

Organization/Unit:	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:
Document Title:	Specific Rules for Certification of In-situ Sprayapplied Thermal Insulation as per BS EN 14315-1	عنوان الوثيقة:
Doc Ref.	DM-DCLD-RD-DP21-2187 (IC)	رقم الوثيقة:



Issue Date	Rev. No.	Summary Of Amendments
16/08/2015	0	First draft for comments
27/08/2015	0	Final draft
05/09/2015	1	Issue for use
18/07/2017	2	Modified the Scope in clause [1.2]. Deleted clauses related to fire performance
		requirements to align with UAE Fire & Life Safety Code of Practice 2016. Added Annex A
02/04/2018	3	Modified the conduct of factory audit to project site audit to exclude non-applicable
		clauses of the ISO 9001
23/04/2018	4	Addition of provision to conduct testing the fire safety of the spray applied polyurethane
		thermal insulation foam was when used for non-combo system or when the core
		insulation foam is exposed.
02/09/2018	5	Amended clauses related to factory surveillance
08/11/2018	6	Updating the reference document for fire safety requirement, UAE Fire and Life Safety
		Code of Practice to 2018 version
24/03/2019	7	Revision of Scope to reflect that the DCL Certification of above subject product does not
		cover compliance to the requirements of UAE Fire & Life Safety Code of Practice 2018.
06/09/2020	8	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. Correction of numbering. Add provision for accepting valid test reports

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#### 1. **GENERAL**

#### INTRODUCTION 1.1

- 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**
- 1.2.1 This specific rule applies only to In-situ formed sprayed rigid polyurethane (PUR), Polyisocyanurate (PIR) thermal insulation materials used for roofing systems.
- 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 In-situ formed sprayed rigid polyurethane (PUR), Polyisocyanurate (PIR) Thermal Insulation compliance to the requirements of UAE Fire & Life Safe 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: In situ formed sprayed polyurethane (PUR) and

Polyisocyanurate (PIR) foam products

1.3.2 Applicable standard/Normative reference: EN 14315-1:2013 Thermal insulating products for buildings – In

situ formed sprayed polyurethane (PUR) and Polyisocyanurate (PIR)

foam products - Part 1: Specification for the rigid foam spray

system before installation

1.3.3 Additional reference:

ISO 9001 - Quality Management System - Requirements ISO 19011 - Guidelines for Auditing Management System.

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#### 1.4 DEFINITION OF TERMS

In addition to the definitions given in EN 14315-1:2013 and DM-DCLD-RD-DP21-2001 (IC), the following shall apply:

- 1.4.1 Independent Testing Laboratory Dubai Central Laboratory (DCL) or any testing laboratory recognized by the (DCLD-PCAS).
- 1.4.2 Independent Test test performed or conducted by the recognized Independent Testing Laboratory or any testing laboratory recognized by (DCLD-PCAS).
- 1.4.3 Standard Specification EN 14315-1:2013 Thermal insulating products for buildings In situ formed sprayed polyurethane (PUR) and Polyisocyanurate (PIR) foam products Part 1: Specification for the rigid foam spray system before installation
- 1.4.4 QMS Quality Management System aligned with the requirements of ISO 9001 Standard
- 1.4.5 Factory Production Control System (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.
- 1.4.6 Applicator refers to a company or entity who perform the In-situ Spray application of PUR.
- 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 Applicator of spray-applied rigid cellular polyurethane thermal insulation shall apply to Dubai Central Laboratory Department through Conformity Assessment Unit, Products Conformity Assessment Section (DCLD-PCAS), for the Certification and authorization to use the DCL Conformity Mark.

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- 2.1.2 Application form DM-DCLD-F-IC-2001 shall be filled-up by the applicant-company and 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- In English) (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 the 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

Applicators of spray-applied rigid cellular polyurethane thermal insulation may have a Quality Management System that is aligned to the requirements of ISO 9001 standard. NOTE: Certification to ISO 9001 is not a mandatory requirement. In lieu of the Quality Manual, the company shall have a Project Quality Control Management system to include PUR Spray Application Inspection and Test Plan.

## 2.2.2 Laboratory or Testing Area

Applicators of spray-applied rigid cellular polyurethane thermal insulation shall have a quality assurance laboratory or adequate testing area to carry out spray application quality control testing to ensure that the thermal insulation comply with the requirements of the standard specification and other regulatory requirements.

The laboratory or testing area can be part of the project site facilities, or, can be through a documented agreement with an accredited external laboratory.

