimensional stability as per ASTM D 2126

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

2.4.2.3 Independent test shall only be conducted if the result of the 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 control testing plan of the factory. In such case, the testing of that particular parameter(s) shall be waived accordingly.

2.4.2.4 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.

2.4.2.5 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.

2.4.2.6 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.

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

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 CERTIFICATE OF CONFORMITY

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 a 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.

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 or their authorized auditor(s) 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-DP21-2097 (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

ANNEX A

STANDARD SPECIFICATION LIMITS AND PRODUCTS TYPES FOR EXPANDED AND EXTRUDED POLYSTYRENE ACCORDING TO ASTM C 578-18

TABLE 1. (EXPANDED)

PHYSICAL PROPERTY REQUIREMENTS OF RIGID CELLULAR POLYSTYRENE THERMAL INSULATION

SN	PROPERTIES	TYPE XI	TYPE I	TYPE VIII	TYPE II	TYPE IX	TYPE XIV	TYPE XV
1	**COMPRESSIVE RESISTANCE** @ yield or 10% deformation, which occurs first, min kPa	***35***	***69***	***90***	***104***	***173***	***276***	***414***
2	**THERMAL RESISTANCE** of 25.4 mm thickness, @ mean temp. of @ 35ºC and 60% RH min, K-m²/W	***0.53***	***0.60***	***0.64***	***0.67***	***0.71***	***0.71***	***0.73***
3	**THERMAL CONDUCTIVITY,** max, W/m·K @ 35ºC and 60% RH	***0.0482***	***0.0419***	***0.0394***	***0.0377***	***0.0356***	***0.0356***	***0.0347***
4	**FLEXURAL STRENGTH,** min, kPa	***70***	***173***	***208***	***240***	***345***	***414***	***517***
5	**WATER VAPOR PERMEANCE** of 25.4 mm thickness, max, perm	***5.0***	***5.0***	***3.5***	***3.5***	***2.5***	***2.5***	***2.5***
6	**WATER ABSORPTION** by total immersion, max volume %	***4.0***	***4.0***	***3.0***	***3.0***	***2.0***	***2.0***	***2.0***
7	**DIMENSIONAL STABILITY** (change in dimension), max, %	***2.0***	***2.0***	***2.0***	***2.0***	***2.0***	***2.0***	***2.0***
8	**OXYGEN INDEX**, min, volume %	***24***	***24***	***24***	***24***	***24***	***24***	***24***
9	**DENSITY**, min, kg/m³	***12***	***15***	***18***	***22***	***29***	***38***	***48***

NOTE: THE ABOVE SPECIFICATION VALUES ARE EXTRACTED FROM TABLE 1 OF ASTM C578-18

TABLE 1. (EXTRUDED)

PHYSICAL PROPERTY REQUIREMENTS OF RIGID CELLULAR POLYSTYRENE THERMAL INSULATION

SN	PROPERTIES	TYPE XII	TYPE X	TYPE XIII	TYPE IV	TYPE VI	TYPE VII	TYPE V
1	**COMPRESSIVE RESISTANCE** @ yield or 10% deformation, which occurs first, min kPa	*104*	*104*	*138*	*173*	*276*	*414*	*690*
2	**THERMAL RESISTANCE** of 25.4 mm thickness, @ mean temp. 35ºC and 60% RH min, K-m²/W	*0.77*	*0.84*	*0.65*	*0.84*	*0.84*	*0.84*	*0.84*
3	**THERMAL CONDUCTIVITY,** max, W/m·K @ 35ºC and 60% RH	*0.0330*	*0.0303*	*0.0392*	*0.0303*	*0.0303*	*0.0303*	*0.0303*
4	**FLEXURAL STRENGTH**, min, kPa	*276*	*276*	*310*	*345*	*414*	*517*	*690*
5	**WATER VAPOR PERMEANCE** of 25.4 mm thickness, max, perm	*1.5*	*1.5*	*1.5*	*1.5*	*1.1*	*1.1*	*1.1*
6	**WATER ABSORPTION** by total immersion, max volume %	*0.30*	*0.30*	*1.0*	*0.30*	*0.30*	*0.30*	*0.30*
7	**DIMENSIONAL STABILITY** (change in dimension), max, %	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
8	**OXYGEN INDEX**, min, volume %	*24*	*24*	*24*	*24*	*24*	*24*	*24*
9	**DENSITY**, min, kg/m³	*19*	*21*	*26*	*23*	*29*	*35*	*48*

NOTE: THE ABOVE SPECIFICATION VALUES ARE EXTRACTED FROM TABLE 1 OF ASTM C578-18