

 GOVERNMENT OF DUBAI	Organization/Unit:	إدارة مختبر دبي المركزي Dubai Central Laboratory Department	الوحدة التنظيمية:	 بلدية دبي Dubai Municipality
	Document Title:	Certification of Spray-applied Thermal Insulation as per ASTM C1029:2020	عنوان الوثيقة:	
	Doc Ref.	DM-DCLD-RD-DP21-2112 (IC)	رقم الوثيقة :	

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Issue Date	Rev. No.	Summary Of Amendments
23/05/2005	0	First draft for comments
15/06/2005	0	Final draft for approval
30/06/2005	1	Issue for use
09/08/2009	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).
30/11/2009	3	Reviewed with the requirements of the current version of the standard (2009) and found to be still suitable.
28/07/2010	4	Reviewed with the requirements of the current version of the standard (2010) and found to be still suitable.
24/08/2010	5	Revised to incorporate the following: To include the requirements for flame spread index (FSI) and smoke-developed index (SDI) in the surface burning characteristic; inclusion of alternative test method for water absorption testing; and amended as per new documentation structure;
19/03/2012	6	Typographical corrections
11/07/2013	7	Reviewed with the requirements of the current version of the standard (ASTM C1029-13) and found to be still suitable.
23/07/2017	8	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
18/03/2018	9	Modified the conduct of factory audit to project site audit to exclude non-applicable clauses of the ISO 9001.
23/04/2018	10	Addition of provision to conduct testing the fire safety of the spray applied polyurethane thermal insulation foam when used for non-combo system or when the core insulation foam is exposed
05/09/2018	11	Amended clauses related to factory surveillance
08/11/2018	12	Updating the reference document for fire safety requirement, UAE Fire and Life Safety Code of Practice to 2018 version
24/03/2019	13	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. Revised to add the options for initial audit by the approved CAB and remotely by PCAS.
06/09/2020	14	Adding definition for authorized auditor. Update for the new standard edition, new numbering system and followed terminologies. Add provision for accepting valid test reports.

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26/09/2021	15	Removal of the documents in clause 2.1.2, in addition to further amendment in the provision for accepting valid test reports (clause 2.4.3.3), 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.
07/11/2021	16	Reviewed with the requirements of the current version of the standard (ASTM C1029: 2020) and found to be still suitable.
04-10-2022	17	Changing section name as per the new organizational structure, and replace HOU by CQPSM (Section's Manager)
27-03-2023	18	Full re-structuring and transfer of common provisions to the general rule. Clauses are re-numbered and document title has been revised accordingly. Adding reference to SA'AFAT relevant section under additional references. 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 applies only to In-situ formed sprayed rigid polyurethane (PUR), Polyisocyanurate (PIR) thermal insulation materials used for roofing systems
- 2.2 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: PU Spray-Applied Thermal Insulation
- 3.2 Applicable standard/Normative reference: ASTM C 1029: 2020 - Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation
- 3.3 Additional reference:
ISO 9001 Quality Management System – Requirements
ISO 19011 Guidelines for Auditing Management Systems
Al Sa'fat – Dubai Green Building System-2nd edition, January 2023 – Section 701.01 (Thermal and Acoustical Insulation Materials).

4 DEFINITION OF TERMS

- 4.1 In addition to the definitions given in ASTM C 168, ASTM D 883, ASTM C 1029 and the General Rule of the scheme [DM-DCLD-RD-DP21-2001 (IC)], the following shall apply:-

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4.1.1 Standard Specification – ASTM C 1029: 2020 - Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.

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:

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

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

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

5.3 Production/Spray Application

5.3.1 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.

5.3.2 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.

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5.3.3 Competency of Spray Applicators

The client utilize experienced and qualified personnel to conduct the spray applications. The duly authorized auditor should witness the spray application where to draw the samples noting the details of the raw materials (Ex. grade and expiry dates).

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.

5.4 Product Evaluation and testing

5.4.1 The tests to be carried out shall be in accordance with the Test Method mentioned in section 10 of the Standard Specification as follows, when applicable;

5.4.1.1 Thermal Resistance as per ASTM C 177 or ASTM C 1363 or ASTM C 518

Note: DCL has the option to conduct thermal resistance test at an early stage of the required conditioning period (180 days) to verify compliance with the minimum specification value as specified in Table 1 of ASTM C 1029. The result shall be confirmed after the full conditioning period is attained.

5.4.1.2 Compressive Strength as per ASTM C 165 Procedure A or ASTM D 1621 Procedure

5.4.1.3 Water Vapor Permeability as per ASTM E 96

5.4.1.4 Water Absorption as per ASTM C 2842 or ASTM C-209

5.4.1.5 Tensile Strength as per ASTM D 1623

5.4.1.6 Response to Thermal and Humid Aging as per ASTM D 2126

5.4.1.7 Closed Cell Content as per ASTM D 2856.

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

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.

6.3.1 Due to the nature of the business and spray application processes of this product, DCLD-CQPS 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).

6.3.2 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

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handling of customer complaints.

6.4 Appeals, disputes and complaints shall be in line with the relevant provisions in the General Rule.

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