Subject:	**Tests for granting and renewing approvals (A-No. and P-No.)**
Proposal:	**PROPOSAL No. 5/LABORATORIES WG/13-14.10.14** The pressure cooker test (resistance to boiling water) prescribed for granting and renewing approvals of powder coatings and alternative pretreatment systems should be removed from section 4.1.2 and Appendix A6 (section 5b) as it is already included in the wet adhesion test.
QUALICOAT resolution:	**Resolution No. 11/TC 5.11.14** TC agreed that the pressure cooker test (i.e. resistance to boiling water) prescribed for granting and renewing approvals of powder coatings and alternative pretreatment systems should be removed from section 4.1.2 and Appendix A6 (section 5b) as it is already included in the wet adhesion test. The Specifications WG would prepare an update sheet.
Date of ratification:	20 May 2015
Date of application:	**1 January 2016**
Amendments to the Specifications:	▸ 4.1.3 Tests for granting an approval ▸ Appendix A6 ▸ Appendix A10

4.1.3 Tests for granting an approval[1]

The following tests shall be made:

1) Gloss (*2. 2)*
2) Coating thickness (*2.3)*
3) Dry adhesion (2.4.1) ~~and Wet adhesion (2.4.2)~~
4) Indentation (2.5)
5) Cupping test (*2.6)*
6) Bend test (*2.7)*
7) Impact test (*2.8)*
8) Resistance to humid atmospheres (*2.9)*
9) Acetic acid salt spray resistance (*2.10)*
10) Accelerated weathering test (2.12)
11) Polymerisation test (2.14)
12) Resistance to mortar (2.15)
13) ~~Pressure cooker test (2.4.16)~~ Wet adhesion *(2.4.2)*
14) Condensation water test (2.17)
15) Natural weathering (Florida) (*2.13)*

The tests shall be made on three test panels (for mechanical tests) and on three test samples (for corrosion tests) coated by a laboratory approved by QUALICOAT.

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[1] A summary of tests and requirements for powder coatings is given in Appendix A10.

Subject:	**Tests for granting and renewing approvals (A-No. and P-No.)**

A6 – Procedure for evaluating alternative chemical pretreatment materials

[…]

5. TESTING PROGRAMME

[…]

b) LABORATORY TESTS

The following tests shall be performed

~~• **Mechanical tests** (according to the QUALICOAT Specifications)~~

- ~~impact~~
- ~~dry adhesion and wet adhesion~~
- ~~bend~~
- ~~cupping.~~

~~• **Corrosion tests** (according to the QUALICOAT Specifications)~~

- ~~constant climate condensation water~~
- ~~resistance to humid atmospheres containing sulphur dioxide~~
- ~~acetic acid salt spray resistance~~
- ~~pressure cooker~~
- ~~filiform corrosion~~

- Dry adhesion (2.4.1)
- Cupping (2.6)
- Bend (2.7)
- Impact (2.8)
- Resistance to humid atmospheres (2.9)
- Acetic acid salt spray (2.10)
- Wet adhesion (2.4.2)
- Condensation water (2.17)
- Filiform corrosion (2.19)

The acceptable limits are the same as those prescribed in the QUALICOAT Specifications.

Subject:	**Tests for granting and renewing approvals (A-No. and P-No.)**

A10 – Summary of requirements for the approval of organic coating materials (all classes)

TESTS 1-15		STANDARDS	QUALICOAT SPECIFICATIONS			
			CLASS 1	**CLASS 1.5**	**CLASS 2**	**CLASS 3**
1	GLOSS 2.2	ISO 2813	**Permissible variation from the nominal value specified by the coating supplier:** Gloss cat. 1: 0 – 30 +/- 5 units Gloss cat. 2: 31 - 70 +/-7 units Gloss cat. 3: 71 – 100 +/- 10 units	**Same as class 1**	**Same as class 1**	**Same as class 1**
2	COATING THICKNESS 2.3	ISO 2360	**Minimum thickness = 60 µm** None of the values measured may be less than **80%** of the specified minimum value	**Same as class 1**	**Same as class 1**	**Minimum thickness= 50 µm** None of the values measured may be less than **80%** of the specified minimum value
3	DRY ADHESION 2.4.1	ISO 2409	**The result shall be 0.**	**Same as class 1**	**Same as class 1**	**Same as class 1**
	~~WET ADHESION 2.4.2~~		~~Using normal corrected vision, the coating shall not show any sign of blistering or detachment.~~	~~Same as class 1~~	~~Same as class 1~~	~~Same as class 1~~
4	INDENTATION 2.5	ISO 2815	**Minimum 80 with the specified required coating thickness**	**Same as class 1**	**Same as class 1**	**Same as class 1**
5	CUPPING TEST 2.6	ISO 1520	**Minimum 5 mm** Using normal corrected vision, the coating shall not show any sign of cracking or detachment.	**Minimum 5 mm** Using normal corrected vision, the coating shall not show any sign of detachment following the tape pull adhesion test.	**Same as class 1.5**	**Same as classes 1.5**
6	BEND TEST 2.7	ISO 1519	Using normal corrected vision, the coating shall not show any sign of cracking or detachment.	Using normal corrected vision, the coating shall not show any sign of detachment following the tape pull adhesion test.	**Same as class 1.5**	**Same as classes 1.5**
7	IMPACT TEST 2.8	ISO 6272 ASTM D 2794	Using normal corrected vision, the coating shall not show any sign of cracking or detachment.	Using normal corrected vision, the coating shall not show any sign of detachment following the tape pull adhesion test.	**Same as class 1.5**	**Same as classes 1.5**

