



**Subject: Permanent updating of Delta E limits**

**RAL / DELTA E Table (APPENDIX A7):** see the following page

<b>New DELTA E limits</b>	<b>Date of resolution</b>	<b>Date of application</b>
<b>RAL 2004 : 4 (previously 5)</b>	25 June 2009	1 January 2010
<b>RAL 3011 : 5 (previously 6)</b>	25 June 2009	1 January 2010

# Appendices

# QUALICOAT

## RAL / DELTA E Table

RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E	RAL	DELTA E
1000	3.0	2000	6.0	3000	6.0	4001	4.0	5000	4.0	6000	5.0	7000	4.0	8000	4.0	9001	4.0		2.0
1001	3.0	2001	8.0	3002	6.0	4002	4.0	5001	4.0	6001	5.0	7001	3.0	8001	4.0	9002	4.0		2.0
1002	3.0	2002	8.0	3003	4.0	4003	5.0	5002	5.0	6002	4.0	7002	4.0	8003	4.0	9003	4.0		2.0
1003	4.0	2003	6.0	3004	4.0	4004	5.0	5003	5.0	6003	5.0	7003	4.0	8004	4.0	9004	4.0		5.0
1004	6.0	2004	4.0	3005	4.0	4005	4.0	5004	4.0	6004	5.0	7004	4.0	8007	4.0	9005	4.0		5.0
1005	6.0	2008	6.0	3007	4.0	4007	5.0	5005	5.0	6005	3.0	7005	4.0	8008	4.0	9006	4.0		2.0
1006	6.0	2009	4.0	3009	4.0	4009	4.0	5007	4.0	6006	4.0	7006	4.0	8011	4.0	9007	4.0		2.0
1007	6.0			3011	5.0			5008	5.0	6007	4.0	7008	4.0	8012	4.0	9010	4.0		2.0
1011	3.0			3012	2.0			5009	4.0	6008	5.0	7009	4.0	8014	3.0	9011	5.0		5.0
1012	3.0			3013	6.0			5010	4.0	6009	4.0	7010	4.0	8015	4.0	9016	4.0		2.0
1013	2.0			3014	4.0			5011	5.0	6010	5.0	7011	4.0	8016	4.0	9018	4.0		2.0
1014	3.0			3015	3.0			5012	4.0	6011	4.0	7012	4.0	8017	4.0	9022	4.0		2.0
1015	2.0			3016	5.0			5013	5.0	6012	4.0	7013	4.0	8019	3.0				
1016	6.0			3017	8.0			5014	4.0	6013	3.0	7015	4.0	8022	5.0				
1017	3.0			3018	5.0			5015	3.0	6014	4.0	7016	3.0	8024	4.0				
1018	6.0			3020	4.0			5017	5.0	6015	4.0	7021	4.0	8025	4.0				
1019	3.0			3022	8.0			5018	5.0	6016	5.0	7022	4.0	8028	4.0				
1020	6.0			3027	6.0			5019	4.0	6017	5.0	7023	3.0						
1021	6.0							5020	5.0	6018	4.0	7024	4.0						
1023	3.0							5021	4.0	6019	2.0	7026	4.0						
1027	3.0							5022	5.0	6020	2.0	7030	2.0						
1028	8.0							5023	4.0	6021	4.0	7031	4.0						
1032	6.0									6024	3.0	7032	2.0						
1034	4.0									6025	5.0	7033	3.0						
1038	2.0									6026	5.0	7034	3.0						
										6027	2.0	7035	2.0						
										6028	5.0	7036	3.0						
										6029	5.0	7037	3.0						
										6033	2.0	7038	2.0						
										6034	2.0	7039	4.0						
												7040	3.0						
												7043	3.0						
												7044	2.0						
												7047	2.0						

**underlined = colours tested as of November 2008**

<b>Subject:</b>	<b>VISUAL ASSESSEMENT AFTER ARTIFICIAL AND NATURAL WEATHERING</b>
<b>Proposal:</b>	<b>“Florida” Working Group (19.06.08)</b>
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008 (ratified on 19 November 2009)</b>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	<b>2.12 and 2.13</b>

## 2.12 Accelerated weathering test

[...]

### REQUIREMENTS:

Gloss retention: the loss of gloss after the accelerated weathering test must not be greater than 50% of the original value, or 10% for class 2 and class 3 powders.

An additional visual assessment will be carried out for

- coating systems with an original gloss value of less than 20 units;
- structural systems in all gloss categories;
- colours with a metallic effect (see appendix A4).

[...]

## 2.13 Natural weathering test

[...]

### REQUIREMENTS:

#### Gloss

The residual gloss must be at least 50% of the original gloss.

An additional visual assessment will be carried out for

- coating systems with an original gloss value of less than 20 units;
- structural systems in all gloss categories;
- colours with a metallic effect (see appendix A4).

[...]

