



Appendix to the QUALICOAT Specifications 2021

Specifications for Decoration of coated Aluminium
used for architectural Applications (QUALIDECO)

MASTER VERSION 02

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TERMINOLOGY

COATING APPLICATOR: applicator of powder coating materials.

DECORATOR: applicator of decorations.

DECORATION or DECORATIVE FINISH: a single combination of a paper or plastic film with a powder coating (sublimation technology) or of a base coating with a top coating (powder-on-powder technology).

DECORATION CLASS: classification of decorative finishes according to weathering performance. Class 1 decorative finishes are approved after 1 year of exposure in Florida and class 2 decorative finishes after 3 years of exposure in Florida.

DECORATION SYSTEM: combination of an approved powder coating (DP-No.) from a licensed powder supplier (PS-No.) with a film from a licensed film supplier (FS-No.).

DP-APPROVAL: confirmation that a powder coating meets the requirements specified for sublimation according to Appendix VI of the Specifications for Decoration of coated Aluminium used for architectural Applications.

FILM SUPPLIER: supplier of paper or plastic film used for transferring decorations.

FS-LICENCE (film supplier): confirmation that a film supplier's facility operates in accordance with the Specifications for Decoration of coated Aluminium used for architectural Applications.

GLOSS CATEGORY: classification of gloss finishes into three different gloss levels (matt, semi-matt or semi-gloss, gloss).

LICENCE (decorator): confirmation that a decoration plant operates in accordance with the Specifications for Decoration of coated Aluminium used for architectural Applications for one specific technology.

NEW TECHNOLOGY: technology used to produce decorations other than sublimation or powder-on-powder.

OTHER EFFECTS: decorative finishes other than wood.

POWDER COATING CLASS: QUALICOAT classification of powder coatings according to weathering performance. Class 1 powder coatings are approved after 1 year of exposure in Florida and Class 2 powder coatings after 3 years of exposure in Florida.

POWDER SUPPLIER: supplier of powder coating material.

P/P-APPROVAL: confirmation that a combination of two QUALICOAT approved powder coatings meets the requirements specified for powder-on-powder according to chapter 5 of the Specifications for Decoration of coated Aluminium used for architectural Applications.

PS-LICENCE (powder supplier): confirmation that a powder supplier's facility operates in accordance with the Specifications for Decoration of coated Aluminium used for architectural Applications.

QUALICOAT (QUALIDECO) LICENCE: confirmation that a facility operates in accordance with the Specifications for Decoration of coated Aluminium used for architectural Applications.

SELF-TESTED DECORATIONS: class 1 decorations tested by powder and/or film suppliers (sublimation technology)¹

WOOD EFFECTS: decorative finishes similar to wood.

¹ See Appendix II-2.



Chapter 1

INTRODUCTION



1. INTRODUCTION

1.1. Scope and purpose of the Specifications

Various technologies can be used to produce decorative finishes on products, such as wood effect. The Specifications for Decoration of coated Aluminium used for architectural Applications cover technologies based on the transfer of images to coated substrates using the sublimation process or on powder-on-powder application using suitable techniques. Other technologies may be used only if they have been previously approved by QUALICOAT as specified in [Appendix III](#) of the following Specifications.

The QUALICOAT (QUALIDECO) Specifications do not include process tests because the technology is patented.

The aim of these Specifications is to establish minimum requirements that decoration plants, materials and decorated products shall meet and to ensure continuous quality control of products so that decorators and – in the case of sublimation technology – powder and film suppliers can be granted a QUALICOAT (QUALIDECO) licence for exterior architectural Applications.

1.2. Basic principles

- a) The company that performs the coating cycle shall hold the QUALICOAT quality label to ensure that the coating is applied under the best conditions and the company has the equipment for the tests.
- b) For sublimation technology, the film and powder suppliers shall be licensed in accordance with [Chapter 3](#) and the base powder coating shall be approved for sublimation use in accordance with Appendix VI.
- c) For powder-on-powder technology, the powder coating materials shall be approved by QUALICOAT and the P/P combination shall be approved in accordance with [§ 5.2](#) of the QUALICOAT (QUALIDECO) Specifications. The base and top coatings shall be applied at the same production site.
- d) If a decoration plant uses different technologies, every technology shall be approved, and the licence shall identify the technology used by the decorator.
- e) The licensees shall attend training programmes organised regularly by the General Licensee or QUALICOAT.



Chapter 2

TEST METHODS AND REQUIREMENTS FOR DECORATIVE FINISHES

2. TEST METHODS AND REQUIREMENTS FOR DECORATIVE FINISHES

The test methods described below are used to test decorative finishes. They are based on international standards, where they exist.

The requirements are specified on the basis of practical experience and/or testing programmes organised by QUALICOAT.

2.1. Gloss

ISO 2813 – using incident light at 60° to the normal

REQUIREMENTS:

Gloss category	Gloss range	Acceptable variation*
1 (matt)	0 – 30	+/- 5 units
2 (semi-matt or semi-gloss)	31 – 70	+/- 7 units
3 (gloss)	71 – 100	+/- 10 units

(* permissible variation from the nominal value specified by the coating supplier)

2.2. Coating thickness

EN ISO 2360

The thickness of the organic coating on each part to be tested shall be measured on the significant surface at not less than five measuring areas (appr.1 cm²).

REQUIREMENTS:

None of the measured values may be less than 80% of the specified minimum value (60 µm), otherwise the thickness test as a whole shall be considered unsatisfactory.

2.3. Resistance to humid atmospheres containing sulphur dioxide

EN ISO 3231 (0.2 l SO₂ – 24 cycles)

A cross-cut incision with a width of 1 mm shall be made to cut the organic coating down to the metal.

REQUIREMENTS:

No infiltration exceeding 1 mm on both sides of the scratch, and no colour change² or blistering in excess of 2 (S2) in accordance with ISO 4628-2.

² If there is any colour change, the samples shall be heated at 105°C for 30 minutes and a new assessment of the colour change shall be made.



2.4. Accelerated weathering test

ISO 16474-2 Method A (daylight filters) – Cycle 1 (102 min. dry/18 min. wet)

Testing time:

CLASS 1	CLASS 2
1000 hours	2000 hours, with gloss and colour change measured every 500 hours.

After exposure, the test panels shall be rinsed with demineralised water and checked for:

Gloss variation: ISO 2813 - 60° angle of incidence

Colour change: ΔE CIELAB using the formula in ISO 11664-4, measurement including specular reflection.

Visual assessment: grey scale in accordance with ISO 105-A02

Three colour measurements shall be made on the test panels before and after the accelerated weathering test.

REQUIREMENTS:

Gloss retention³

CLASS 1	CLASS 2
After 1000 hours: 50% residual gloss for all categories	After 2000 hours: 50% residual gloss for category 1 70% residual gloss for categories 2 and 3

- Colour change:
 - Visual assessment with a minimum acceptable value of 4 on the grey scale
 - Instrumental assessment (for information only, not decisive for the final evaluation).

2.5. Natural weathering test

Exposure in Florida according to ISO 2810

The test should start in April.

Class 1 finished products

Samples shall be exposed facing 5° south for 1 year.

4 test panels per colour shade are required (3 for weathering and 1 reference panel)

³

$$\text{Gloss retention} = \frac{\text{gloss value measured after testing}}{\text{initial gloss value}} \times 100$$



Class 2 finished products

Samples shall be exposed facing 5° south for 3 years with an annual evaluation.
10 test panels per colour shade are required (3 per year for weathering and 1 reference panel).

REQUIREMENTS:

a) Gloss

The gloss retention shall be at least 50% for class 1 finished products.

The following values apply to class 2 finished products:

- After 1 year in Florida : at least 75%
- After 2 years in Florida : at least 60%
- After 3 years in Florida : at least 50%

In case of unsatisfactory result, an additional visual assessment shall be carried out for

- Gloss category 1 finished products
- Finished products with structured appearance in all gloss categories

b) Colour change:

- Visual assessment with a minimum acceptable value of 4 on the grey scale (ISO 105-A02)
- Instrumental assessment (for information only).

2.6. Intercoating adhesion test (for powder-on-powder technology only)

The method for testing intercoating adhesion consists of two tests:

2.6.1 Dry adhesion

ISO 2409

The adhesive tape is prescribed by the standard. The spacing of the cuts shall be 1 mm for organic coating thicknesses of up to 60 µm, 2 mm for thicknesses between 60 µm and 120 µm, and 3 mm for thicknesses over 120 µm.

REQUIREMENTS: The result shall be 0.

2.6.2 Pressure cooker test (modified with cross-cut)

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.



The cross-hatch shall be made after one hour but within two hours. Apply an adhesive tape 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.

REQUIREMENTS: The result shall be 0.



Chapter 3

LICENSING OF FILM AND POWDER SUPPLIERS (APPLIES TO SUBLIMATION TECHNOLOGY ONLY)

3. LICENSING OF FILM AND POWDER SUPPLIERS (APPLIES TO SUBLIMATION TECHNOLOGY ONLY)

The grant of a licence to suppliers implies that film suppliers shall only use approved coating materials from licensed powder suppliers and that powder suppliers shall only use approved films from licensed film suppliers.

3.1. Licensing of film suppliers

3.1.1 Work specifications for film suppliers (REQUIREMENTS)

3.1.1.1 Traceability

The film supplier shall have a procedure for monitoring and documenting all manufacturing steps in order to ensure traceability in the production chain. The results of these measures shall be entered in some record (register) readily accessible to the inspector.

The film supplier shall comply with the procedure for film coding described in [Appendix II-1](#).

3.1.1.2 Laboratory and in-house control

In this context, the finished product is understood to be the film used for sublimation.

The film shall be tested after being applied to panels coated with an approved organic coating material (DP-approval⁴).

The film supplier shall have laboratory facilities that are separate from the production facilities. This laboratory shall have all the apparatus and chemicals necessary for testing the manufacturing process and finished products.

It shall at least be equipped with the following apparatus and reference material:

- ◆ a specular glossmeter
- ◆ an instrument for measuring coating thickness
- ◆ a recorder for curing temperature and time with four different measuring points
- ◆ apparatus for testing accelerated weathering resistance and for measuring colour change and gloss retention
- ◆ an application booth
- ◆ transfer equipment
- ◆ a grey scale reference (ISO 105-A02).

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

⁴ Appendix VI – Approval of organic coatings for sublimation

The film supplier shall use the following procedure to monitor its manufacturing process and test its finished products:

- A sample of each roll (every 1000 metres) shall be printed on the coated surface to check the visual appearance. The results shall be recorded and at least two samples, taken from the beginning and end of each roll, shall be stored.
- The film supplier shall provide the decorator with a **system data sheet** for the decoration approved for exterior applications (in particular indicating maximum sublimation temperatures and times and the reference to the film and powder codes). A copy shall be available to the inspector during his visit.
- The film supplier shall test every single new decoration in its laboratory and shall include every satisfactory decoration in a list of self-tested decorations which shall be shown to the inspector upon request.

3.1.2 Granting a licence to a film supplier⁵

The film supplier shall submit to the General Licensee (or QUALICOAT in countries where there is no GL) a written application for inspection and testing, according to the official form available on the [QUALICOAT website](#)⁶.

A licence shall be granted subject to the following conditions:

3.1.2.1 Plant inspection

An inspection of the film supplier's facility shall be carried out to check that the laboratory is equipped with the minimum apparatus and that its in-house control meets the requirements specified in [§ 3.1.1.2](#).

3.1.2.2 Testing and approval for class 1 (decoration systems)

- a) Following the acceptance of the film supplier's application, the laboratory responsible for testing shall ask the film supplier to send a roll of film (film coding according to [Appendix-II-1](#)) for the following **four basic decorations**:
 - WALNUT and OAK to be applied on a brown base
 - PINE and OAK to be applied on a beige base
- b) Samples of film shall be taken from that part of the roll where the pattern and printing marks appear.
- c) The laboratory shall apply the approved powder coating (DP-approval according to [Appendix VI](#)) and the film and perform the following tests:
 - Accelerated weathering test (see [§ 2.4.](#))
 - Resistance to humid atmospheres containing sulphur dioxide (see [§ 2.3.](#))
- d) If the laboratory test results are satisfactory, the decoration system(s) tested shall be approved and a natural weathering test shall be carried out in Florida (see [§ 2.5.](#)).

