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	Document Title:	Specific Rules for Type 1 Certification of Paints and Coatings in accordance with 2017 Al Sa'fat Dubai Green Building Evaluation System	عنوان الوثيقة:	
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Issue Date	Rev. No.	Summary Of Amendments
06-07-2011	0	First draft for comments
20-07-2011	0	Final draft
21-07-2011	1	Issue for use
08-08-2011	2	Additional provisions for re-sampling in case of failure
06/04/2014	3	Amendment of the test VOC method from BS 3900-A23 to BS EN ISO 11890-1 and updating DMS 020 to 2012 version
03/08/2015	4	Updated to align with ISO/IEC 17067 for Type 1b and clarifying the applicable tests according to the type of paint/coating. Updated DMS 020 to 2015 version.
08/09/2015	5	Incorporating the pass-fail criteria as Annex A
04/05/2016	6	Extending the Scope to include Type 1a
25/04/2018	7	Adding coating other than paint under LRV and SRI testing and amending the validity of the certificate
01/07/2018	8	Updated regulation to 2017 Al Sa'fat Dubai Green Building Evaluation System; added SRI test for coating for hardscapes
11/04/2019	9	Updated format as per new DM logo

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1. GENERAL

This document is a Specific Rule for a Type 1 certification of the product covered by the Standard Specification/Regulation defined herewith. The Type 1 certification system is in accordance with ISO/IEC 17067 and as described in DM-DCLD-RD-DP32-5001 (IC) General rules for Type 1 product certification.

2. CERTIFICATION REQUIREMENTS

2.1 Applicable Regulation (REG)

Regulation No.	Not Applicable
Title of Regulation (REG)	2017 Al Sa'fat Dubai Green Building Evaluation System
Applicable Clauses (REG) and Reference Standard Specification	Clauses 404.01; 304.04; 304.01; 304.06; 701.04 DMS 20: 2015 Specifications for Paints and Varnishes for Exterior and Interiors of Buildings and Vehicle Refinishing Products

2.2 Tests to be carried out on each sample

2.2.1 For Type 1a application, The client shall specify in his application the tests that are required by the specific Project where the product is used.

2.2.2 The test shall be carried out at an independent laboratory, preferably at DCLD):

S/N	Properties to be Determined	Test Method	Requirements as per REG	Applicable to Type of Paint/Coating
1	Volatile Organic Compounds (VOC)	BS EN ISO 11890-1 or any equivalent test method	As per Clause 404.01*	Interior paint Exterior paint All types of coatings
2	Formaldehyde	ASTM D6191 or ASTM D5910	As per Clause 404.01*	Interior paint Exterior paint
3	Light Reflectance Value (LRV)	BS 8493_2008 Cl.A1 2010 or any equivalent test method	As per Clause 304.03*	Exterior wall paint / coating other than paint for exterior wall applications
4	Solar Reflective Index (SRI)	ASTM E1980-01 or any equivalent test method	As per Clause 304.01*	Roofing paint / coating other than paint for roofing applications, coating for hardscapes
5	Heavy Metals (Lead, Cadmium, Chromium, Mercury)	BS 3900 or any equivalent test method	As per Clause 701.04*	Interior paint Exterior paint

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6	Heavy Metals (Arsenic)	BS 4404 or any equivalent test method	As per Clause 701.04*	Interior paint Exterior paint
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* NOTE 1 The acceptance limit shall be in accordance Annex A

2.3 Sampling under Type 1a

- 2.3.1 Under Type 1a, the sample(s) to be tested shall be submitted by the applicant or his designated representative.
- 2.3.2 The quantity of sample to be submitted shall be in accordance with the requirements of the applicable test method(s).