As a minimum requirement, the Applicator shall have the following calibrated testing equipment:

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- a. Calipers and other linear measuring test equipments (to measure thickness and dimensions)
- b. Weighing Scale or other equivalent apparatus (to measure density of PUR)

Other Testing equipment needed by the Applicator to ensure good quality PUR shall be provided and as recommended by the chemical suppliers, are as follows:

- a. Hygrometer to measure moisture and humidity
- b. Thermometer or pyrometer (to measure the ambient temperature and substrate temperature)
- c. Anemometer (to measure wind velocity)

#### 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 Applicators Project Quality Management System to verify its Spray-Applied PUR Quality Control Plan as per approved Checklist. Due to the nature of the Spray application activities, some areas required in the product realization as per ISO 9001, may not be audited and the company shall declare these as exclusion in the scope of the QMS or Project QMS. 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, the 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 Verification audit procedure shall be conducted by designated audit team based on ISO 19011 – Guidelines for Quality and Environment Management System Auditing.

## 2.4 PRODUCTION AND PRODUCT EVALUATION

## 2.4.1 Production/Spray Application

2.4.1.1 Production or Spray Application shall be conducted as per machine and chemical supplier's suggestions. These information and guidance maybe derived from Machine Manual or Chemical MSDS, TDS, etc. These reference document may form part of the Externally-sourced controlled document and should be available at project site. The company may provide Spray Application Procedure that describes the processes and this must be part of the Controlled Documents.

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#### 2.4.1.2 Spray Application Control Parameters

To ensure the quality and consistency of the spray-applied PUR, the recommendations of the machine and chemical suppliers are to be considered, such as the temperature of chemicals (MDI and Polyol) before spraying, the pressure of both the chemicals considering the mix ratio (ex: 1:1), machine settings and weather conditions. These temperature and pressure settings shall be recorded from the machine display panels or gauges and to be recorded in appropriate form to serve as production control records. Accuracy of these display panels and gauges should be verified or calibrated by recognized Calibration company.

## 2.4.1.3 Competency of Spray Applicators

The company should utilize experienced and qualified personnel to conduct the spray applications. The Technical Representative should witnessed the spray application where to draw the samples noting the details of the raw materials (Ex. grade and expiry dates).

A Supervising Technical person should be utilized by the company to supervise, monitor and record the spray-application control parameters and the quality of the sprayed PUR as per internal quality control plan.

Proof of Records of trainings and qualifications of these personnel should be available at the audit site.

# 2.4.2 Sampling & Testing

- 2.4.2.1 Sampling and preparation of test specimen may be carried out in accordance with the section 4 and section 5 of standard specification, BS EN 14315. However, for DCLD-PCAS approved lab testing purposes, two sets of ten (10) samples of size 1000x500x50 mm specimens will be cut from the sprayed PUR witnessed by DCL Technical Representative.
- 2.4.2.2 One set of samples shall be subjected to testing; the first set, shall be identified and to be marked with a Sender Number by the duly authorized auditor and to be sent to DCLD-PCAS approved lab. The second set will be kept by the manufacturer as reference for future use or re-testing.
- 2.4.2.3 Test sample(s) for independent test shall be packed/sealed and signed in the presence of authorized auditor and shall be submitted to DCLD-PCAS approved lab by the authorized auditor.

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## 2.4.3 Product Evaluation and testing

- 2.4.3.1 The following tests shall be carried out in accordance with the Test Method mentioned in Section 4 & 5 of the Standard Specification, or, as mentioned below when applicable;
  - 2.4.3.1.1 Thickness Measurement as per EN 823
  - 2.4.3.1.2 Thermal Conductivity and Thermal Resistance as per EN 12667
  - Note1 Since EN 12667, test method for thermal resistance and thermal conductivity, is equivalent to the ASTM C 518, ASTM C 177, ISO 8301 and ISO 8302, the DM Certification Body may opt to use any of these test methods.
  - Note2 Temperature condition to be used in carrying out this test will be as per Dubai requirement, that is @ 35°C and 60% Relative Humidity and the reference mean temperature is 35 °C
  - 2.4.3.1.3 Compressive Strength or Compressive Stress as per EN 826
  - 2.4.3.1.4 Water Vapor Transmission as per EN 12086
  - Note3 Since EN 12086 test method for water vapor transmission, is equivalent to that of the ASTM E 96, the DM Certification Body may opt to use this test method.
  - 2.4.3.1.5 Short Term Water Absorption by Partial Immersion as per EN 1609
  - 2.4.3.1.6 Dimensional Stability under specified temperature and humidity condition (EN 1604)
  - 2.4.3.1.7 Density as per EN 1602
- 2.4.3.2 The tests to be carried out shall be in accordance with the Test Methods mentioned in section 4 of the Standard Specification, whenever applicable;
- 2.4.3.3 Independent test shall only be conducted if the result of the in-plant test shows satisfactory result.