⁵ See [flow chart No. 1](#) at the end of section 3.1

⁶ <https://www.qualicoat.net/main/about-us/assured-quality/how-to-apply.html>

3.1.2.3 Testing and approval for class 2 (single decorations)

- a) Following the acceptance of the film supplier’s application, the laboratory responsible for testing shall ask the powder supplier(s) to send a sampling of organic coating material from a DP-approval class 2 for the **two basic class 2 decorations** clearly identified by the film supplier in the application form.
- b) The laboratory shall apply the powder coating and the film and perform the following tests:
 - Accelerated weathering test (see [§ 2.4.](#))
 - Resistance to humid atmospheres containing sulphur dioxide (see [§ 2.3.](#))
- c) If the laboratory test results are satisfactory for both decorations, these class 2 basic decorations shall be approved, and a natural weathering test shall be carried out in Florida (see [§ 2.5.](#)).

3.1.2.4 Conformity assessment

The licence shall be granted if the inspection and at least one decoration system (class 1) or both class 2 basic decorations are satisfactory.

TABLE 1: PROCEDURE FOR GRANTING A LICENCE TO A FILM SUPPLIER

INSPECTION RESULT	ACTIONS			
SATISFACTORY	▶ LABORATORY TESTS for the approval of a decoration system (class 1) or of two basic class 2 decorations	TEST RESULTS SATISFACTORY	FS-LICENCE GRANTED for the tested decoration system(s) (class 1) or for the tested basic class 2 decorations	▶ FLORIDA TEST
		TEST RESULTS UNSATISFACTORY	FS-LICENCE NOT GRANTED (a)	
UNSATISFACTORY	FS-LICENCE NOT GRANTED (a)			
FLORIDA TEST RESULTS		FINAL ASSESSMENT		
ALL DECORATIONS SATISFACTORY		FS-LICENCE CONFIRMED – DECORATION SYSTEM APPROVAL CONFIRMED		
ONE OR MORE BASIC CLASS 1 DECORATION(S) UNSATISFACTORY		FS-LICENCE CONFIRMED – DECORATION SYSTEM WITHDRAWN (b)		
ONE OR TWO CLASS 2 BASIC DECORATIONS UNSATISFACTORY		FS-LICENCE WITHDRAWN FOR THE BASIC CLASS 2 DECORATIONS (c)		

- a) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.
- b) If the film supplier has only one decoration system approved, the FS-licence itself shall be cancelled.
- c) If the film supplier has not any decoration system approved and no other class 2 decoration approved, the FS-LICENCE itself shall be cancelled.

3.1.3 Renewing a film supplier’s licence

After a film supplier has been granted a licence to use the quality label, its plant shall be inspected every three years.

The routine inspection shall include the following aspects:



- a) **LABORATORY EQUIPMENT** in accordance with [§ 3.1.1.2](#)
- b) **DECORATED SAMPLES** tested during in-house control
- c) **IN-HOUSE CONTROL AND REGISTERS**
- d) **SAMPLING**
 - **CLASS 1** : Two different decorations from the list of the film supplier’s self-tested decorations⁷ shall be selected by the inspector for testing in accordance with [§ 3.1.2.2 c\)](#) and [d\).](#)[¶]
 - **CLASS 2**: Two decorations selected from the list of the film supplier’s approved class 2 decorations and tested in accordance with [§ 3.1.2.3 b\)](#) and [c\)](#)

In years without a plant inspection, the testing laboratory shall perform the tests on samples of two decorations selected from the film supplier’s list of self-tested decorations in accordance with [3.1.2.2 c\) and d\)](#) and/or from the list of the supplier’s approved class 2 decorations in accordance with [3.1.2.3 b\) and c\)](#).

TABLE 2: PROCEDURE FOR RENEWING A FILM SUPPLIER’S QUALIDECO LICENCE

INSPECTION	INSPECTION RESULT	ACTIONS	REPETITION OF INSPECTION	FINAL ASSESSMENT	
	SATISFACTORY	▶ LABORATORY TESTS		SATISFACTORY	▶ LABORATORY TESTS
UNSATISFACTORY	▶ REPEAT INSPECTION	UNSATISFACTORY	FS-LICENCE WITHDRAWN		

LABORATORY TESTS	LABORATORY TEST RESULTS	ACTIONS	REPETITION OF LABORATORY TESTS	FINAL ASSESSMENT	
	BOTH DECORATIONS SATISFACTORY	FS-LICENCE RENEWED ▶ FLORIDA TEST		SATISFACTORY	▶ FLORIDA TEST
1 DECORATION UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ^(a)	UNSATISFACTORY	DECORATION BANNED ^(b)		
BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON BOTH DECORATIONS ^(a)	BOTH DECORATIONS SATISFACTORY	▶ FLORIDA TEST		
		1 DECORATION SATISFACTORY	▶ FLORIDA TEST		
		1 DECORATION UNSATISFACTORY	1 DECORATION BANNED ^(b)		
		BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT INSPECTION		

FLORIDA TEST	FLORIDA TEST RESULTS	FINAL ASSESSMENT
	BOTH DECORATIONS SATISFACTORY	FS-LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED BOTH DECORATIONS APPROVED
	1 DECORATION SATISFACTORY	FS-LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED SATISFACTORY DECORATION APPROVED
	1 DECORATION UNSATISFACTORY	FS-LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 1 DECORATION BANNED ^(b)
	BOTH DECORATIONS UNSATISFACTORY	FS-LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 2 DECORATIONS BANNED ^(b)

⁷ See [Appendix II-2](#)

- a) *After receiving notification of the unsatisfactory results, the supplier shall submit a new film sample, with the same reference code as the material used for preparing the unsatisfactory decoration(s). The laboratory shall then use this sample to prepare new decorated samples for repeating the tests.*
- b) *Every banned decoration shall be recorded in a list of banned decorations appended to the film supplier's certificate. The film supplier shall have banned decorations tested again as soon as possible after receiving notification. Banned decorations subject to repeat testing shall be considered suspended.*

3.1.4 Approval of a new decoration system

After a film supplier has been granted a FS-licence, new decoration systems shall be tested and approved following [§ 3.1.2.2.](#)

3.1.5 Approval of new class 2 decorations

After a film supplier has been granted a licence to use the quality label, class 2 decorations shall be approved subject to the following conditions:

- a) The film supplier shall submit to the laboratory responsible for testing a written application identifying the decoration(s) to be tested (reference codes of both the base coating and the film following the procedure for film coding described in [Appendix II-1](#)). The powder supplier shall be notified of this written application.
- b) All data pertaining to the named decoration (designation), decoration reference code, approval number and reference code for powder coating, and technical data sheets for the film and powder coating shall be available to allow correct application of the powder and film.
- c) The laboratory shall perform the tests prescribed in [§ 3.1.2.3.](#)
- d) An approval shall be granted for every single decoration if all the laboratory tests are satisfactory. A list of approved class 2 decorations shall be appended to the film supplier's certificate.
- e) If one or more tests are unsatisfactory, the laboratory shall inform both the film supplier and the powder supplier of the unsatisfactory results.
- f) The approval shall be confirmed if the result of the natural weathering test (Florida exposure) is satisfactory.

3.1.6 Withdrawal of a decoration system

The approval of a decoration system (base coating + film) shall be withdrawn if

- one or more basic decorations do not meet the requirements after the Florida test
- the DP- approval related to the decoration system approval is cancelled.
- as soon as four decorations are banned.

3.1.7 Withdrawal of a class 2 decoration

Every decoration that does not meet the requirements after two consecutive unsatisfactory laboratory test results or after the natural weathering test shall have its approval withdrawn and shall be included in a list published on the [QUALICOATwebsite](#) along with the film supplier's certificate.



3.1.8 Withdrawal of a film supplier’s licence

A film supplier’s licence shall be cancelled if two consecutive inspections are unsatisfactory.

A film supplier’s licence covering only one decoration system (class 1) shall be cancelled if the approval of this decoration system is withdrawn as per § 3.1.6.

A film supplier’s licence covering only two class 2 decorations shall be cancelled, if the approval of these two class 2 decorations has to be withdrawn as per § 3.1.7.

Procedure for reactivating a licence after cancellation of a decoration system approval

If the film supplier wishes to reapply for a licence, an inspection of the plant shall be carried out within one month after the date of withdrawal, and the inspection report shall be submitted to the GL and the Certification Body.

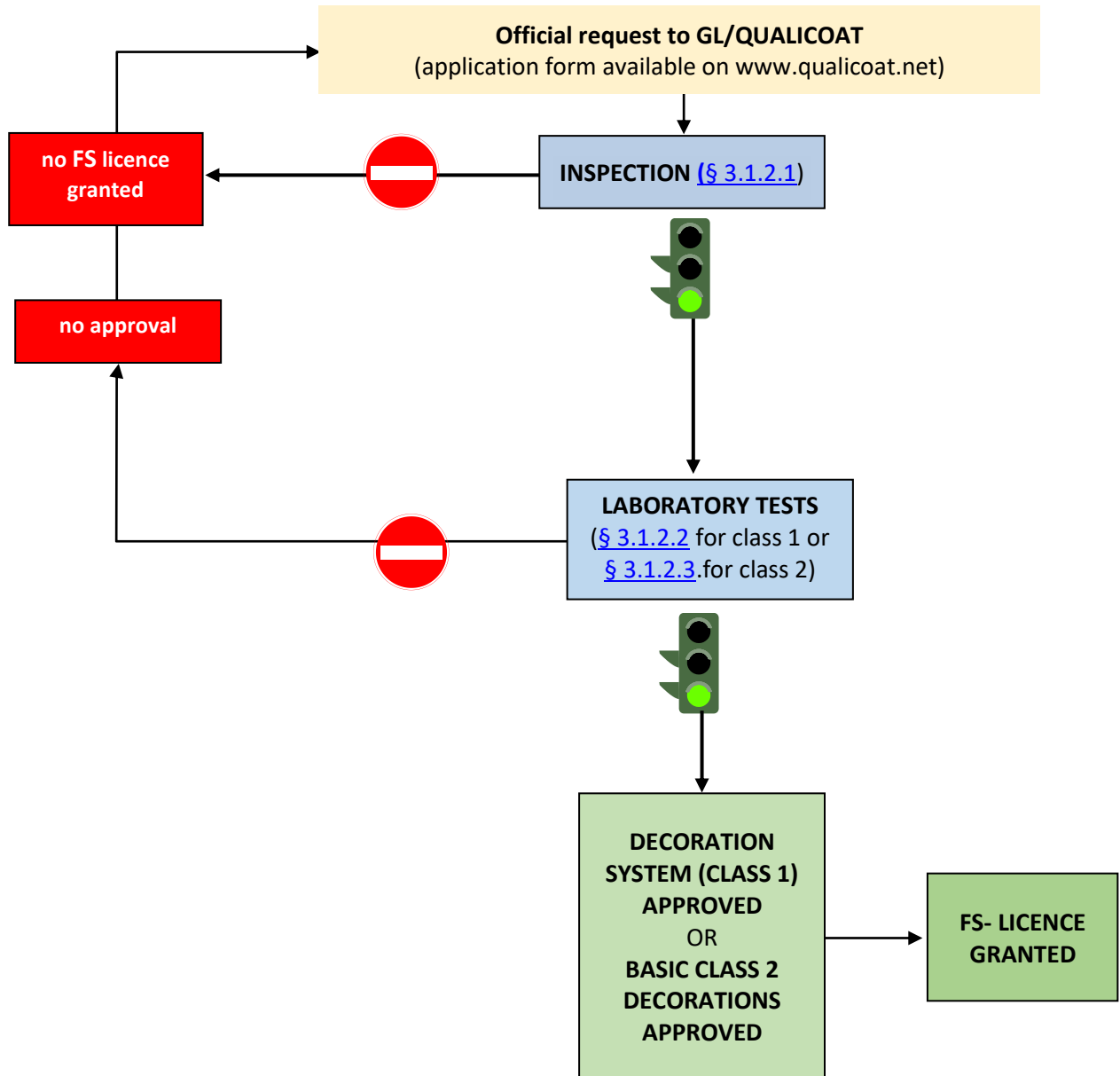
- If this inspection is unsatisfactory, the licence number shall be indefinitely cancelled.*
- If the inspection is satisfactory, the supplier shall submit the basic decorations for approval of a new decoration system.
 - If the results of the laboratory tests on one or more basic decorations are unsatisfactory, the licence number shall be indefinitely cancelled.*
 - If the laboratory test results are satisfactory, the licence shall be reactivated with the same licence number.

** If the film supplier applies for a licence again, a new licence number shall be granted after satisfactory inspection and laboratory tests results.*

TABLE 2b : PROCEDURE FOR REACTIVATING A LICENCE AFTER CANCELLATION OF A DECORATION SYSTEM APPROVAL

REPEAT INSPECTION RESULT	ACTIONS			
SATISFACTORY	▶ LABORATORY TESTS for approval of a new decoration system	TESTS RESULTS SATISFACTORY	LICENCE RE-ACTIVATED (WITH THE SAME LICENCE NO.)	FLORIDA TEST
		TEST RESULTS UNSATISFACTORY	FS No. CANCELLED *	
UNSATISFACTORY	FS No. CANCELLED			

Flow chart No. 1- GRANTING OF A LICENCE TO A FILM SUPPLIER



3.2. Licensing of powder suppliers

The procedure for granting and renewing approvals to organic coatings for the use in the sublimation technology is described in [Appendix VI](#).