2.4 Sampling under Type 1b

- 2.4.1 The population of the product (batch) shall be defined prior to sampling. The members of the batch shall be of uniform physical description (i.e. same size shape, dimensions, etc.) and shall be distinctly identified by any appropriate means (For example: by batch number, quantity, location, heat number, markings, dimensions, etc. or a combination of them).
- 2.4.2 Based on the defined batch and the tests to be carried out as per clause [2.2], the Certification Body shall prepare a "Sampling and testing plan" that will give details of the number of samples and the tests to be carried out on each selected sample. The applicant for certification shall agree to the sampling and testing plan.
- 2.4.3 The sampling and testing plan shall take guidance from DM-DCLD-RD-DP32-5003 (IC) "Guidance for preparing sampling and testing plan"; and shall be prepared in such manner that will provide highest confidence that the sample represents the entire population of product being certified.
- 2.4.4 In case the sample fails to meet the requirements, the applicant may request for re-sampling and re-testing from the same batch of product/s, in accordance with the agreed sampling plan. If the new sample again fails to meet the requirements, the product shall be considered non-conforming and no certificate shall be issued.

3. ISSUANCE OF TYPE 1 CERTIFICATE

- 3.1 Type 1a Certificate of Conformity
- 3.1.1 The Type 1a certificate shall be issued only when results are meeting the applicable requirements as mentioned in clause [2.2].
- 3.1.2 The certificate is applicable only to the product that was subjected to testing. It does not represent any quantity, batch or lot or any subsequent production.
- 3.2 Type 1b Certificate of Conformity
- 3.2.1 The Type 1b certificate shall be issued only when results are meeting the applicable requirements as mentioned in clause [2.2].
- 3.2.2 The certificate is applicable only to the quantity of product defined and identified as per clause [2.3.1]. It does not apply to the entire production of the factory.
- 3.2.3 The Type 1b certificate is valid for 3 months only.
- 3.3 The Type 1 certificate shall be issued upon payment of fees in accordance with DM-DCLD-RD-DP32-5002 (IC).

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Annex A

Requirements for Testing and PASS/FAIL criteria:

1. Clause 404.01 Low Emitting Materials: Paints and Coatings

According to Al Sa'fat Green Building Evaluation System Practice Guide for Clause 404.01 sub-clause 6.2:

6.2 Technical Data and Specifications

All paints and coatings used in the interior of the building must comply with the maximum Volatile Organic Compound (VOC) limits indicated in Dubai Municipality Standard DMS 20-Specification for Paints and Varnishes.

VOC content shall be as per DMS 020: 2015 Table 1

Formaldehyde content as per DMS 020 clause [4.4.5] below:

4.4.5 **Formaldehydes:** The content of free formaldehyde present in the product shall not exceed 10 mg/kg. Formaldehyde donators may only be added in such quantities as will ensure that the resulting total content of free formaldehyde not exceed the stated amount.

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Table 1: Maximum Volatile Organic Compounds (VOC's) Content Limit Values for Paints and Varnishes

#	Product subcategory	Type	VOC g/l (*)
1	Interior matt walls and ceilings paint (Gloss < 25@60°C)	WB	30
		SB	30
2	Interior glossy walls and ceilings paint (Gloss > 25@60°C)	WB	100
		SB	100
3	Exterior walls of mineral substrate	WB	40
		SB	430
4	Interior /exterior trim and cladding paints for wood and metal	WB	130
		SB	300
5	Interior /exterior trim varnishes and woodstains, including opaque woodstain	WB	130
		SB	400
6	Interior /exterior minimal build woodstains	WB	130
		SB	700
7	Primers	WB	30
		SB	350
8	Binding Primers	WB	30
		SB	750
9	One-pack performance coatings	WB	140
		SB	500
10	Two pack reactive performance coatings for specific end use such as floors	WB	140
		SB	500
11	Multi colored coatings	WB	100
		SB	100
12	Decorative effect coatings	WB	200
		SB	200
Notes:			
1. WB: water-based; SB: solvent-based			
2. The limit values are as per the EC Directive 2004/42/EC concerning VOC reduction for decorative paints and varnishes			
3. * ready to use			

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2. Clause 304.04 Light Reflective Value (Exterior Paint)

This requirement is applicable only to exterior paints. The paint shall be applied on a flat substrate such as wood, metal or plastic sheet or concrete surface with a minimum size of 150 x 150 mm. The thickness of applied paint shall be such that there is no transparency.

