

Update of QUALICOAT Specifications 2023 Update Sheet No. 07

applicable from 01.01.2024

Subject: Combination of wet adhesion and boiling water Test

Laboratories WG / 2022.10.04

Proposals/Requests:

The Laboratories WG unanimously agreed to propose to the TC to remove Method 2 of the boiling water test with 1-hours duration using a pressure cooker (§2.16) and to remove the pressure cooker from the list of required instruments for chemical manufacturers in section 3 of Annex A6.

Resolution No. 14 / TC 2022.11.16

The TC approved the Laboratories WG's proposal to remove method 2 (pressure cooker) and to combine the wet adhesion and resistance to boiling water. The Specifications WG will prepare an update sheet.

QUALICOAT Resolution:

Resolution No. 7/TC 16.05.23

The TC approved update sheet No.7 'Combination of wet adhesion and boiling water Test'. The implementation date will be 1st January 2024.

Amendment to the Specifications:

- Resistance to boiling water test (2.16) removed and combined with the wet adhesion test (2.4.2)
- New Numbering of paragraphs in Chapter 2
- Reference of new numbering all across the specification, where applicable.
- Reference of Resistance to boiling water removed from anodic pretreatment (3.4)
- Adjustments in the Appendix A6 and Appendix A7

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Test Methods and Requirements 2.

[...]

2.4.2 Wet adhesion

Boiling water

Immerse a sample in boiling demineralised water using method 1 or 2 as described in § 2.16. Remove the sample and allow it to cool down to room temperature. Carry out the test as detailed in § 2.4.1. The cross-hatch shall be made after one hour but within two hours.

Immerse a sample for two hours in boiling demineralised water (maximum 10 µS/cm at 25°C). Remove the test sample and allow it to cool down to room temperature. After one hour but within a two hours timeframe, a cross-cut shall be made according to § 2.4.1

REQUIREMENTS:

On visual inspection, there shall be no sign of detachment or blistering. Colour change is acceptable.

No sign of detachment or blistering. Cross-cut value 0. Colour change is acceptable.

[...]

Resistance to boiling water

Method 1 with boiling water:

2 hours immersion in boiling demineralised water (maximum 10 µS at 20°C). Remove the test sample and allow it to cool down to room temperature. Apply an adhesive tape (see § 2.4) to the surface, ensuring that no air is trapped. After one minute, remove the tape at an angle of 45° with a sharp even pull.

Method 2 with a pressure cooker: (to be used for powder and electrophoretic coatings only)

Add demineralised water (maximum 10 µS at 20°C) to a pressure cooker with an internal diameter of about 200 mm to a depth of 25 mm and place a test panel measuring 50 mm in it.

Place the lid in position and heat the pressure cooker until steam escapes from the valve. The weighted needle valve shall be adjusted to produce an internal pressure of 100 +/- 10 kPA (1 bar). Continue heating for 1 hour, timing from the moment when steam first escapes from the valve. Cool the pressure cooker, remove the sample and allow it to cool down to room temperature.

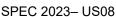
Apply an adhesive tape (see § 2.4) to the surface, ensuring that no air is trapped. After one minute, remove the tape at any angle of 45° with a sharp even pull.

2.172.16 Constant climate condensation water test

[...]

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2.182.17 Sawing, milling and drilling

[...]

2.192.18 Filiform corrosion test

[...]

2.202.19 Water spot test

[...]

2.212.20 Scratch and mar resistance test (Martindale)7

[...]

3.4 Anodic pretreatment (automatic SEASIDE endorsement)

[...]

Testing of the coated finished products

- Before application, the wet adhesion test (see § 2.4.2) shall be carried out for each coating material (i.e., each colour shade, gloss category, and manufacturer). shall be tested for resistance to boiling water, followed by an adhesion test (see § 2.4).
- During application, resistance to boiling water shall be tested, followed by an the wet adhesion test shall be performed every 4 hours.

Coating applicators using anodic pretreatment, as specified above, shall ask their coating suppliers to confirm in writing the compatibility of their coating system with this type of pretreatment.

A6 – Approval of chemical pretreatments

[...]

PRELIMINARY CONDITIONS (minimum equipment) 3.

THE CHEMICAL MANUFACTURER SHALL HAVE THE FOLLOWING MINIMUM EQUIPMENT AVAILABLE AT LEAST AT ONE LOCATION (main production site and/or technical service centre):

- analytical instruments for testing the quality of the conversion coating;
- cutting tools and instruments necessary for performing the adhesion test;
- apparatus for testing dry and wet adhesion and elasticity (cupping test);

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- impact tester (ISO 6272);
- apparatus for testing resistance to cracking on bending;
- analytical balance for determining weight loss (precision 0.1 mg)
- apparatus to carry out the following corrosion tests:
 - constant climate condensation water
 - o resistance to humid atmospheres containing sulphur dioxide
 - acetic acid salt spray resistance
 - o resistance to boiling water wet adhesion test
 - filiform corrosion test¹

AT ALL OTHER LOCATIONS (NOT BEING THE MAIN PRODUCTION SITE AND/OR TECHNICAL SERVICE CENTRE), THE FOLLOWING REQUIREMENTS SHALL BE MET:

- A method for testing the quality of the conversion coating shall be available.
- Tests that cannot be carried out on-site shall be performed by the laboratory at the main production site and/or technical service centre or outsourced to any QUALICOAT approved laboratory.

A7 – Specifications for batch treatment

[...]

3. Testing method to evaluate contact mark areas

Use a piece of a pretreated aluminium extrusion that has been marked by a separator. The area on the bar with the marks shall be identified.

The boiling water test (2.16 of the Specifications - Resistance to Boiling Water) shall be carried out on the coated samples.

The **wet adhesion test** shall be carried out according to § 2.4.2 on the coated samples.

Allow the test piece to cool after the test and examine it for any blistering on the identified area.

Requirements:

No blistering in excess of 2 (S2) according to ISO 4628-2.

Colour change is acceptable but there shall not be any defect or loss of adhesion.

This testing method shall be used by the inspectors whenever a licence is to be granted.

No sign of detachment or blistering. Cross-cut value 0. Colour change is acceptable.

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This test may be outsourced and carried out by a QUALICOAT approved laboratory or another laboratory accredited for this specific test according to ISO 17025.