3.2.1 Work specifications for powder suppliers (REQUIREMENTS)

3.2.1.1 Traceability

The powder supplier shall have a procedure for monitoring and documenting all manufacturing steps in order to ensure traceability in the production chain. The results of these measures shall be entered in some record (register) readily accessible to the inspector.

3.2.1.2 Laboratory and in-house control

The powder supplier shall have laboratory facilities that are separate from the production facilities. This laboratory shall have all the apparatus and chemicals necessary for testing the manufacturing process and decorated products.

It shall at least be equipped with the following apparatus and reference material:

- ◆ a specular glossmeter
- ◆ an instrument for measuring coating thickness
- ◆ apparatus for the mechanical tests
- ◆ a recorder for stoving temperature and time with four different measuring points
- ◆ apparatus for testing accelerated weathering resistance and for measuring colour change and gloss retention
- ◆ an application booth
- ◆ transfer equipment
- ◆ a grey scale reference (ISO 105-A02)

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

The powder supplier shall use the following procedure to monitor its manufacturing process and test its coated and decorated products:

- Each production lot shall be tested at least once, and a coated panel shall be prepared to check the visual appearance (gloss and colour) and mechanical properties every 100 to 300 kg depending on the lot size. The results shall be recorded in a register.
- In its laboratory, the powder supplier shall carry out an accelerated weathering test at least once a year on eight different approved decorations. The record of the results obtained shall be shown to the inspector.
- The powder supplier shall provide the decorator with a **system data sheet** for the decoration approved for exterior applications (in particular indicating minimum and maximum curing temperatures and times and the reference to the film and powder codes). A copy shall be available to the inspector during his visit.
- The powder supplier shall test every single new decoration in its laboratory and shall

include every satisfactory decoration in a list of self-tested decorations which shall be shown to the inspector upon request.

3.2.2 Granting a licence to a powder supplier⁸

The powder supplier shall submit to the General Licensee (or QUALICOAT in countries where there is no GL) a written application for inspection and testing, according to the official form available on the [QUALICOAT website](#)⁹.

A licence shall be granted subject to the following conditions:

3.2.2.1 Plant inspection

An inspection of the powder supplier's facility shall be carried out to check that its in-house control meets the requirements specified in [§ 3.2.1.2](#).

3.2.2.2 Testing and approval of organic coatings (DP- approval)

The testing and approval for organic coating(s) shall be done according to [Appendix VI](#).

3.2.2.3 Testing and approval for class 1 (decoration systems)

Following the acceptance of the powder supplier's application, the laboratory responsible for testing shall ask the film supplier(s) to send a roll of film (film coding according to [Appendix II-1](#)) for the following **four basic class 1 decorations**:

- WALNUT and OAK to be applied on a brown base
 - PINE and OAK to be applied on a beige base.
- a) Samples of film shall be taken from that part of the roll where the pattern and printing marks appear.
- b) The laboratory shall apply the powder coating and the film and perform the following tests:
- Accelerated weathering test (see [§ 2.4](#).)
 - Resistance to humid atmospheres containing sulphur dioxide (see [§ 2.3](#).)
- c) If the laboratory test results are satisfactory, a natural weathering test shall be carried out in Florida (see [§ 2.5](#).)

3.2.2.4 Testing and approval for class 2 (single decorations)

- a) Following the acceptance of the powder supplier's application, the laboratory responsible for testing shall ask the film supplier(s) to send a roll of film (film coding according to [Appendix II-1](#)) for the **two basic class 2 decorations** clearly identified by the powder suppliers in the application form.
- b) The laboratory shall apply the powder coating and the film and perform the following tests:

⁸ See [flow chart No. 2](#) at the end of § 3.2

⁹ <https://www.qualicoat.net/main/about-us/assured-quality/how-to-apply.html>

- Accelerated weathering test (see § 2.4.)
 - Resistance to humid atmospheres containing sulphur dioxide (see § 2.3.)
- c) If the laboratory test results are satisfactory for both decorations, these class 2 basic decorations shall be approved, and a natural weathering test shall be carried out in Florida (see § 2.5.).

3.2.2.5 Conformity assessment

The licence shall be granted if the inspection and at least one decoration system (class 1) or both class 2 basic decorations are satisfactory.

TABLE 3: PROCEDURE FOR GRANTING A LICENCE TO A POWDER SUPPLIER

INSPECTION RESULT	ACTIONS			
SATISFACTORY	▶ LABORATORY TESTS for the DP-approval and for the approval of a decoration system (class 1) or of two basic class 2 decorations	TEST RESULTS SATISFACTORY	PS-LICENCE GRANTED for the tested decoration system(s) (class 1) or for the tested basic class 2 decorations	▶ FLORIDA TEST
		TEST RESULTS UNSATISFACTORY	PS-LICENCE NOT GRANTED ^(a)	
UNSATISFACTORY	PS-LICENCE NOT GRANTED ^(a)			

FLORIDA TEST RESULTS	FINAL ASSESSMENT
ALL DECORATIONS SATISFACTORY	PS-LICENCE CONFIRMED – DECORATION SYSTEM APPROVAL CONFIRMED
1 OR MORE BASIC CLASS 1 DECORATION(S) UNSATISFACTORY	PS-LICENCE CONFIRMED – DECORATION SYSTEM APPROVAL WITHDRAWN ^(b)
1 OR 2 CLASS 2 BASIC DECORATIONS UNSATISFACTORY	PS-LICENCE WITHDRAWN FOR THE BASIC CLASS 2 DECORATIONS ^(c)

(1) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

(2) If the powder supplier has only one decoration system approved, the PS-licence itself shall be cancelled.

(3) If the powder supplier has not any decoration system approved and no other class 2 decoration approved, the PS-licence itself shall be cancelled.

3.2.3 Renewing a powder supplier’s licence

After a powder supplier has been granted a licence to use the quality label, its plant shall be inspected every three years.

The routine inspection shall include the following aspects:

- a) **LABORATORY EQUIPMENT** in accordance with § 3.2.1.2
- b) **DECORATED SAMPLES** tested during in-house control
- c) **IN-HOUSE CONTROL AND REGISTERS**
- d) **SAMPLING**



- **CLASS 1:** Two different decorations from the list of self-tested decorations¹⁰ shall be selected by the inspector for testing in accordance with § [3.2.2.3 b\) and c\).](#)
- **CLASS 2:** Two decorations selected from the list of the supplier's approved class 2 decorations shall be tested in accordance with § [3.2.2.4 b\) and c\).](#)

In years without a plant inspection, the testing laboratory shall perform the tests on samples of two decorations selected from the supplier's list of self-tested decorations in accordance with [3.2.2.3 b\)](#) and c) and/or from the list of the supplier's approved class 2 decorations in accordance with [3.2.2.4 b\) and c\).](#)

TABLE 4: PROCEDURE FOR RENEWING A POWDER SUPPLIER'S LICENCE

INSPECTION	INSPECTION RESULT	ACTIONS	REPETITION OF INSPECTION	FINAL ASSESSMENT	
	SATISFACTORY	▶ LABORATORY TESTS		SATISFACTORY	▶ LABORATORY TESTS
UNSATISFACTORY	▶ REPEAT INSPECTION	UNSATISFACTORY	LICENCE WITHDRAWN		

LABORATORY TESTS	LABORATORY TEST RESULTS	ACTIONS	REPETITION OF LABORATORY TESTS	FINAL ASSESSMENT	
	BOTH DECORATIONS SATISFACTORY	LICENCE RENEWED ▶ FLORIDA TEST		SATISFACTORY	▶ FLORIDA TEST
1 DECORATION UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ^{a)}	UNSATISFACTORY	DECORATION BANNED ^{b)}		
BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON BOTH DECORATIONS ^{a)}	BOTH DECORATIONS SATISFACTORY	▶ FLORIDA TEST		
		1 DECORATION SATISFACTORY			
		1 DECORATION UNSATISFACTORY	1 DECORATION BANNED ^{b)}		
		BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT INSPECTION		

FLORIDA TEST	FLORIDA TEST RESULTS	FINAL ASSESSMENT
	BOTH DECORATIONS SATISFACTORY	LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED BOTH DECORATIONS APPROVED
	1 DECORATION SATISFACTORY	LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED SATISFACTORY DECORATION APPROVED
	1 DECORATION UNSATISFACTORY	LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 1 DECORATION BANNED ^{b)}
	BOTH DECORATIONS UNSATISFACTORY	LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 2 DECORATIONS BANNED ^{b)}

- a) After receiving notification of the unsatisfactory results, the supplier shall submit a new powder sample, with the same reference code as the material used for preparing the unsatisfactory decoration(s). The laboratory shall then use this sample to prepare new decorated samples for repeating the tests.
- b) Every banned decoration shall be recorded in a list of banned decorations appended to the powder supplier's certificate. The powder supplier shall have banned decorations tested again as soon as possible after receiving notification. Banned decorations subject to repeat testing shall be considered suspended.

¹⁰ See [Appendix II-2.](#)

3.2.4 Approval of a new decoration system¹¹

After a powder supplier has been granted a PS-licence, new decoration systems shall be approved as following:

- § [3.2.2.3](#) for existing DP-approval with a new film supplier
- §§ [3.2.2.2](#) and [3.2.2.3](#) for new organic coating (without DP-No.)

3.2.5 Approval of new class 2 decorations

After a powder supplier has been granted a PS-licence, class 2 decorations shall be approved subject to the following conditions:

- a) The powder supplier shall submit to a laboratory approved by QUALICOAT for QUALIDECO testing a written application identifying the decoration(s) to be tested (reference codes of both the film and the base coating). The film supplier shall be notified of this written application.
- b) All data pertaining to the named decoration shall be available to allow correct application of the powder and film:
 - Designation
 - Decoration reference code
 - DP-approval for class 2 and reference code of the powder coating
 - Film reference complying with the procedure for film coding described in [Appendix II-1](#)
 - Technical data sheets for the film and powder coating
- c) The laboratory shall perform the tests prescribed in [3.2.2.4](#).

An approval shall be granted for every single decoration if all the laboratory tests are satisfactory. A list of approved class 2 decorations shall be appended to the powder supplier's certificate.

If one or more tests are unsatisfactory, the laboratory shall inform both the powder supplier and the film supplier of the unsatisfactory results.

The approval shall be confirmed if the result of the natural weathering test (Florida exposure) is satisfactory.

3.2.6 Withdrawal of a decoration system

The approval of a decoration system (base coating + film) shall be withdrawn in the following cases:

- a) If one or more basic decoration(s) do not meet the requirements after the Florida test.
- b) If the DP-No. related to the decoration system approval is cancelled.
- c) As soon as four decorations are banned.

¹¹ See [flow chart No. 3](#) at the end of section 3.2.

3.2.7 Withdrawal of a class 2 decoration

Every decoration that does not meet the requirements after two consecutive unsatisfactory laboratory test results or after the natural weathering test shall have its approval withdrawn and shall be included in a list published on the [QUALICOAT website](#) along with the powder supplier’s certificate.

3.2.8 Withdrawal of a powder supplier’s licence

A powder supplier’s licence shall be cancelled if two consecutive inspections are unsatisfactory.

A powder supplier’s licence covering only one decoration system (class 1) shall be cancelled if the approval of this decoration system is withdrawn as per [§ 3.2.6](#).

A powder supplier’s licence covering only two class 2 decorations and no decoration system shall be cancelled if the approval of these class 2 decorations has to be withdrawn as stipulated in [§ 3.2.7](#).

Procedure for reactivating a licence after cancellation of a decoration system approval

If the powder supplier wishes to reapply for a licence, an inspection of the plant shall be carried out within one month after the date of withdrawal, and the inspection report shall be submitted to the GL and the Certification Body.

