

Subject:	SUMMARY OF REQUIREMENTS FOR THE APPROVAL OF POWDER COATING MATERIALS (CLASS 1, 2 AND 3)
Proposal:	“Powders” Working Group (10 June 2010)
QUALICOAT resolution:	TC/EC Meeting held on 23 June 2010 <i>(ratified on 4 November 2010)</i>
Date of application:	1 January 2011
Amendments to the Specifications:	New appendix A10 - SUMMARY OF REQUIREMENTS FOR THE APPROVAL OF POWDER COATING MATERIALS (CLASSES 1, 2 AND 3) Footnote in paragraph 4.1.2

4.1.2 Tests for granting an approval⁵

The following tests must be made:

[...]

⁵ A summary of tests and requirements for powder coatings is given in Appendix A10.

APPENDIX A10: SEE NEXT PAGES

A10 –Summary of requirements for the approval of powder coating materials (classes 1, 2 and 3)

TESTS 1-15		STANDARD	QUALICOAT SPECIFICATIONS		
			CLASS 1 POWDERS	CLASS 2 POWDERS	CLASS 3 POWDERS
1	GLOSS 2.2	EN ISO 2813	Permissible variation from the nominal value specified by the coating supplier: Category 1: 0 - 30 +/- 5 units Category 2: 31 - 70 +/- 7 units Category 3: 71 - 100 +/- 10 units	Same as class 1	Same as class 1
2	COATING THICKNESS 2.3	EN 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	Minimum thickness = 50 µm None of the values measured may be less than 80% of the specified minimum value
3	ADHESION 2.4	EN ISO 2409	The result must be 0.	Same as class 1	Same as class 1
4	INDENTATION 2.5	EN ISO 2815	Minimum 80 with the specified required coating thickness.	Same as class 1	Same as class 1
5	CUPPING TEST 2.6	EN ISO 1520	Minimum 5 mm Viewed with the naked eye, the coating must not show any sign of cracking or detachment.	Minimum 5 mm Viewed with the naked eye, the coating must not show any sign of detachment following the <u>tape pull adhesion test</u> .	Same as class 2
6	BEND TEST 2.7	EN ISO 1519	Minimum 5 mm mandrel Viewed with the naked eye, the coating must not show any sign of cracking or detachment.	Viewed with the naked eye, the coating must not show any sign of detachment following the <u>tape pull adhesion test</u> .	Same as class 2
7	IMPACT TEST 2.8	EN ISO 6272 ASTM D 2794	Minimum 2.5 Nm Viewed with the naked eye, the coating must not show any sign of cracking or detachment.	Viewed with the naked eye, the coating must not show any sign of detachment following the <u>tape pull adhesion test</u> .	Same as class 2
8	RESISTANCE TO HUMID ATMOSPHERES 2.9	EN ISO 3231	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 EN ISO 4628-2	Same as class 1	Same as class 1

TESTS 1-15		STANDARD	QUALICOAT SPECIFICATIONS		
			CLASS 1 POWDERS	CLASS 2 POWDERS	CLASS 3 POWDERS
9	ACETIC ACID SALT SPRAY RESISTANCE 2.10	EN ISO 9227	<p>Testing time: 1000 hours</p> <p>A (3 samples satisfactory, 0 unsatisfactory) B (2 samples satisfactory, 1 unsatisfactory) C (1 sample satisfactory, 2 unsatisfactory) D (0 sample satisfactory, 3 unsatisfactory)</p> <p>A/B : test result satisfactory C/D: test result unsatisfactory</p>	<p>Same as class 1</p>	<p>Testing time: 2000 hours</p> <p>Evaluation: same as class 1</p>
10	ACCELERATED WEATHERING TEST 2.12	EN ISO 11341	<p>Exposure time: 1000 hours</p> <p>Gloss retention: the loss of gloss after the accelerated weathering test must not be greater than 50% of the original value</p> <p>Colour change: according to the ΔE values stipulated in appendix A7.</p>	<p>Exposure time: 1000 hours</p> <p>Gloss retention: the loss of gloss after the accelerated weathering test must not be greater than 10% of the original value</p> <p>Colour change: not greater than 50% of the limits prescribed in appendix A7</p>	<p>Exposure time: 2000 hours Every 500 hours: check gloss and colour</p> <p>Gloss retention: the loss of gloss after the accelerated weathering test must not be greater than 10% of the original value</p> <p>Colour change: not greater than 50% of the limits prescribed in appendix A7</p>
11	POLYMERISATION TEST 2.14 (OPTIONAL)	----	<p>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.</p> <p>Ratings 1/2: test result unsatisfactory Ratings 3/4: test result satisfactory</p>	<p>Same as class 1</p>	<p>Same as class 1</p>
12	RESISTANCE TO MORTAR 2.15	EN 12206-1 par. 5.9	<p>Any change in the appearance/colour of metallic coatings must not exceed 1 on the reference scale (see Appendix A4). All other colours must not show any change.</p>	<p>Same as class 1</p>	<p>Same as class 1</p>

TESTS 1-15		STANDARD	QUALICOAT SPECIFICATIONS		
			CLASS 1 POWDERS	CLASS 2 POWDERS	CLASS 3 POWDERS
13	RESISTANCE TO BOILING WATER 2.16	-----	No blistering in excess of 2 (S2) according to EN ISO 4628-2. There must not be any defects or detachment. Some colour change is acceptable.	Same as class 1	Same as class 1
14	CONSTANT CLIMATE CONDENSATION WATER TEST 2.17	EN ISO 6270	<p>Testing time: 1000 hours</p> <p>No blistering in excess of 2 (S2) according to EN ISO 4628-2.; the maximum infiltration at the cross is 1 mm.</p>	Same as class 1	<p>Testing time: 2000 hours</p> <p>No blistering in excess of 2 (S2) according to EN ISO 4628-2; the maximum infiltration at the cross is 1 mm.</p>
15	NATURAL WEATHERING TEST (FLORIDA) 2.13	EN ISO 2810	<p>5° south 4 panels per colour shade</p> <p>Exposure time: 1 year</p> <p>Gloss retention: the loss of gloss after the natural weathering test must not be greater than 50% of the original value</p> <p>Colour change: according to the ΔE values stipulated in appendix A7.</p>	<p>5° south 10 panels per colour shade</p> <p>Exposure time: 3 years with an annual evaluation</p> <p>Gloss retention After 1 year in Florida : at least 75% of the original value After 2 years in Florida: at least 65% After 3 years in Florida: at least 50%</p> <p>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 the table</p>	<p>45° south 13 panels per colour shade</p> <p>Exposure time: 10 years with an evaluation after 1, 4 and 7 years</p> <p>Gloss retention After 1 years in Florida: at least 90% After 4 years in Florida: at least 70% After 7 years in Florida: at least 55% After 10 years in Florida : at least 50%</p> <p>Colour change: After 10 years in Florida, the ΔE values must not exceed 5.</p>