TESTS 1-15		STANDARDS	QUALICOAT SPECIFICATIONS			
			CLASS 1	**CLASS 1.5**	**CLASS 2**	**CLASS 3**
8	RESISTANCE TO HUMID ATMOSPHERES 2.9	ISO 3231	**After 24 cycles** No infiltration exceeding 1 mm on both sides of the scratch, and no change in colour or blisters in excess of 2 (S2) according to ISO 4628-2.	**Same as class 1**	**Same as class 1**	**Same as class 1**
9	ACETIC ACID SALT SPRAY RESISTANCE 2.10	ISO 9227	**Testing time: 1000 hours** **RATING A** = 3 samples ok, 0 not ok **RATING B** = 2 samples ok, 1 not ok **RATING C** = 1 sample ok, 2 not ok **RATING D** = 0 sample ok, 3 not ok **Evaluation:** **A/B : test result satisfactory** **C: test result unsatisfactory** (repetition of the AAST) **D: test result unsatisfactory** (repetition of all laboratory tests)	**Same as class 1**	**Same as class 1**	**Testing time: 2000 hours** **Evaluation: same as class 1**
10	ACCELERATED WEATHERING TEST 2.12	ISO 16474-2	**Exposure time: 1000 hours** **Gloss retention:** at least **50%** **Colour change:** according to the ΔE values stipulated in Appendix A7.	**Exposure time: 1000 hours** **Gloss retention:** at least **75%** **Colour change:** not greater than **75%** of the limits prescribed in Appendix A7	**Exposure time: 1000 hours** **Gloss retention:** at least **90%** **Colour change:** not greater than **50%** of the limits prescribed in Appendix A7	**Exposure time: 3 years in Florida** **Gloss retention:** at least **80%** **Colour change:** not greater than **50%** of the limits prescribed in Appendix A7
11	POLYMERISATION TEST 2.14 OPTIONAL	----	**Ratings:** 1: very dull and quite soft coating 2: very dull coating which can be scratched with a finger-nail. 3: slight loss of gloss i.e. less than 5 units 4: no perceptible change. Coating cannot be scratched with a finger-nail. **Evaluation:** **1/2:** test result unsatisfactory **3/4:** test result satisfactory	**Same as class 1**	**Same as class 1**	**Same as class 1**
12	RESISTANCE TO MORTAR 2.15	EN 12206-1 par. 5.9	There shall not be any change in appearance/colour after the mortar test.	**Same as class 1**	**Same as class 1**	**Same as class 1**
~~13~~	~~RESISTANCE TO BOILING WATER 2.16~~	~~---~~	~~No blistering in excess of 2 (S2) according to ISO 4628-2. There shall not be any defects or detachment. Some colour change is acceptable.~~	~~Same as class 1~~	~~Same as class 1~~	~~Same as class 1~~

TESTS 1-15		STANDARDS	QUALICOAT SPECIFICATIONS			
			CLASS 1	**CLASS 1.5**	**CLASS 2**	**CLASS 3**
13	**WET ADHESION** 2.4.2	**ISO 2409**	Using normal corrected vision, the coating shall not show any sign of blistering or detachment.	**Same as class 1**	**Same as class 1**	**Same as class 1**
14	**CONSTANT CLIMATE CONDENSATION WATER TEST** 2.17	**ISO 6270**	**Testing time: 1000 hours** No blistering in excess of 2 (S2) according to ISO 4628-2; the maximum infiltration at the cross is 1 mm.	**Same as class 1**	**Same as class 1**	**Testing time: 2000 hours** No blistering in excess of 2 (S2) according to ISO 4628-2; the maximum infiltration at the cross is 1 mm.
15	**NATURAL WEATHERING TEST (FLORIDA)** (2.13)	**ISO 2810**	**5° south** 4 panels per colour shade **Exposure time:** 1 year **Gloss retention** at least **50%** **Colour change:** The ΔE values shall not exceed the maximum values stipulated in Appendix A7.	**5° south** 7 panels per colour shade **Exposure time:** 2 years with an annual evaluation **Gloss retention** After 1 year : at least **65%** After 2 years : at least **50%** **Colour change:** After 1 year: not greater than **65%** of the limits prescribed in the table After 2 years: within the limits prescribed in Appendix A7.	**5° south** 10 panels per colour shade **Exposure time:** 3 years with an annual evaluation **Gloss retention** After 1 year : at least **75%** After 2 years : at least **65%** After 3 years : at least **50%** **Colour change:** After 1 year: not greater than **65%** of the limits prescribed in the table After 2 years: not greater than **75%** of the limits prescribed in the table After 3 years: within the limits prescribed in Appendix A7.	**45° south** 10 panels per colour shade **Exposure time:** 10 years with an evaluation after 3 and 7 years **Gloss retention** After 3 years: at least **80%** After 7 years :at least **55%** After 10 years: at least **50%** **Colour change:** After 3 years : max. 50% of the limits prescribed in Appendix A7 After 10 years: within the limits prescribed in Appendix A7.