  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
- 2.4.3.4 The results of independent tests shall comply with the requirements of the standard specification and the company Declarations of their product specifications.

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- 2.4.3.5 In-plant or project site tests such as density and thickness should show satisfactory results.
- 2.4.3.6 If the result of the test conducted by the 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 DCLD-PCAS, on which full testing shall be carried out, if necessary.
- 2.4.3.7 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.
- 2.4.3.8 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 Rules and this Specific Rules, the certification shall be issued to the manufacturer for the scope and type(s) of the product covered by the assessment.
  - 3.1.2 The client shall agree with the DCLD-PCAS for the preparation and implementation of a product quality assurance plan to ensure continuing compliance with the Standard Specifications and the requirements of this certification scheme. The plan shall consist of (1) an internal product quality assurance, and (2) an independent testing
  - 3.1.3 Factory Production Control System (Internal Product Quality Assurance Plan)

The client shall prepare and submit to DCLD-PCAS for approval a factory production control system (Internal product quality assurance plan) which shall conform to this specific rule.

The Plan shall take into consideration the control of raw materials, spray application control parameters, the settings of machine, weather conditions, testing and acceptance criteria, location/stage, frequency of monitoring, test methods, records, responsible persons, etc.

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# 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 the DCLD-PCAS.

# 3.2 ISSUANCE OF DCL PRODUCT CONFORMITY CERTIFICATE

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 sizes 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 DCLD-PCAS, a system of quality control including inspection and testing.
- 3.3.2 The client shall give the duly authorized auditor(s) by DCLD-PCAS, access during working hours, without prior notification, to the premises of the company or projects where certified product is spray applied, 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 the DCLD-PCAS in writing of any change of management, transfer of company address, modification in the product, manufacturing process or factory's quality management system.
- 3.3.4 Upon transfer of company 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 the certification in accordance with DM-DCLD-IMS-RD-07.

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- 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 marking proposal for approval by the DCLD-PCAS. Since the markings cannot be possible for the spray applied PUR, The proposal shall include sample of documents (i.e. company receipt, delivery notes, stationery, etc. of the marking or logo for DCL approval.
- 3.4.3 The Certificate of Conformity and the authorization to use the DCLD Conformity Mark is non-transferable.

#### 4. SURVEILLANCE

- 4.1 DCLD-PCAS or their authorized auditor shall carry out periodic surveillance audit to ensure consistent compliance with the requirements of this certification scheme as per of DM-DCLD-RD-DP21-2096 (IC) Surveillance of Certified Clients under the Factory Assessment Scheme.
- 4.2 Due to the nature of the business and spray application processes of this product, DCLD-PCAS or their authorized auditor shall conduct Technical Surveillance Audit that may exclude other requirements of ISO 9001 (Ex. Management Reviews, IQA, Sales, Purchase, Sales, etc.) which may not applicable in the usual business operation.
- 4.3 In lieu of these ISO 9001 exclusions, the Technical Surveillance Audit shall focus only on the applicable audit areas such as, Inspection and Test Plan (ITP), Spray Application processes, Maintenance (Spray Machine) and Quality Control and IMTE Calibrations and other quality related activities such as customer satisfaction and handling of customer complaints.
- 4.4 The Independent Testing Plan shall refer to the approved ITP that has been agreed between DCLD-PCAS and the company during the initial factory audit.

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- 4.5 DCLD-PCAS or Authorized auditor shall conduct audit and inspection at any company project site only as part of technical surveillance (or market surveillance) during the validity of the Certificate as per DCL approved frequencies/plan.
- 4.6 DCLD-PCAS or Authorized auditor Auditors shall use the prescribed Audit form, Spray Applied PUR Inspection Checklists (DM-DLCD-F-IC 2060) which shall form part of the Audit Summary Report.
- 4.7 Sampling and independent testing procedures shall be followed as per specific rules and other related laws and regulations of DCLD-PCAS and DM.

#### 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 the 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

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