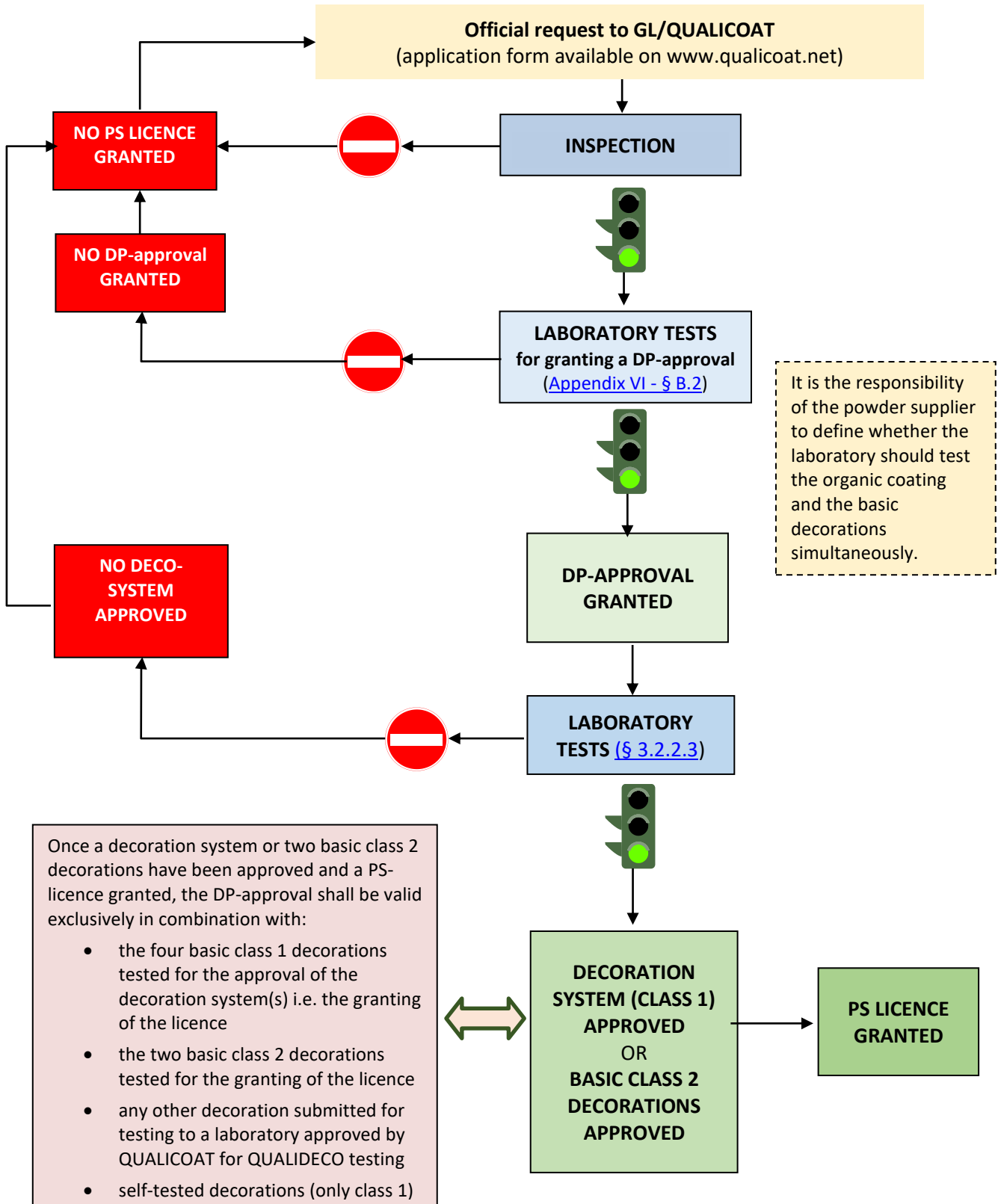
- If this inspection is unsatisfactory, the licence number shall be indefinitely cancelled.*
- If the inspection is satisfactory, the supplier shall submit the basic decorations for approval of a new decoration system.
 - If the results of the laboratory tests on one or more basic decorations are unsatisfactory, the licence number shall be indefinitely cancelled.*
 - If the laboratory test results are satisfactory, the licence shall be reactivated with the same licence number.

** If the powder supplier applies for a licence again, a new licence number shall be granted after satisfactory inspection and laboratory tests results.*

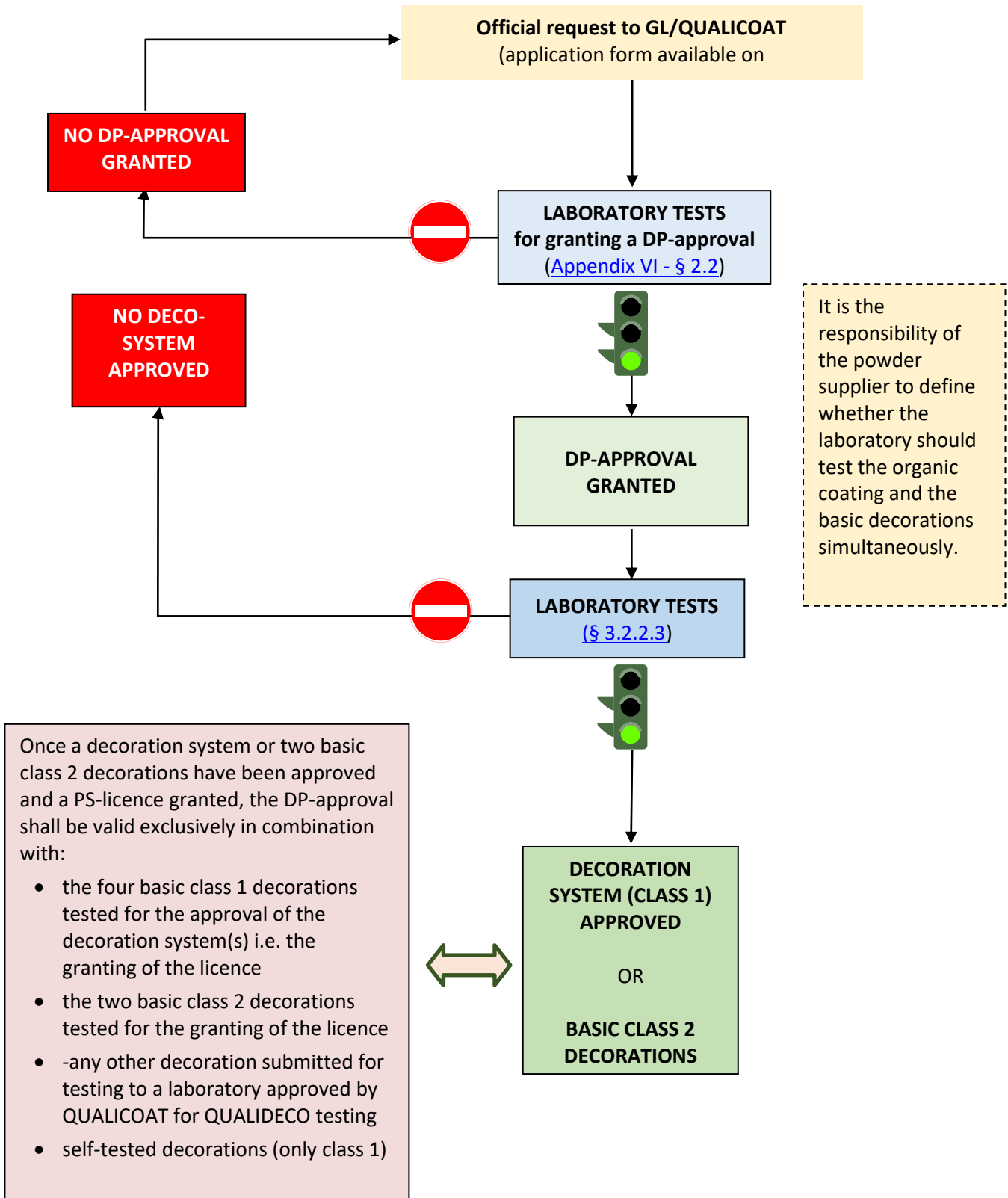
TABLE 4b : PROCEDURE FOR REACTIVATING A LICENCE AFTER CANCELLATION OF A DECORATION SYSTEM APPROVAL

REPEAT INSPECTION RESULT	ACTIONS			
SATISFACTORY	▶ LABORATORY TESTS for approval of a new decoration system	TESTS RESULTS SATISFACTORY	LICENCE RE-ACTIVATED (WITH THE SAME LICENCE NO.)	FLORIDA TEST
		TEST RESULTS UNSATISFACTORY	PS No. CANCELLED *	
UNSATISFACTORY	PS No. CANCELLED			

Flow chart No. 2- GRANTING OF A LICENCE TO A POWDER SUPPLIER



Flow chart No. 3- GRANTING OF APPROVALS TO A LICENSED POWDER SUPPLIER





Chapter 4

LICENSING OF DECORATORS FOR SUBLIMATION TECHNOLOGY

4. LICENSING OF DECORATORS FOR SUBLIMATION TECHNOLOGY

Decorations using sublimation technology are obtained by transferring an image from a support (that can be paper or plastic film) to a coated surface with a special process using temperature and/or pressure and/or under vacuum.

The decorators are responsible for checking that the decorations they use have been tested and approved by QUALICOAT (QUALIDECO) or are included in their suppliers' lists of self-tested decorations as described in [Appendix II](#).

- **Class 1:** The decorator shall only use decorations that are approved or are included in the suppliers' lists of self-tested decorations as described in [Appendix II](#).
- **Class 2:** The decorator shall only use decorations approved in accordance with [§ 3.1.5](#) and [§ 3.2.5](#).

4.1. Work specifications for decorators using sublimation technology (REQUIREMENTS)

4.1.1 Sublimation

To produce decorated products, the decorator shall have a sublimation process that operates with a system to check the metal temperature, under the conditions prescribed by the suppliers in the technical data sheets.

4.1.2 Laboratory

The decorator shall at least be equipped with the following apparatus:

- ◆ specular glossmeter
- ◆ instrument for measuring coating thickness
- ◆ equipment to check metal temperature (for instance thermo labels or a temperature recorder).

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

4.1.3 In-house control

Traceability of all raw materials used for the decoration process is a requirement. The decorator shall ensure unique identification of the decorated products and maintain records.

The decorator shall monitor the production processes and inspect the decorated products as follows:

- **INCOMING MATERIALS**

The decorator shall keep a register showing all data relating to the material received and to be decorated (date, coating applicator's reference, customer, DP-No.¹² of base coating, powder



coating reference code, film supplier, decoration designation, film reference code).¹³

The coated material shall be delivered by the coating applicator to the decorator with an applicator certificate (for example a copy of the in-house control records relating to the lot). This certificate shall be archived by the decorator.

The maximum time allowed between coating and decoration is two weeks. During this period, the coated material shall be protected from dust and all kinds of contamination.

• **COATED PRODUCTS**

a) **Gloss (ISO 2813)**

Gloss values shall be provided by the coating applicator for every lot of coated products (one lot represents a customer's complete order in one colour or that part of the order which is in the plant).

If the gloss cannot be measured with apparatus, a visual assessment shall be performed.

The results of these analyses shall be entered in some record (register) readily accessible to the inspector, showing the nominal values and maximum values not to be exceeded.

b) **Coating thickness (ISO 2360)**

The coating thickness measurements shall be provided by the coating applicator on at least as many samples as specified below:

Lot size	Number of samples (random selection)	Acceptance limit for rejected samples
1 – 10	All	0
11 – 200	10	1
201 – 300	15	1
301 – 500	20	2
501 – 800	30	3
801 – 1,300	40	3
1,301 – 3,200	55	4
3,201 – 8,000	75	6
8,001 – 22,000	115	8
22,001 – 110,000	150	11

The results of these measurements (minimum and maximum values) shall be entered and retained on some record readily accessible to the inspector.

• **DECORATED PRODUCTS**

Appearance

Appearance shall be evaluated visually on significant surfaces of the decorated products by comparison with a reference sample or as agreed with the customer.

The **significant surface** shall be defined by the customer and is that part of the total surface that is essential to the appearance and serviceability of the item. Edges, deep recesses and secondary surfaces are not included in the significant surface.

¹³ See Appendix I – Example of in-house control checklists for decorators.

The coating on the significant surface shall not have any scratches through to the base metal. When the coating on the significant surface is viewed at an oblique angle of about 60° to the upper surface, none of the defects listed below shall be visible from a distance of three metres: excessive roughness, runs, blisters, inclusions, craters, dull spots, pinholes, pits, scratches or any other unacceptable flaws.

When viewed on-site, these criteria shall be fulfilled as follows:

- for parts used outdoors: viewed at a distance of 5 m
- for parts used indoors: viewed at a distance of 3 m

• **CONDITIONS FOR CURING POWDER COATING**

The curing conditions of the powder coating shall be monitored to ensure compliance with the powder supplier's data sheet by measuring the temperature according to the QUALICOAT Specifications for in-house control.