304.04 Colours on the Outside of Buildings

For all new buildings, at least seventy five percent (75%) of the area of externally painted walls must have a minimum Light Reflective Value of forty-five percent (45%).

3. Clause 304.01 Solar Reflective Index (Exterior Paint of Roofing Surface-See Annex B)

This requirement is applicable to paints used in roofing surfaces. The paint shall be applied on a flat substrate such as wood, metal or plastic sheet or concrete surface with a minimum size of 150 x 150 mm. The thickness of applied paint shall be such that there is no transparency (same specimen can be used for Light Reflective Value).

304.01 Urban Heat Island Effect

For all new buildings:

All opaque external roofing surfaces must comply with a minimum Roof Solar Reflective Index (SRI) value according to Table 304.01(1) for a minimum of seventy five percent (75%) of the roof area:

Table 304.01 (1) – Roof SRI Requirements

Type of Roof	Minimum Roof SRI
Steep Sloped Roofs (slopes steeper than 1:6)	≥ 29
Flat and Low Sloped Roofs	≥ 78

Clause 304.06 Solar Reflective Index (Coating for Hardscapes) (Please see Annex B)

This requirement is applicable to paints or coatings applied on hardscapes. The paint shall be applied on a flat substrate such as wood, metal or plastic sheet or concrete surface with a minimum size of 150 x 150 mm.

304.06 Hardscape

For all new buildings, fifty percent (50%) of the hardscape of the development must:

1. Demonstrate a Solar Reflective Index (SRI) of at least twenty nine (29), or
2. Use an open grid pavement system, or
3. Be shaded by vegetation or
4. Be shaded by materials with an SRI equal to or greater than those specified in Table 304.01 (1), or
5. A combination of the above.

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4. Lead or Heavy Metals

701.04 Lead or Heavy Metals Containing Materials

For all new buildings and for the maintenance, addition or alteration of existing buildings, paints, or other materials, containing lead or other heavy metals with percentage more than the approved specifications by Dubai Municipality must not be used unless the metal is encapsulated in a system such as a photovoltaic cell.

All paints and materials containing lead or other heavy metals must be accredited / certified from Dubai Central Lab or any source approved by Dubai Municipality.

Heavy Metal	Maximum Level Allowed
Lead	100mg/kg
Cadmium	500 mg/kg
Chromium VI	500 mg/kg
Mercury	100 mg/kg
Arsenic	100 mg/kg

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Annex B

TESTING OF SRI AND LRV

Since SRI and LRV tests are for classification only, there is no “Pass” or “Fail” result. Testing will be carried out on the products that the client manufacturer submits to be classified and included in the Scope of Certification.

If the product is not classified as per Scope of Certification, the user (owner, contractor or consultant) shall be responsible for ensuring that the correct SRI Class or LRV Class is used; according to the requirements of the **AL SA'FAT** and as defined below:

- SRI: Results of SRI Test for Roof Paint/Roof Coating/ shall be used for classification as:

SRI Class 1 (≥ 78) – “Can be Used in 75 - 100% of surface to be coated – Sloped or Flat Roof”

SRI Class 2 ($29 < 78$) - “Can be Used in 75 - 100% of surface to be coated – Sloped Roof”

SRI Class 3 (< 29) – “Can be Used in 0 – 25% of surface to be coated – Sloped or Flat Roof”
- LRV: Results of LRV Tests for Exterior Wall Paints/Coatings shall be used for classification as:

LRV Class 1 ($\Rightarrow 45$) – “Can be used in 75-100% of surface to be /painted/coated”

LRV Class 2 (< 45) – “Can be used in 0-25% of surface to be painted/coated”.
- SRI: Results of SRI Test for Coating used for Hardscapes shall be used for classification as:

SRI-HS Class 1 ($\Rightarrow 29$) – “Can be used in 50-100% of the hardscapes of the development”

SRI-HS Class 2 (< 29) – “Can be used in 0-50% of the hardscapes of the development”

If manufacturers decides to add SRI Classification in their Scope of Certification, the manufacturer shall classify and declare their product according to the above Classes and DCL will select representative sample at random and carry out testing to confirm the declaration.

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