



Update of QUALICOAT Specifications 2022

Update Sheet No. 01

applicable from 1 July 2022

Subject: List of critical colours and evaluation procedure for class 3

Sub-WG Class 3 / 20.01.2022

Proposals/Requests:

- To reintroduce 6 families and 26 RAL colours in the list of RAL colours that can be used in class 3.
- To evaluate class 3 panels also after 5 years exposure (gloss retention of at least 70%) and change the limit from 55% to 60 % after 7 years.

QUALICOAT Resolution:

Amendment to the Specifications:

- Section 2.13 Natural weathering test
- A10 – Summary of requirements for the approval of organic coating materials (all classes)
- Appendix A11 –Critical colours and classification of RAL families for class 3
- Appendix A12 – Colour tolerances after the weathering test for Class 3 organic coatings

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2.13 Natural weathering test

Exposure in Florida according to ISO 2810

[...]

Class 3 organic coatings

Samples shall be exposed facing 45° south for **10 years**.

All the test panels shall be cleaned and measured annually by the laboratory in Florida.

After 3, **5**, and 7 years, three test panels will be sent back to the QUALICOAT laboratory in charge for evaluation. The remaining three test panels will finally be sent back to the laboratory in charge at the end of the 10-year exposure period.

[...]

REQUIREMENTS:

Gloss

[...]

The following values apply to class 3 organic coatings:

- After 3 years in Florida : at least 80%
- After 5 years in Florida : at least 70 %
- After 7 years in Florida : at least **55%** 60 %
- After 10 years in Florida : at least 50%

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

TESTS	STANDARDS	QUALICOAT SPECIFICATIONS			
		CLASS 1	CLASS 1.5	CLASS 2	CLASS 3
NATURAL WEATHERING TEST (FLORIDA) (2.13)	ISO 2810	<p>5° south 4 panels per colour shade</p> <p>Exposure time: 1 year</p> <p><u>Gloss retention</u> at least 50%</p> <p><u>Colour change:</u> The ΔE values shall not exceed the maximum values stipulated in Appendix A12</p>	<p>5° south 7 panels per colour shade</p> <p>Exposure time: 2 years with an annual evaluation</p> <p><u>Gloss retention</u> After 1 year : at least 65% After 2 years : at least 50%</p> <p><u>Colour change:</u> After 2 years: within the limits prescribed in Appendix A12</p>	<p>5° south 10 panels per colour shade</p> <p>Exposure time: 3 years with an annual evaluation</p> <p><u>Gloss retention</u> After 1 year : at least 75% After 2 years : at least 60% After 3 years : at least 50%</p> <p><u>Colour change:</u> After 3 years: within the limits prescribed in Appendix A12.</p>	<p>45° south 10 panels per colour shade</p> <p>Exposure time: 10 years with an evaluation after 3 and 7 years</p> <p><u>Gloss retention</u> After 3 years: at least 80% After 5 years: at least 70% After 7 years: at least 60% After 10 years: at least 50%</p> <p><u>Colour change:</u> After 3 years : max. 50% of the limits prescribed in Appendix A12 After 10 years: within the limits prescribed in</p>

A11 – RAL families and critical colours

[...]

3. Critical colours and classification of RAL families for class 3

9 16 groups of homogeneous colours (solid colours of a similar hue and shade) have been defined as RAL families for the renewal of class 3 approvals.

3 5 RAL families match lightness category LIGHT (CIELAB L* > 70), 3 5 match lightness category MEDIUM (CIELAB L* between 40 and 70), and 3 6 match lightness category DARK ((CIELAB L* < 40).

QUALICOAT has excluded 114 86 critical RAL colours, which, as powder coating technology stands today, do not have sufficient resistance to colour change after 10 years of outdoor exposure.