• **SUBLIMATION TEMPERATURE CONDITIONS**

The sublimation temperature conditions shall be monitored to ensure compliance with the film supplier's data sheet by measuring the temperature at least once a day on one point of the section surface and at least once a week at three different points in the oven to ensure uniform sublimation.

4.2. Testing and samples required for granting a licence

An inspection of the decorator's plant shall be carried out and laboratory tests shall be performed as follows to ensure that the decorations meet the requirements.

Class 1

Samples of two decorations selected from the suppliers' lists of self-tested decorations shall be taken from production by the inspector, to be tested in a laboratory approved by QUALICOAT for QUALIDECO testing.

Class 2

Samples of two decorations selected from the suppliers' lists of class 2 decorations approved in accordance §§ [3.1.2.3](#) / [3.1.5](#) and §§ [3.2.2.4](#) / [3.2.5](#) shall be taken from production by the inspector, to be tested in a laboratory approved by QUALICOAT for QUALIDECO testing.

4.2.1 Inspection

The inspection shall include the following aspects:

a) SUBLIMATION PROCESS

As specified in [§ 4.1.1](#) and [§ 4.1.3](#).

b) LABORATORY EQUIPMENT

As specified in [§ 4.1.2](#) to ensure that the equipment is available and functional.



c) DECORATED PRODUCTS

The inspector shall perform the following tests on the decorated parts using his own equipment:

- Appearance
- Gloss (see [§ 2.1.](#))
- Coating thickness (see [§ 2.4.](#)).

Rejected parts, including the rejects due to insufficient temperature, should not be taken into consideration when finished products are inspected.

d) IN-HOUSE CONTROL AND REGISTERS

The inspector shall check that in-house control has been carried out in accordance with [§ 4.1.3](#) and that registers are correctly maintained.

4.2.2 Tests

- Gloss (see [§ 2.1.](#))
- Coating thickness (see [§ 2.2.](#))
- Accelerated weathering test (see [§ 2.4.](#))
- Resistance to humid atmospheres containing sulphur dioxide (see [§ 2.3.](#))
- Natural weathering test in Florida, for class 2 decorations only (see [§ 2.5.](#)).

4.2.3 Conformity assessment for granting a licence

The inspector shall submit the inspection report to the General Licensee.

Under the supervision of QUALICOAT, the General Licensee shall follow the procedure below:

- c) If the results of the inspection and laboratory tests meet the requirements, a licence to use the QUALICOAT (QUALIDECO) quality label shall be granted to the decorator.
- d) If the results of the inspection or laboratory tests do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating the reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

TABLE 7: PROCEDURE FOR GRANTING A LICENCE TO A DECORATOR

INSPECTION RESULT	ACTIONS		
SATISFACTORY	▶ LABORATORY TESTS ^(a)	TEST RESULTS SATISFACTORY	LICENCE GRANTED
		TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ^(b)
UNSATISFACTORY	LICENCE NOT GRANTED ^(b)		

a) Two decorations selected by the inspector during his visit shall be tested in accordance with [§ 4.2.2.](#)

b) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.



4.3. Renewing a decorator's licence for sublimation technology

The renewal of a QUALICOAT (QUALIDECO) licence is based on the inspection results and the results of the tests carried out on decorations selected by the inspectors.

4.3.1 Inspection

After a plant has been granted a QUALICOAT (QUALIDECO) licence, it shall be inspected once a year before the end of June, in accordance with [§ 4.2.1](#).

Class 1

During the inspection, the inspector shall check production and select samples of two decorations from the suppliers' lists of self-tested decorations or from the decorator's list of approved decorations in sufficient number and size to carry out the laboratory tests.

The inspectors shall use the self-tested decoration lists during their visits and check whether any decoration used by a decorator is not included in the lists.

- If the inspector finds a decoration that is neither in the list of the decorator's approved decorations nor in a list of self-tested decorations, he shall ask the decorator to contact his supplier. If the supplier confirms that the decoration has already been tested, the list of self-tested decorations shall be updated by the supplier within two weeks.
- If no evidence of such self-testing (dated report and test panels) can be provided to the inspector by this deadline, the inspection of the decorator's plant shall be considered unsatisfactory.

If a decorator is only able to produce one decoration during an inspection, the inspector shall identify a second decoration from the list of self-tested decorations or from the decorator's list of approved decorations to be sent within 10 days to the laboratory responsible for testing.

Class 2

During the inspection, the inspector shall check production and select samples of two decorations from the decorator's list of approved decorations in sufficient number and size to carry out the laboratory tests and the Florida test.

If a decorator is only producing class 2 decorations and is not able to produce class 2 decorations on the day of the inspection, the two class 2 decorations selected by the inspector shall be provided to the testing laboratory within 10 days.

Both classes

If the in-house control of the decorator shows that both classes of decorations are produced, two decorations of each class shall be tested, even if the plant is producing only class 2 or only class 1 decorations on the day of the inspection.

Marketing materials shall also be examined to check that the QUALICOAT (QUALIDECO) licence is used for approved decorations only.

4.3.2 Tests

The tests are the same as for granting a QUALICOAT (QUALIDECO) licence (see [§ 4.2.2](#)).



4.3.3 Conformity assessment for renewing a licence

The inspector shall submit the inspection report to the General Licensee or QUALICOAT for evaluation.

Under the supervision of QUALICOAT, the General Licensee shall follow the procedure below:

- If the results of the inspection are satisfactory and the laboratory tests on every decoration meet the requirements, authorisation to use the QUALICOAT (QUALIDECO) label shall continue.
- If the results of the inspection are satisfactory, but the laboratory tests on one or more decoration(s) do not meet the requirements, the decorator shall ask the powder and film suppliers to provide a new powder coating sample and a new film sample respectively, with the same reference codes as the materials used for preparing the unsatisfactory decoration(s), in order to prepare new decorated samples for repeating the laboratory tests within one month.
- If the results of all the repeat laboratory tests meet the requirements, authorisation to use the QUALICOAT (QUALIDECO) label shall continue.
- If the results of these repeat laboratory tests are again unsatisfactory, the decorator shall no longer be allowed to use the decoration(s) that failed, but the licence shall be renewed. In addition, the decoration(s) that failed shall be recorded in a list of banned decorations appended to the decorator's certificate.

TABLE 8: PROCEDURE FOR RENEWING A DECORATOR'S LICENCE

INSPECTION	INSPECTION RESULT		ACTIONS		
		SATISFACTORY			▶ LABORATORY TESTS ^(a)
	UNSATISFACTORY		▶ REPEAT INSPECTION	REPETITION OF INSPECTION	
				SATISFACTORY	▶ LABORATORY TESTS ^(a)
				UNSATISFACTORY	LICENCE WITHDRAWN

LABORATORY TESTS	LABORATORY TEST RESULTS		ACTIONS		FINAL ASSESSMENT	
					LICENCE	DECORATION(S)
	BOTH DECORATIONS SATISFACTORY		NO ACTION		RENEWED	APPROVED/ RENEWED
	<ul style="list-style-type: none"> • 1 DECORATION SATISFACTORY • 1 DECORATION UNSATISFACTORY 		▶ REPEAT LABORATORY TESTS ON THE DECORATION(S) THAT FAILED ^(b)		RENEWED	APPROVED/ RENEWED
	BOTH DECORATIONS UNSATISFACTORY				RENEWED	BANNED ^(c)

FOR CLASS 2 DECORATIONS:

FLORIDA TEST	FLORIDA TEST RESULT		DECORATION	
		SATISFACTORY	APPROVED	
	UNSATISFACTORY	BANNED ⁽³⁾		

- a) During the inspection, the inspector shall check production and select samples in accordance with [§ 4.3.1](#).
- b) After receiving notification of unsatisfactory results, the decorator shall ask the powder and film suppliers to provide a new powder coating sample and a new film sample respectively, with the same reference codes as the materials used for preparing the unsatisfactory decorations, in order to prepare new decorated samples for repeating the laboratory tests within one month.
- c) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator's certificate.



4.4. Banned decorations

Every decoration that is not satisfactory after repetition of the laboratory tests (all classes) or after the Florida test (class 2 decorations) shall be banned and published on the [QUALICOAT website](#) in a list appended to the decorator's certificate.

4.5. Withdrawal of a decorator's licence for sublimation technology

A licence shall be withdrawn in the following cases:

- after two consecutive unsatisfactory inspections and as soon as four decorations have been banned due to unsatisfactory laboratory test results (both classes) or natural weathering test results (class 2)
- if the decoration plant ceases its sublimation activities
- if the decoration plant transfers its sublimation activities to another production site.



Chapter 5

APPROVALS FOR POWDER-ON-POWDER TECHNOLOGY

5. APPROVALS FOR POWDER-ON-POWDER TECHNOLOGY

5.1. Basic principles

- a) The base and top coatings shall be produced by the same manufacturer and approved by QUALICOAT as class 1 or class 2 powder coatings.
- b) The decoration may be produced with the same P-Number or with different P-Numbers.
- c) The curing conditions of the base and top coatings shall be defined by the powder supplier in the technical data sheet.

5.2. Granting a P/P approval to a powder supplier

For an approval for powder-on-powder technology to be granted, laboratory tests shall be carried out as prescribed in [§ 5.2.1](#) on the following light and dark wood finishes:

- **WALNUT** decoration to check the compatibility of the colours **RAL 8011** (base coat) and **RAL 8017** (topcoat).
- **PINE** decoration to check the compatibility of the colours **RAL 8001** (base coat) and **RAL 8014** (topcoat).

If a combination of two different P-Numbers is used, the powder coatings shall be applied in a clearly defined sequence (i.e., one P-Number must be defined as the base coat and the other as the topcoat).

Unlike class 1 approvals, which shall cover all combinations of colours, class 2 approvals for powder-on-powder shall apply only to specific combinations of codes for base and top coating.

5.2.1 Tests

The following tests shall be carried out:

- Resistance to humid atmospheres containing sulphur dioxide (see [§ 2.3.](#))
- Intercoating adhesion test (see [§ 2.6.](#))
- Accelerated weathering test (see [§ 2.4.](#))
- Natural weathering test (see [§ 2.5.](#)).

5.2.2 Assessment of test results

The laboratory shall submit the test report to the General Licensee or to QUALIDECO in countries where there is no General Licensee.

The test reports shall be assessed by the General Licensee. Under the supervision of QUALICOAT, the General Licensee shall decide whether or not to grant a P/P approval.

- If the results of the laboratory tests prescribed in [§ 5.2.1](#) meet the requirements, the P/P approval shall be granted.



- If the results of any of the laboratory tests do not meet the requirements, the manufacturer of the organic coating material tested shall be informed that no P/P approval can be granted for the time being, stating the details and reasons.

The approval shall be confirmed if the results of the natural weathering test are satisfactory. Otherwise, the approval shall be withdrawn.

TABLE 9: PROCEDURE FOR GRANTING AN APPROVAL FOR POWDER-ON-POWDER TECHNOLOGY

LABORATORY TESTS		
BOTH BASIC DECORATIONS SATISFACTORY	P/P APPROVAL GRANTED	▶ FLORIDA TEST
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	P/P APPROVAL NOT GRANTED	

FLORIDA TEST RESULTS	FINAL ASSESSMENT
ALL BASIC DECORATIONS SATISFACTORY	P/P APPROVAL CONFIRMED
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	P/P APPROVAL WITHDRAWN

5.2.3 Publication of approvals

QUALICOAT shall publish a list of all P/P approvals (combinations of the same P-Number or of different P-Numbers). Class 2 approvals shall be clearly identified (references of the base and top coatings).

5.3. Renewing a P/P approval

5.3.1 Tests

Every year, the powder supplier shall submit powders (base and top coatings) for the tests prescribed in § 5.2.1 to be carried out on two decorations chosen by QUALICOAT/QUALIDECO.

5.3.2 Assessment of test results

The laboratory shall submit the test report to the General Licensee or to QUALICOAT in countries where there is no General Licensee.

The test reports shall be assessed by the General Licensee. Under the supervision of QUALICOAT, the General Licensee shall decide whether or not to renew the approval.

- If the results of the laboratory tests prescribed in § 5.2.1 meet the requirements, the approval shall be renewed.
- If the results of any of the laboratory tests prescribed in § 5.2.1 do not meet the requirements, the manufacturer of the organic coating material tested shall be informed that all of the tests must be repeated within one month.
- If the results of the second series of tests are again unsatisfactory, the approval shall be withdrawn.



The renewal of the approval shall be confirmed if the results of the natural weathering test prescribed in § 5.2.1 are satisfactory. Otherwise, the unsatisfactory decoration(s) shall be banned (class 1) or the P/P approval withdrawn (class 2).