<b>Subject:</b>	<b>DETAILED INFORMATION ON CURING CONDITIONS</b>
<b>Proposal:</b>	<b>“Powders” Working Group (11.09.08)</b>
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	<b>4.1.2 and 4.2.</b>
<p><b>4.1.2 Tests for granting an approval</b></p> <p>[...]</p> <p>The paint manufacturer must send coating materials and coated panels to the laboratory in charge, together with the relevant technical data sheet for each colour. The data sheet should include at least the following information: colour, gloss value and curing conditions (including range of times and temperatures).</p> <p>[...]</p>	
<p><b>4.2 Renewal of approved systems</b></p> <p>[...]</p> <p>The paint manufacturer must send coating materials and coated panels to the laboratory in charge, together with the relevant technical data sheet for each colour. The data sheet should include at least the following information: colour, gloss value and curing conditions (including range of times and temperatures).</p> <p>[...]</p>	

<b>Subject:</b>	<b>NEW RULES FOR BANNED COLOURS</b>
<b>Proposal:</b>	<b>“Powders” Working Group (11.09.08)</b>
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	4.2 Renewal of approved systems

## 4.2 Renewal of approved systems

[...]

QUALICOAT will publish a list of all colours (currently) banned.

The suppliers must have banned colours tested again.

For classes 1 and 2, the approval will be withdrawn as soon as four non-metallic colours are banned.

For class 3, the approval will be withdrawn as soon as three non-metallic colours are banned.

As soon as an approval is cancelled, the supplier must stop using any reference to the approval when selling the coating concerned.

<b>Subject:</b>	<b>CLARIFICATION OF UNCERTAINTIES IN THE SPECIFICATIONS</b>
<b>Proposal:</b>	<b>Executive Committee (19.11.08)</b>
<b>QUALICOAT resolution:</b>	<b>EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	<b>Sentence added in Chapter 1</b>

## 1. General Information

[...]

These Specifications form the basis for granting and renewing the quality label. All requirements in these Specifications must be met before a quality label can be granted. In case of ambiguities or uncertainties in any part of the Specifications, clarification shall be requested from QUALICOAT.

<b>Subject:</b>	<b>EXTENSION OF POWDER SUPPLIERS' LABORATORY EQUIPMENT</b>
<b>Proposal:</b>	<b>"Powders" Working Group (12.03.09)</b>
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2011</b>
<b>Amendments to the Specifications:</b>	Extended list in paragraph 4.1.1

#### 4.1.1 Minimum laboratory equipment

1. Specular glossmeter
2. Instruments for measuring coating thickness
3. Apparatus for testing resistance to cracking on bending
4. Cutting tools and instruments necessary for performing the adhesion test
5. Instrument for measuring indentation hardness
6. Apparatus for cupping test
7. Impact tester
8. Apparatus for controlling stoving temperature and time
9. System for checking polymerisation
10. Spectrophotometer
11. Apparatus for accelerated weathering test<sup>3</sup>

Each piece of apparatus must have a data sheet showing the apparatus identification number and calibration checks.

<sup>3</sup> The accelerated weathering test can be outsourced and carried out by a QUALICOAT approved laboratory or another laboratory accredited for this specific test according to ISO 17025.

This rule does not apply to QUALIDECO (see appendix A2).

<b>Subject:</b>	<b>CLARIFICATION REGARDING FLORIDA SUBMISSION</b>
<b>Proposal:</b>	<p><b>“Powders” Working Group (12.03.09):</b></p> <ul style="list-style-type: none"> <li>- It is not necessary to finish the laboratory test before sending powders to Florida</li> <li>- It is recommended to send the powders to the laboratories before the end of June of the renewal year.</li> </ul>
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	4.2

#### 4.2 Renewal of approved systems

[...]

There are three options for sampling systems to be tested for renewal of approvals:

- The inspector takes samples of the required colours during routine inspections at the coating plants.
- The inspector takes samples directly at the system supplier's premises.
- The coating manufacturer sends coating materials and coated panels to the laboratory in charge preferably by June, together with the relevant technical data sheet for each colour. The data sheet should include at least the following information: colour, gloss value and curing conditions. In countries where there is neither a national association nor a testing laboratory, the paint manufacturer sends the selected colours to a laboratory approved by QUALICOAT.

[...]

The inspection reports are assessed by the general licensee. Under the supervision of QUALICOAT, the general licensee decides whether to renew or withdraw the approval.

- If the results of tests 1 to 14 do not meet the requirements, tests 1 to 14 must be repeated within one month, using samples taken from a different lot, ~~before submission to the Florida test.~~
- If the results of this second series of tests are again unsatisfactory, the system will remain approved except for the colour(s) which produced unsatisfactory results. For class 3, if the residual gloss after the accelerated weathering test is between 85% and 90%, the system will remain approved but the colour which produced unsatisfactory results will be sent to Florida.
- ~~If the results of tests 1 to 14 are satisfactory, the natural weathering test in Florida will be started.~~ If one (or more) of the colours tested annually produce(s) an unsatisfactory result, the system concerned will continue to be approved with the exception of the unsatisfactory colour(s).