114 86 CRITICAL RAL COLOURS (colours excluded from the RAL families)						
RAL 1004	RAL 1003	RAL 2000	RAL 3000	RAL 4001	RAL 5000	RAL 6000
RAL 1005	RAL 1012	RAL 2001	RAL 3001	RAL 4002	RAL 5001	RAL 6001
RAL 1006	RAL 1016	RAL 2002	RAL 3002	RAL 4003	RAL 5002	RAL 6002
RAL 1007	RAL 1018	RAL 2003	RAL 3003	RAL 4004	RAL 5003	RAL 6003
RAL 1017	RAL 1021	RAL 2004	RAL 3004	RAL 4005	RAL 5004	RAL 6004
RAL 1032	RAL 1023	RAL 2008	RAL 3005	RAL 4006	RAL 5005	RAL 6005
RAL 1034	RAL 1027	RAL 2009	RAL 3007	RAL 4007	RAL 5007	RAL 6006
RAL 1037	RAL 1028	RAL 2010	RAL 3009	RAL 4008	RAL 5008	RAL 6007
	RAL 1033	RAL 2011	RAL 3011	RAL 4009	RAL 5009	RAL 6008
		RAL 2012	RAL 3012	RAL 4010	RAL 5010	RAL 6009
			RAL 3013		RAL 5011	RAL 6010
			RAL 3014		RAL 5012	RAL 6011
			RAL 3015		RAL 5013	RAL 6012
			RAL 3016		RAL 5014	RAL 6013
			RAL 3017		RAL 5015	RAL 6014
			RAL 3018		RAL 5017	RAL 6015
			RAL 3020		RAL 5018	RAL 6016
			RAL 3022		RAL 5019	RAL 6017
			RAL 3027		RAL 5020	RAL 6018
			RAL 3028		RAL 5021	RAL 6019
			RAL 3031		RAL 5022	RAL 6020
					RAL 5023	RAL 6021
					RAL 5024	RAL 6022
						RAL 6024
						RAL 6025
						RAL 6026
						RAL 6027
						RAL 6028
						RAL 6029
						RAL 6032
						RAL 6033
						RAL 6034
						RAL 6037

SUMMARY	
Number of solid RAL colours (excluding metallic and pearl RAL colours)	190
Solid RAL colours (non-critical)	76 104
Critical solid RAL colours	114 86
Number of RAL families	9 16
Lightness category LIGHT (L>70)	3 5 RAL families 17 22 RAL colours
Lightness category MEDIUM (<70 > 40)	3 5 RAL families 41 54 RAL colours
Lightness category DARK (L<40)	3 6 RAL families 18 28 RAL colours

~~76~~ 104 SOLID RAL COLOURS (non-critical)¹

~~9~~ 16 RAL FAMILIES

RAL 1XXX	FAMILY 1/LIGHT	FAMILY 1/MEDIUM
DESCRIPTION	IVORY AND BEIGE	OCHRE / YELLOW MEDIUM
RAL	1000 - 1001 - 1002 - 1013 -1014 – <u>1015</u>	<u>1011</u> - 1019 - 1020 -1024
Total 10 colours	6	4

RAL 3XXX	FAMILY 3/MEDIUM	FAMILY 3/DARK
DESCRIPTION	LIGHT RED AND PINK	DARK RED
RAL	<u>3012</u> *	<u>3005</u> * - 3007* - 3009* - 3011*
Total 5 colours	1	4

RAL 5XXX	FAMILY 5/LIGHT	FAMILY 5/MEDIUM	FAMILY 5/DARK
DESCRIPTION	LIGHT BLUE	MEDIUM BLUE	DARK BLUE
RAL	<u>5014</u> * - 5015* - 5023* - <u>5024</u> *	<u>5000</u> * - 5005* - 5007* - 5017* - <u>5018</u> * - 5021*	<u>5004</u> * -5008*
Total 12 colours	4	6	2

RAL 6XXX	FAMILY 6/MEDIUM	FAMILY 6/DARK
DESCRIPTION	MEDIUM GREEN	DARK GREEN
RAL	<u>6000</u> * – <u>6010</u> * – <u>6013</u> * - <u>6017</u> *- <u>6021</u> * – <u>6025</u> * - <u>6033</u> *	<u>6004</u> * – 6005* - 6009* - 6028*
Total 10 colours	7	4

¹ Colours underlined = basic colours (see Section 4.1.4)

* These colours have to be assessed every two years.