TABLE 10: PROCEDURE FOR RENEWING A P/P APPROVAL

LABORATORY TESTS			
ALL DECORATIONS SATISFACTORY	APPROVAL RENEWED		▶ FLORIDA TEST
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	REPETITION OF TESTS ON FAILED DECORATION(S)	SATISFACTORY	
		UNSATISFACTORY	DECORATION(S) BANNED

FLORIDA TEST	
ALL DECORATIONS SATISFACTORY	APPROVAL ONFIRMED
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	DECORATION(S) BANNED

5.4. Banned P/P decorations

Every decoration that is not satisfactory after repetition of the laboratory tests or after the Florida test shall be banned and published on the [QUALICOAT website](#) in a list of banned decorations.

5.5. Withdrawal of a P/P approval

An approval shall be withdrawn by QUALICOAT in the following cases:

CLASS 1

- as soon as four decorations have been banned due to unsatisfactory laboratory or natural weathering test results.

CLASS 2

- after two consecutive unsatisfactory results in the laboratory tests.
- after an unsatisfactory result in the natural weathering test.

BOTH CLASSES

- after cancellation of one or more QUALICOAT approval(s) (P-No.) related to the P/P approval.



Chapter 6

LICENSING OF DECORATORS FOR POWDER-ON-POWDER TECHNOLOGY



6. LICENSING OF DECORATORS FOR POWDER-ON-POWDER TECHNOLOGY

This effect is obtained in two steps: the base coating (A) is first applied and partially cured. Then, in a second step, the top coating (B) is applied over the base coat using a special filter and following a specific pattern. The system is then fully cured.

Basic principles:

- The base and top coatings shall be produced by the same manufacturer.
- The curing conditions of the base and top coatings shall be defined by the powder suppliers, and appropriate technical data sheets shall be available in the decorator's plant.
- The base and top coatings shall be approved by QUALICOAT as class 1 or class 2 powder coatings with the same P-Number or with different P-Numbers.
- The powder-on-powder combination shall be approved in accordance with [§ 5.2.](#)
- The base and top coatings shall be applied at the same production site.

6.1. Work specifications for decorators using powder-on-powder technology (REQUIREMENTS)

6.1.1 Curing

To produce decorated products, the decorator shall have a curing process that operates with a system to check the metal temperature, under the conditions prescribed by the powder suppliers in their technical data sheets.

6.1.2 Laboratory

The decorator shall at least be equipped with the following apparatus:

- specular glossmeter
- instrument for measuring coating thickness
- equipment to check metal temperature (temperature recorder).

Each piece of apparatus shall have a data sheet showing the apparatus identification number and calibration data recorded.

6.1.3 In-house control

Traceability of all raw materials used for the decoration process is a requirement. The decorator shall ensure unique identification of the decorated products and maintain records.

The decorator shall monitor the production processes and inspect the decorated products as follows:



- **Incoming materials**

The decorator shall keep a register showing all data relating to the material received and to be decorated (date, lot, coating applicator, coating applicator's licence number, powder supplier, powder approval number, basic colour). An example is shown in [Appendix 1](#).

- **Decorated products**

- a) **Gloss (ISO 2813)**

The gloss shall be measured for every lot of decorated products (one lot represents a customer's complete order in one colour or that part of the order which is in the plant).

If the gloss cannot be measured with apparatus, a visual assessment shall be performed by comparison with reference samples agreed with the customer.

The results of these analyses shall be entered in some record (register) readily accessible to the inspector, showing the nominal values and maximum values not to be exceeded.

- b) **Coating thickness (ISO 2360)**

The coating thickness shall be measured on at least as many samples as specified below:

Lot size	Number of samples (random selection)	Acceptance limit for rejected samples
1 – 10	All	0
11 – 200	10	1
201 – 300	15	1
301 – 500	20	2
501 – 800	30	3
801 – 1,300	40	3
1,301 – 3,200	55	4
3,201 – 8,000	75	6
8,001 – 22,000	115	8
22,001 – 110,000	150	11

The results of these measurements (minimum and maximum values) shall be entered and retained on some record readily accessible to the inspector.

- **Curing conditions**

The curing conditions of the powder coating shall be monitored to ensure compliance with the powder supplier's data sheet by measuring the temperature according to the QUALICOAT Specifications for in-house control.



6.2. Granting a QUALIDECO licence to a decorator for powder-on-powder technology

6.2.1 Testing and samples required for granting a licence

Provided that the company fulfils all the preliminary conditions, and a written application has been submitted to the General Licensee (or QUALICOAT in countries where there is no GL), an inspection of the decorator's plant shall be carried out and laboratory tests shall be performed as follows to ensure that the decorations meet the requirements.

a) LABORATORY EQUIPMENT

b) DECORATED PRODUCTS

The inspectors shall perform the following tests on the decorated parts using their own equipment:

- Appearance
- Gloss
- Coating thickness.

Rejected parts, including the rejects due to insufficient temperature, should not be taken into consideration when finished products are inspected.

c) IN-HOUSE CONTROL AND REGISTERS

The inspector shall check that in-house control has been carried out in accordance with [§ 4.1.3](#) and that registers are correctly maintained.

6.2.2 Tests

The following tests shall be carried out on samples of two decorations per class taken by the inspector from a production lot for exterior architectural applications. Corrosion tests shall be performed on single samples:

- Resistance to humid atmospheres containing sulphur dioxide (see [§ 2.3.](#))
- Intercoating adhesion test (see [§ 2.6.](#))
- Accelerated weathering test (see [§ 2.4.](#))
- Natural weathering test (see [§ 2.5.](#)): for class 2 decorations only.

6.2.3 Conformity assessment for granting a licence

The inspector shall submit the inspection report to the General Licensee.

Under the supervision of QUALICOAT, the General Licensee shall follow the procedure below:

- e) If the results of the inspection and laboratory tests meet the requirements, a licence to use the QUALICOAT (QUALIDECO) quality label shall be granted to the decorator.
- f) If the results of the inspection or laboratory tests do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.



Appendix to the QUALICOAT Specifications 2021

MASTER VERSION 02



TABLE 11: PROCEDURE FOR GRANTING A QUALIDECO LICENCE TO A DECORATOR (POWDER-ON-POWDER, CLASS 1)

INSPECTION RESULT	ACTIONS		
SATISFACTORY	▶ LABORATORY TESTS ^(a)	TEST RESULTS SATISFACTORY	LICENCE GRANTED
		TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ^(b)
UNSATISFACTORY	LICENCE NOT GRANTED ^(b)		

a) Two decorated samples selected by the inspector during his visit shall be tested in accordance with § 6.2.2.

b) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

6.2.4 Approval of class 2 decorations

After a decoration plant has been granted a licence to use the quality label for powder-on-powder technology, class 2 decorations clearly identified by specific base and top coating codes shall be approved as class 2 if all the results of the laboratory tests prescribed in § 6.2.2. are satisfactory.

The list of approved class 2 decorations shall be published on the [QUALICOAT website](#) together with the decorator’s certificate.

6.3. Renewing a decorator’s QUALIDECO licence for powder-on-powder technology

6.3.1 Inspection

After a plant has been granted a QUALICOAT (QUALIDECO) licence, it shall be inspected once a year. Marketing materials shall also be examined in order to check that the licence is used for approved decorations only.

6.3.2 Tests

Every year, two decorations per class¹⁴ shall be selected by the inspector from the list of the decorator’s approved decorations to be tested in a laboratory approved by QUALICOAT for QUALIDECO.

The tests are the same as for granting a licence (see § 6.2.2).

6.3.3 Conformity assessment for renewing a licence

The inspector shall submit the inspection report to the General Licensee or QUALIDECO for evaluation.

Under the supervision of QUALICOAT, the General Licensee shall follow the procedure below (also see Tables 12 and 13):

¹⁴ For class 2, just one decoration if only one decoration is approved.



- a) If the results of the inspection and laboratory tests meet the requirements, authorisation to use the QUALICOAT (QUALIDECO) label shall continue for every decoration that meets the requirements.
- b) If the results of the inspection are satisfactory, but the laboratory tests on one or two decorations (class 1 or class 2) do not meet the requirements, the decorator shall be requested to submit the decoration(s) that failed, and the tests shall be repeated.
- If the results of these repeat laboratory tests meet the requirements, authorisation to use the QUALICOAT (QUALIDECO) label shall continue.
 - If the results of these repeat laboratory tests are again unsatisfactory, the decorator shall no longer be allowed to use the decoration(s) that failed, but the licence shall be renewed. In addition, the decoration(s) that failed shall be recorded in a **list of banned decorations appended to the decorator's certificate**.
- c) In the case of class 2 decorations, if the results of the Florida test on one or two decorations do not meet the requirements, the decorator shall no longer be allowed to use the decoration(s) that failed, but the licence shall be renewed. In addition, the decoration(s) that failed shall be recorded in a **list of banned decorations appended to the decorator's certificate**.

TABLE 12: PROCEDURE FOR RENEWING A QUALICOAT (QUALIDECO) LICENCE (POWDER-ON-POWDER, CLASS 1)

INSPECTION	INSPECTION RESULT	ACTIONS		REPETITION OF INSPECTION	SATSIFACTORY	▶ LABORATORY TESTS ^(a)
	SATSIFACTORY	▶ LABORATORY TESTS ^(a)	▶ REPEAT INSPECTION			
	UNSATISFACTORY	▶ REPEAT INSPECTION			UNSATISFACTORY	

LABORATORY TESTS	LABORATORY TEST RESULTS	ACTIONS		REPETITION OF LABORATORY TESTS	SATSIFACTORY	FINAL ASSESSMENT
	BOTH DECORATIONS SATISFACTORY	NO ACTION	▶ LABORATORY TESTS ON THE DECORATION THAT FAILED ^(b)			
	<ul style="list-style-type: none"> • 1 DECORATION SATISFACTORY • 1 DECORATION UNSATISFACTORY 	▶ REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ^(b)				LICENCE RENEWED DECORATION APPROVED/RENEWED
	BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON BOTH DECORATIONS ^(b)			BOTH DECORATIONS SATISFACTORY	LICENCE RENEWED DECORATIONS APPROVED/RENEWED
					1 DECORATION SATISFACTORY	LICENCE RENEWED DECORATION APPROVED/RENEWED
					1 DECORATION UNSATISFACTORY	LICENCE RENEWED 1 DECORATION BANNED ^(c)
					BOTH DECORATIONS UNSATISFACTORY	LICENCE RENEWED BOTH DECORATIONS BANNED ^(c)

- a) Every year, two decorations shall be selected by the inspector during his visit and be tested in a laboratory approved by QUALICOAT for QUALIDECO testing.
- b) After receiving notification of the unsatisfactory results, the decorator shall submit (a) new sample(s) of the decoration(s) that failed so that the laboratory tests can be repeated.
- c) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator's certificate.



TABLE 13: PROCEDURE FOR RENEWING A QUALICOAT/QUALIDECO LICENCE (POWDER-ON-POWDER, CLASS 2)

LABORATORY TESTS	LABORATORY RESULTS	ACTIONS		
	BOTH DECORATIONS SATISFACTORY	FLORIDA TEST		
1 DECORATION SATISFACTORY	FLORIDA TEST		RESULTS	ACTIONS
1 DECORATION UNSATISFACTORY	REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ^(a)	REPEAT LABORATORY TESTS ON BOTH DECORATIONS ^(a)	SATISFACTORY	FLORIDA TEST
			UNSATISFACTORY	1 DECORATION BANNED ^(b)
			BOTH DECORATIONS SATISFACTORY	FLORIDA TEST
			1 DECORATION SATISFACTORY	FLORIDA TEST
BOTH DECORATIONS UNSATISFACTORY	REPEAT LABORATORY TESTS ON BOTH DECORATIONS ^(a)	REPEAT LABORATORY TESTS ON BOTH DECORATIONS ^(a)	1 DECORATION UNSATISFACTORY	1 DECORATION BANNED ^(b)
			BOTH DECORATIONS UNSATISFACTORY	BOTH DECORATIONS BANNED ^(b)

FLORIDA TEST	FLORIDA TEST RESULTS	FINAL ASSESSMENT
	BOTH DECORATIONS SATISFACTORY	LICENCE RENEWED DECORATIONS APPROVED/RENEWED
	1 DECORATION SATISFACTORY	LICENCE RENEWED DECORATION APPROVED/RENEWED
	1 DECORATION UNSATISFACTORY	LICENCE RENEWED 1 DECORATION BANNED ^(b)
	BOTH DECORATIONS UNSATISFACTORY	LICENCE RENEWED BOTH DECORATIONS BANNED ^(b)

- (1) After receiving notification of the unsatisfactory results, the decorator shall submit (a) new sample(s) of the decoration(s) that failed so that the laboratory tests can be repeated.
- (2) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator's certificate.