<b>Subject:</b>	<b>DRIPPING WATER VALUE FOR ANODIC PRETREATMENT</b>
<b>Proposal:</b>	<b>“Inspection form” Working Group (11.09.08):</b> Section 3.2.3 of the Specifications should be revised and the limit value for the dripping water added.
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	3.2.3
<b>3.2.3 Anodic pre-treatment</b>  [...] After anodising, the aluminium must be rinsed with demineralised water for as long and at such a temperature (less than 60°C) as is required to remove the acid from the pores. The conductivity of the dripping water of the last rinse must not exceed a maximum of 30 µS/cm at 20°C. The conductivity should only be measured for open sections and not for hollow sections. [...]	

<b>Subject:</b>	<b>DISTINCTION BETWEEN DRYING AND STOVING CHAMBERS</b>
<b>QUALICOAT resolution:</b>	<b>EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 July 2010</b>
<b>Amendments to the Specifications:</b>	Sentence added at the beginning of § 3.5.2
<b>3.5.2 Stoving</b>  The line must have an oven for drying and one for curing; in cases where the oven is combined (performing both functions), an efficient control system for temperature and time must be in place to ensure that suppliers' recommended conditions can be followed.  The conditions between the spray booth and the oven must be absolutely free of dust and contamination.  [...]	

<b>Subject:</b>	<b>PREPARATION OF TEST PANELS</b>
<b>Proposal:</b>	<b>Request from QUALICOAT UK &amp; Ireland</b> The laboratories should be allowed to apply the powders to the test panels at a local approved coater's plant rather than in the laboratory itself.
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2008</b> <i>(ratified on 19 November 2009)</i>
<b>Date of application:</b>	<b>1 January 2010</b>
<b>Amendments to the Specifications:</b>	One sentence added in § 4.2

#### **4.2 Renewal of approved systems**

[...]

There are three options for sampling systems to be tested for renewal of approvals:

- The inspector takes samples of the required colours during routine inspections at the coating plants.
- The inspector takes samples directly at the system supplier's premises.
- The coating manufacturer sends coating materials and coated panels to the laboratory in charge preferably by June, together with the relevant technical data sheet for each colour. The data sheet should include at least the following information: colour, gloss value and curing conditions. In countries where there is neither a national association nor a testing laboratory, the paint manufacturer sends the selected colours to a laboratory approved by QUALICOAT.

The inspector may apply the powders to the test panels in his laboratory or at a local licensed coater's plant.

The inspector submits the inspection report to the general licensee.

[...]

<b>Subject:</b>	<b>REFERENCE TO APPENDICES A5 AND A9</b>
<b>Proposal:</b>	<p><b>VOA's request:</b>          It should be mentioned in chapter 1 that the edition of the standards stipulated by QUALICOAT is listed in Appendix A9.</p> <p><b>Technical Director:</b>          A reference to Appendix A5 should be incorporated in chapter 2.</p>
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2009</b> <i>(ratification on 23 June 2010)</i>
<b>Date of application:</b>	<b>1 September 2010</b>
<b>Amendments to the Specifications:</b>	New paragraphs in section 2 and 3.2

## 2. Test Methods and Requirements

The test methods described below are used to test finished products and/or coating systems for approval (see chapters 4 and 5).

The test methods are based on international standards, where they exist, listed in appendix A9. The requirements are specified by QUALICOAT on the basis of practical experience and/or testing programs organized by QUALICOAT.

For the mechanical tests (sections 2.6, 2.7 and 2.8), the test panels must be made of the alloy AA 5005-H24 or -H14 (AIMg 1 - semihard) with a thickness of 0.8 or 1 mm, unless otherwise approved by the Technical Committee.

Tests using chemicals and corrosion tests should be performed on extruded sections made of AA 6060 or AA 6063.

[...]

### 3.2 Pre-treatment for powder and liquid coatings

The parts to be treated must either be attached to the jig individually or placed in a basket as stipulated in the appendix A8. Each part must be treated fully in one pass, at each stage.

Cast accessories have special requirements (see Appendix A5 – Special specifications for coatings on aluminium accessories for architectural applications under the QUALICOAT quality label).

[...]

<b>Subject:</b>	<b>CLARIFICATION REGARDING STRUCTURED POWDERS</b>
<b>Proposal:</b>	<b>“Florida” Working Group (11.06.09):</b> It should be specified that structured systems have to be tested on the same basic colours as standard powders.
<b>QUALICOAT resolution:</b>	<b>TC/EC Meeting held on 19 November 2009</b> <i>(ratification on 23 June 2010)</i>
<b>Date of application:</b>	<b>1 September 2010</b>
<b>Amendments to the Specifications:</b>	4.1.2

#### 4.1.2 Tests for granting an approval

[...]

The tests must be made on three test panels (for mechanical tests) and on three sections (for corrosion tests) coated by a laboratory approved by the Executive Committee. The average of the three samples will be taken to determine the results.

For class 1 and class 2 the following colours must be tested (independently of gloss category or finish):

- white RAL 9010
- blue RAL 5010
- red RAL 3005

plus a metallic colour (see Appendix A4)

[...]