RAL 7XXX	FAMILY 7/LIGHT	FAMILY 7/MEDIUM	FAMILY 7/DARK
DESCRIPTION	LIGHT GREY	MEDIUM GREY	DARK GREY
RAL	7032 – <u>7035</u> - 7038 - 7044 - 7047	7000 - 7001 - 7002 - 7003 - 7004 - 7005 - 7006 - 7008 - 7009 - 7010 - 7011 - 7012 - - 7015 - 7023 - 7030 - 7031 - 7033 - 7034 - 7036 - 7037 - 7039 - <u>7040</u> - 7042 - 7043 - 7045 - 7046	7013 – <u>7016</u> - 7021 - 7022 - 7024 - 7026
Total 37 colours	5	26	6

RAL 8XXX	FAMILY 8/MEDIUM	FAMILY 8/DARK
DESCRIPTION	MEDIUM BROWN	DARK BROWN
RAL	8000 - 8001 - 8002 - 8003 - 8004 - 8008 - 8012 – 8015 - 8023 - <u>8024</u> - 8025	8007 - 8011- 8014 - 8016 - 8017 – <u>8019</u> - 8022 - 8028
Total 19 colours	11	8

RAL 9XXX	FAMILY 9/LIGHT	FAMILY 9/DARK
DESCRIPTION	WHITE - CREAM AND GREY WHITE	BLACK
RAL	9001- 9002 - 9003 – <u>9010</u> - 9016 - 9018	9004 – <u>9005</u> - 9011- 9017
Total 10 colours	6	4

A12 – Lists of colour tolerances after weathering tests for granting or renewing an approval (for QUALICOAT laboratories)

Colour tolerances after the weathering test for Class 3 organic coatings													
RAL	Δ E	RAL	Δ E	RAL	Δ E	RAL	Δ E	RAL	Δ E	RAL	Δ E	RAL	Δ E
1000	3.0	3004	5.0	5000	5.0	6000	5.0	7000	4.0	8000	4.0	9001	3.0
1001	3.0	3005	5.0	5001	5.0	6001	5.0	7001	4.0	<u>8001</u>	4.0	9002	3.0
1002	3.0	3007	5.0	5003	5.0	6002	5.0	7002	4.0	8002	4.0	9003	3.0
1011	3.0	3009	5.0	5004	5.0	6003	5.0	7003	4.0	8003	4.0	9004	5.0
<u>1013</u>	3.0	3011	5.0	5005	5.0	6004	5.0	7004	4.0	8004	4.0	<u>9005</u>	5.0
1014	3.0	3012	5.0	5007	5.0	6005	5.0	7005	4.0	8007	4.0	<u>9006</u>	4.0
1015	3.0			5008	5.0	6006	5.0	7006	4.0	8008	4.0	<u>9007</u>	4.0
1019	3.0			5009	5.0	6007	5.0	7008	4.0	8011	4.0	<u>9010</u>	3.0
1020	6.0			5010	5.0	6008	5.0	7009	4.0	8012	4.0	9011	5.0
<u>1024</u>	3.0			5011	5.0	6009	5.0	7010	4.0	<u>8014</u>	4.0	9016	3.0
				5012	5.0	6010	5.0	7011	4.0	8015	4.0	9017	5.0
				5013	5.0	6011	5.0	7012	4.0	8016	4.0	9018	3.0
				5014	5.0	6012	5.0	7013	4.0	8017	4.0	9022	4.0
				5015	5.0	6013	5.0	<u>7015</u>	4.0	8019	4.0		
				5017	5.0	6014	5.0	<u>7016</u>	4.0	8022	5.0		
				5018	5.0	6015	5.0	7021	4.0	8023	4.0		
				5019	5.0	6017	5.0	7022	4.0	<u>8024</u>	4.0		
				5020	5.0	6020	5.0	7023	4.0	8025	4.0		
				5021	5.0	<u>6021</u>	5.0	7024	4.0	8028	4.0		
				5022	5.0	6022	5.0	7026	4.0				
				5023	5.0	6025	5.0	7030	4.0				
				5024	5.0	6026	5.0	7031	4.0				
						6028	5.0	<u>7032</u>	3.0				
						6033	5.0	7033	4.0				
								7034	4.0				
								7035	3.0				
								7036	4.0				
								7037	4.0				
								7038	3.0				
								7039	4.0				
								7040	4.0				
								7042	4.0				
								7043	4.0				
								7044	3.0				
								7045	4.0				
								7046	4.0				
								<u>7047</u>	3.0				