6.4. Banned decorations

Every decoration that is not satisfactory after repetition of the laboratory tests (all classes) or after the Florida test (class 2 decorations) shall be banned and published on the [QUALICOAT website](#) in a list appended to the decorator's certificate.

6.5. Withdrawal of a decorator's licence for powder-on-powder technology

A licence shall be cancelled after two consecutive unsatisfactory inspections and as soon as four decorations have been banned due to unsatisfactory laboratory test results (both classes) or natural weathering test results (class 2).



Chapter 7

LOGO



7. LOGO

Authorisation to use the QUALICOAT (QUALIDECO) logo may be granted on condition that the Holder of a QUALICOAT (QUALIDECO) licence (hereinafter referred to as the “Holder”) operates in accordance with the Specifications. This authorisation is governed by a contract.

The grant of a licence entitles the Holder to use the logo for the products specified. The licence may not be transferred.

7.1. Register of Holders

QUALICOAT shall keep a register showing the name, address and trade description of each Holder, the date on which the licence was granted to the Holder, the number assigned to each Holder, the approved decorations, the date of withdrawal of the licence and any other information or details which QUALICOAT may deem necessary at any time.

The Holder shall notify QUALICOAT forthwith of any changes in name or address.

7.2. Use of the logo by Holders

The logo exists in black and white, in white and blue (PANTONE Reflex Blue CV; RGB: 14-27-141; CMYK: 100-72-0-6) and in blue and silver (PANTONE Silver 877u; RGB: 205-211-215; CMYK: 8-3-3-9).



DECORATOR
FILM SUPPLIER
POWDER SUPPLIER
(Licence No. xxxx)

The Holder may not make any alteration or addition to the logo when using it. In the event that the Holder's own brands or trademarks are used separately on or in connection with his products, these regulations may not be infringed in any manner whatsoever. Holders of a QUALICOAT (QUALIDECO) licence shall at any time provide the General Licensee (GL) with all information required as to the use of the logo.

Whenever making mention of or reference to QUALICOAT (QUALIDECO), the Holder must systematically indicate its licence number. This shall apply both to the use of the logo and in texts.

Improper use of the QUALICOAT (QUALIDECO) logo may lead to the sanctions stipulated in [§ 7.4](#).



7.3. Withdrawal of licences

Failure to comply with the Regulations

The GL shall withdraw the licence if the Holder ceases to comply with these regulations and in particular if the Holder is guilty of any improper use of the logo or has failed to pay the annual fee.

In the event of withdrawal of a licence, the Holder shall be given notice in writing by the GL and such notice shall be effective immediately. In such event, all tags, labels, bands, stencils, stamps, wrappers, containers, price lists, business notices, business cards and any other objects in or upon which the logo is affixed shall either be delivered to the GL or, upon the GL's instructions, kept at the disposal of the GL until a new QUALICOAT (QUALIDECO) licence is granted.

Significant changes in a company

In the case of any significant event in a company (change in shareholders or key personnel, new lines), that company shall notify the GL immediately. The GL shall be authorised to make a supplementary visit in order to ensure that the Holder continues to satisfy all the conditions stipulated in the Specifications.

If the Decorator ceases to trade, all tags, labels, bands, stencils, stamps, wrappers, containers, price lists, business notices, business cards and any other objects in or upon which the logo is affixed shall either be delivered to the GL or, upon the GL's instructions, kept at the disposal of the GL until a new QUALICOAT (QUALIDECO) licence is granted.

Voluntary surrender

In the event of voluntary surrender of a licence, all tags, labels, bands, stencils, stamps, wrappers, containers, price lists, business notices, business cards and any other objects in or upon which the logo is affixed shall either be delivered to the GL or, upon the GL's instructions, kept at the disposal of the GL until a new QUALICOAT (QUALIDECO) licence is granted.

7.4. Sanctions

In the event of improper use of the QUALICOAT/QUALIDECO logo or of any behaviour or action that could impair the image of the Quality Label, the following sanctions may be imposed either by the GL or by QUALICOAT in countries without a national association:

1. official statement
2. reprimand
3. withdrawal of the label.

The party concerned shall have the right to appeal first to the GL and then to the QUALICOAT Executive Committee, whose decision shall be final.



7.5. Amendments

The regulations stipulated in Chapter 7 of the QUALICOAT (QUALIDECO) Specifications may be amended if and when necessary. However, the Holder shall be allowed 4 months from the date of publication in which to comply with any such amendment.

7.6. Notices

Any notice required to be given to or by the Holder under these regulations shall be effective if sent by correctly stamped and addressed letter.



Appendices



APPENDIX I – Example of in-house control checklists for decorators

1. Sublimation technology

Date	Coating applicator's reference	Customer	Approval for base coating (DP-No.)	Reference code for powder coating	Film supplier	Decoration designation (name)	Reference code for film	QUALIDECO film code	Process		Product			Notes	
									Oven		Before decoration		After decoration		
									Day	Week	Thickness	Gloss	Appearance		

2. Powder-on-powder technology

Date	Coating applicator's reference	Customer	QUALICOAT approval for base coating	QUALICOAT approval for top coating	Decoration designation	Process		Product			Notes	
						Oven		Decoration testing				
						Day	Week	Thickness	Gloss	Appearance		

APPENDIX II – Film coding and list of self-tested class 1 decorations¹⁵

1. Rules for coding films

The purpose of this coding is to uniquely identify each sublimation film with its decoration group/category and the name of the company, for each of its variants.

It is the film supplier’s responsibility to create a film code for each and every one of its films used for QUALICOAT (QUALIDECO) decorations.

The film suppliers shall include these film codes in their list of self-tested decorations, as described in § 2 of this Appendix.

If a film code is missing, the powder supplier shall contact the film supplier in order to obtain it.

The coding allows the suppliers’ individual codes to be eliminated and replaced by one common coding system.

How to build the film code?

Film code structure: **D1 (or D2)-XXYY-ZZZ**

D1 = Decoration class 1

D2 = Decoration class 2

XX = Two capital letters identifying the group/category of decorations (ACRONYM).

YY = Two digits identifying the film supplier using the last two digits of its QUALICOAT (QUALIDECO) licence number (FS-YYY).

ZZZ = Three digits identifying the variant of the decoration group/category.

Example: D1-AK21-122

D1 = Decoration class 1

AK = Oak group/category

21 = Film supplier with QUALICOAT (QUALIDECO) licence number FS-021

122 = 122nd variant of the OAK decoration group/category

ACRONYM	DECORATION
AC	acacia
AK	oak
AL	alder
AS	ash
BA	bamboo
BE	beech
BR	birch
CH	cherry
CN	chestnut
CR	cork
DU	douglas
EL	elm
IR	iroko
MA	maple
MH	mahogany
NT	nut
LV	olive tree
PN	pine
RT	root wood
TK	teak
ZE	zebrano wood

¹⁵ This Appendix applies to sublimation only.

2. Use of self-tested class 1 decoration lists by powder and film suppliers

The powder and film suppliers shall test every single new class 1 decoration in their laboratories in accordance with [§ 3.1.2.2](#) or [§ 3.2.2.3](#) and shall include every satisfactory decoration in a list of self-tested decorations which shall be shown to the inspector upon request.

Objective:

To provide an overview of all decorations tested by powder and/or film suppliers.

The lists of self-tested decorations shall be accessible to:

- **powder and film suppliers**, who shall update them;
- **laboratories and inspectors**, who shall use them during their inspections for renewing a decorator's licence, a supplier's licence or a QUALICOAT (QUALIDECO) approval.

Structure of the self-tested decorations list:

DECORATION	FILM SUPPLIER	FS-LICENCE)	SUPPLIER'S FILM REFERENCE	FILM CODE	POWDER SUPPLIER	PS-LICENCE	APPROVAL FOR SUBLIMATION (DP-No.)	POWDER COATING REFERENCE

How to fill-in the template?

- **DECORATION:** name of the decoration.
- **FILM SUPPLIER:** name of the film supplier.
- **FS-LICENCE:** film supplier's licence number.
- **SUPPLIER'S FILM REFERENCE:** supplier's code for the film used for sublimation.
- **FILM CODE:** QUALIDECO film code (see the "rules for coding films").
- **POWDER SUPPLIER:** name of the powder supplier.
- **PS-LICENCE:** powder supplier's licence number
- **APPROVAL FOR SUBLIMATION (DP-No.):** QUALICOAT powder coating P-Number.
- **POWDER COATING REFERENCE:** supplier's code for the powder coating used for sublimation (colour).

APPENDIX III – Approval of new technologies

1. Scope

Decorations on coated aluminium can be obtained using different technologies, but technologies other than sublimation technology and powder-on-powder technology may only be used if previously approved by the QUALICOAT.

It is the responsibility of QUALICOAT to develop a testing programme in order to check the quality of a new decoration product. The testing methods may be the same as for sublimation and powder-on-powder technology.

2. Description of new technology

Any company interested in having a new technology tested shall send a request to QUALICOAT giving technical explanations and providing information on laboratory test results and experience in the market.

Based on such information, QUALICOAT shall accept or reject the request, stating the reasons for its decision.

If the request is accepted, a laboratory approved by QUALICOAT for QUALIDECO testing shall be asked to perform the tests to qualify the product. Tests other than those prescribed by QUALICOAT may be included in the testing programme if necessary. Outdoor exposure, if required, shall start only if the laboratory test results meet the requirements. The period of exposure shall be defined by QUALICOAT. It is the laboratory's responsibility to prepare a final report including all results.

3. Granting an approval/licence

Based on the results obtained by the laboratory, QUALICOAT shall decide on the procedure to be followed to grant an approval (for the system tested) or a QUALICOAT (QUALIDECO) licence (for users of the system). The procedure shall also include the criteria for renewing and withdrawing an approval or licence.

APPENDIX IV – Approval of other effect decorations¹⁶

1. Procedure for granting and renewing other effect decoration approvals for film suppliers

1.1. Approval of other effect decorations (classes 1 and 2)

- a) The film supplier shall submit to a laboratory approved by QUALICOAT for QUALIDECO testing a written application identifying the decoration(s) to be tested (reference codes of both the film and the base coating). The powder supplier shall be notified of this written application.
- b) All data pertaining to the named decoration (designation), decoration reference code, QUALICOAT (QUALIDECO) approval and reference code for powder coating, and technical data sheets for the film and powder coating shall be available to allow correct application of the powder and film.
- c) A laboratory approved by QUALICOAT for QUALIDECO testing laboratory shall perform the tests prescribed in § 3 of this Appendix.
- d) An approval for every single decoration shall be granted if all the laboratory tests are satisfactory.
- e) If one or more tests are unsatisfactory, the laboratory shall inform both the film supplier and the powder supplier of the unsatisfactory results.
- f) The approval shall be confirmed if the result of the natural weathering test (Florida exposure) is satisfactory.

1.2. Certificate

A list of approved other effect decorations shall be appended to the film supplier's certificate.

1.3. Renewing an approval

Every year, two decorations selected from the list of the supplier's approved class 1 and class 2 other effect decorations shall be tested by a laboratory approved by QUALICOAT for QUALIDECO testing in accordance with § 3 of this Appendix.

- If the results of the laboratory tests on one decoration do not meet the requirements, a new sample of the decoration that failed shall be prepared in the laboratory for repeating the tests. If the results of these repeat laboratory tests are again unsatisfactory, the approval of the decoration that failed shall be withdrawn.
- If the results of the laboratory tests on both decorations do not meet the requirements, the tests shall be repeated on two new decorated samples prepared in the laboratory. If the results of these repeat laboratory tests are again unsatisfactory for one or both decorations, the approval of the decoration(s) that failed shall be withdrawn.
- If the results of the Florida test do not meet the requirements, the approval of the decoration(s) that failed shall be withdrawn.
- The decoration(s) that failed shall be recorded in a list of banned decorations appended to both the film and powder suppliers' certificates.

¹⁶ This Appendix applies to sublimation only.



1.4. Withdrawal of other effect decoration approvals (classes 1 and 2)

Every decoration that is not satisfactory after repetition of the laboratory tests or after the natural weathering test shall have its approval withdrawn and be published on the [QUALICOAT website](#) in a list together with the film supplier's certificate.

2. Procedure for granting and renewing other effect decoration approvals for powder suppliers

2.1. Approval of other effect decorations (classes 1 and 2)

- a) The powder supplier shall submit to a laboratory approved by QUALICOAT for QUALIDECO testing a written application identifying the decoration(s) (reference codes of both the film and the base coating). The film supplier shall be notified of this written application.
- b) All data pertaining to the powder coating reference code, QUALICOAT approval, technical data sheets for the powder coating and film, decoration name (designation) and decoration reference code shall be available to allow correct application of the powder and film.
- c) A laboratory approved by QUALICOAT for QUALIDECO testing shall perform the tests prescribed in § 3 of this Appendix.
- d) An approval for every single decoration shall be granted if all the laboratory tests are satisfactory.
- e) If one or more tests are unsatisfactory, the laboratory shall inform both the powder supplier and the film supplier of the unsatisfactory results.
- f) The approval shall be confirmed if the results of the natural weathering test are satisfactory.

2.2. Certificate

A list of approved class 1 or class 2 other effect decorations shall be published on the [QUALICOAT website](#) together with the powder supplier's certificate.

2.3. Renewing an approval

Every year, two decorations selected from the list of the supplier's approved class 1 or class 2 other effect decorations shall be tested in accordance with § 3 of this Appendix.

- If the results of the laboratory tests on one decoration do not meet the requirements, a new sample of the decoration that failed shall be prepared in the laboratory for repeating the tests. If the results of these repeat laboratory tests are again unsatisfactory, the approval of the decoration that failed shall be withdrawn.
- If the results of the laboratory tests on both decorations do not meet the requirements, the tests shall be repeated on two new decorated samples prepared in the laboratory. If the results of these repeat laboratory tests are again unsatisfactory for one or both decorations, the approval of the decoration(s) that failed shall be withdrawn.
- If the results of the Florida test do not meet the requirements, the approval of the decoration(s) that failed shall be withdrawn.
- The decoration(s) that failed shall be recorded in a list of banned decorations appended to both the film and powder suppliers' certificates.

2.4. Withdrawal of class 1 or class 2 other effect decoration approvals

Every decoration that is not satisfactory after repetition of the laboratory tests or after the natural weathering test shall have its approval withdrawn and be published on the [QUALICOAT website](#) in a list together with the powder supplier's certificate.

3. Tests

a) Accelerated weathering test (ISO 16474-2)

Testing time:

CLASS 1	CLASS 2
1000 hours	2000 hours, with gloss and colour change measured every 500 hours.

After exposure, the test panels shall be rinsed with demineralised water and checked for:

Gloss variation: EN ISO 2813 (60° angle of incidence)

Colour change: ΔE CIELAB formula in accordance with ISO 7724/3, measurement including specular reflection.

Three colour measurements shall be made on the test panels before and after the accelerated weathering test.

REQUIREMENTS:

Gloss variation:

- 50% residual gloss for category 1
- 70% residual gloss for categories 2 and 3

Colour change:

- Visual assessment with a minimum acceptable value of 4 on the grey scale
- Instrumental assessment (for information only, not decisive for the final evaluation).

b) Resistance to humid atmospheres containing sulphur dioxide

EN ISO 3231 (0.2 l SO₂ – 24 cycles)

A cross-cut incision with a width of 1 mm shall be made to cut the organic coating down to the metal.

REQUIREMENTS:

No infiltration exceeding 1 mm on both sides of the scratch, and no colour change¹⁷ or blistering in excess of 2 (S2) in accordance with ISO 4628-2.

c) Natural weathering test (for class 2 only)

Exposure in Florida in accordance with ISO 2810.

The test shall start in April. Samples shall be exposed facing 5° south for **3 years with an annual evaluation**. 10 test panels per decoration shall be required (three per year for weathering and one reference panel).

REQUIREMENTS:

For the time being, the acceptable limits are the same as those stipulated for the accelerated weathering test.

¹⁷ If there is any colour change, the samples shall be heated at 105°C for 30 minutes and a new assessment of the colour change shall be made.



4. Rules for coding films for other effects

The purpose of this coding is to uniquely identify each sublimation film with its decoration group/category and the name of the company, for each of its variants.

It is the film supplier's responsibility to create a film code for each and every one of its films used for QUALICOAT (QUALIDECO) decorations.

The film suppliers shall include these film codes in their list of self-tested decorations, as described in § 2 of this Appendix.

If a film code is missing, the powder supplier shall contact the film supplier in order to obtain it.

The coding allows the suppliers' individual codes to be eliminated and replaced by one common coding system.

How to build the film code for other effects?

Film code structure: **D1 (or D2)-XXYY-ZZZ**

D1 = Decoration class 1

D2 = Decoration class 2

XX = Two capital letters identifying the group/category of decorations (ACRONYM).

YY = Two digits identifying the film supplier using the last two digits of its FS-LICENCE)licence number (FS-YYY).

ZZZ = Three digits identifying the variant of the decoration group/category.

Example: D1-ST01-007

D1 = Decoration class 1

ST = Steel group/category

01 = Name of the supplier company identified by the last two digits in the QUALICOAT (QUALIDECO) list of licensed film suppliers

007 = 7th variant of the STEEL decoration group/category

ACRONYM	DECORATION
AR	arabesque
BS	brushed
CA	carbon
CE	concrete
FN	fantasy
GR	granite
IY	ivory
JE	jeans
MB	marble
MM	mimetic
OX	oxidised
PY	pyton
RK	stone
RU	rust
SP	spatula
ST	steel
TR	travertine
ZP	zinc-plated

5. Approval of self-tested other effect decorations

The powder and film suppliers shall perform the accelerated weathering test in their laboratories on every single new class 1 or class 2 other effect decoration. Provided that the results are satisfactory, these decorations shall be submitted to a laboratory approved by QUALICOAT for QUALIDECO testing that will send them to Florida for the natural weathering test.

An approval shall be granted if the results of the Florida test are satisfactory. A list of approved other effect decorations shall be appended to the supplier's certificate.



APPENDIX V-1 – Overview of principles and procedures

		SUBLIMATION				POWDER-ON-POWDER					
		DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (FS-LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (PS-LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
		CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS
PRINCIPLES	<p>Shall only use decorations that have been successfully tested for this decorator by a <i>laboratory approved by QUALICOAT for QUALIDECO testing</i> (list appended to certificate) or are included in the suppliers' lists of self-tested decorations</p> <p>Ref. Introduction Chapter 4.</p>	<p>Shall only use decorations approved in the framework of the FS- and PS-licences, as described in Chapter 3</p> <p>Ref. Introduction Chapter 4</p>	<p>Shall only use approved materials from licensed powder suppliers (DP-approvals)</p> <p>Shall comply with the procedure for film coding described in Appendix II-1</p> <p>Ref. Introduction Chapter 3.</p>	<p>Written application identifying the decoration(s) to be tested (reference codes of both the base coating and the film) following the procedure for film coding described in Appendix II-1.</p> <p>Ref. § 3.1.3</p>	<p>Shall only use approved materials from licensed film suppliers</p> <p>Shall comply with the procedure for film coding described in Appendix II-1</p> <p>Ref. Introduction Chapter 3.</p>	<p>Written application identifying the decoration(s) to be tested (reference codes of both the base coating and the film) following the procedure for film coding described in Appendix II-1.</p>	<p>Shall only use P/P combinations approved in accordance with § 5.2. (P/P approval).</p> <p>The curing conditions of the base and top coatings shall be defined by the powder supplier, and appropriate technical data sheets shall be available in the decoration's plant.</p> <p>Base and top coatings shall be applied at the same production site</p> <p>Ref. Introduction Chapter 6</p>	<p>Class 2 decorations clearly identified by specific base and top coating codes shall be approved as class 2 if all the results of the tests prescribed in § 6.2.2 are satisfactory.</p> <p>Ref. § 6.2.4</p>	<p>The base and top coatings shall be produced by the same manufacturer and be approved by QUALICOAT as class 1 or class 2 powder coatings with the same P-Number or with different P-Numbers.</p> <p>A P/P approval shall be granted according to</p> <p>Ref. § 5.2.</p>	<p>Shall apply only to specific combinations of base and top coating codes.</p> <p>Ref. § 5.2.</p>	



	SUBLIMATION						POWDER-ON-POWDER			
	DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (FS-LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (PS-LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS
LIST OF QDC TESTED DECORATIONS	YES (without QDC film code)	YES	QUALITAL ONLY INTERNAL	YES	YES	YES	YES	YES	YES	YES
LISTS OF SELF-TESTED DECOS			YES		YES					
BANNING OF DECORATIONS	After unsatisfactory repetition of laboratory tests. § 4.4.	After unsatisfactory repetition of laboratory tests or unsatisfactory result in the natural weathering test. § 4.4.	The decoration(s) that fail(s) shall be <u>removed from the supplier's list of self-tested decorations</u> and be recorded in a list of banned decorations appended to the film supplier's certificate. § 3.1.3	Approval withdrawn after two consecutive unsatisfactory laboratory test results or unsatisfactory result in the natural weathering test. § 3.1.7	The decoration(s) that fail(s) shall be <u>removed from the supplier's list of self-tested decorations</u> and be recorded in a list of banned decorations appended to the powder supplier's certificate. § 3.2.3	Approval withdrawn after two consecutive unsatisfactory laboratory test results or unsatisfactory result in the natural weathering test. § 3.2.7	After unsatisfactory repetition of laboratory tests. § 6.4.	After unsatisfactory repetition of laboratory tests or unsatisfactory Florida test results. § 6.4.	After unsatisfactory repetition of laboratory tests. § 5.4.	After unsatisfactory repetition of laboratory tests or unsatisfactory Florida test results. § 5.4.
LIST OF BANNED DECOS	YES § 4.4.	YES § 4.4.	YES § 3.1.3	YES § 3.1.7	YES § 3.2.3	YES § 3.2.7	YES § 6.3.3	YES § 6.3.3	YES § 5.4.	YES § 5.4.



		SUBLIMATION				POWDER-ON-POWDER					
		DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (FS-LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (PS-LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
		CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS
WITHDRAWAL OF DECORATION SYSTEMS (sublimation)				<p>If one or more basic decorations fail after the Florida test.</p> <p>As soon as four decorations are banned.</p> <p>If the DP approval related to the decoration system is cancelled.</p> <p>§ 3.1.6</p>		<p>If one or more basic decorations fail after the Florida test.</p> <p>As soon as four decorations are banned.</p> <p>§ 3.2.7</p>					
										<p>As soon as four decorations have been banned due to unsatisfactory laboratory or natural weathering test results.</p> <p>§ 5.5.</p>	<p>After two consecutive unsatisfactory laboratory test results or an unsatisfactory result in the natural weathering test.</p> <p>§ 5.5.</p>
WITHDRAWAL OF P/P APPROVALS										<p>After cancellation of one or more P-No. related to the P/P approval.</p>	



	SUBLIMATION						POWDER-ON-POWDER			
	DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (FS-LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (PS-LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS	CLASS 1 DECORATIONS	CLASS 2 DECORATIONS
WITHDRAWAL OF A LICENCE	After two consecutive unsatisfactory inspections and as soon as four decorations (class 1 and/or class 2) have been banned. § 4.5.	After two consecutive unsatisfactory inspections and as soon as four decorations (class 1 and class 2) have been banned § 4.5.	After two consecutive unsatisfactory inspections. If the film supplier's licence covers only one decoration system which has to be withdrawn in accordance with § 3.1.8.	X	After two consecutive unsatisfactory inspections If the powder supplier's licence covers only one decoration system which has to be withdrawn in accordance with § 3.2.8	X	After two consecutive unsatisfactory inspections and as soon as four decorations (class 1 and/or class 2) have been banned. § 6.5.	After two consecutive unsatisfactory inspections and as soon as four decorations (class 1 and/or class 2) have been banned. § 6.5.	X	X



APPENDIX V-2 – Overview of sampling and tests

	SUBLIMATION						POWDER-ON-POWDER			
	DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
	CLASS 1	CLASS 2	CLASS 1	CLASS 2	CLASS 1	CLASS 2 S	CLASS 1	CLASS 2	CLASS 1	CLASS 2
SAMPLING (GRANTS)	Samples of two decorations taken from production and selected by the inspector from the suppliers' lists of self-tested decorations. § 4.2.	Samples of two decorations taken from production and selected by the inspector from the suppliers' lists of class 2 decorations. § 4.2.	Four basic decorations: • WALNUT and OAK applied on a brown base • PINE and OAK applied on a beige base. § 3.1.2.2	Single decorations. § 3.1.2.3	Four basic decorations: • WALNUT and OAK applied on a brown base • PINE and OAK applied on a beige base. § 3.2.2.3	Single decorations clearly identified by the powder supplier. § 3.2.2.4	Samples of two decorations taken from production and selected by the inspector from the suppliers' lists of self-tested decorations. § 6.2.2	Samples of two decorations taken by the inspector from production. § 6.2.2	• WALNUT decoration with RAL 8011 (base coat) and RAL 8017 (top coat). • PINE decoration, with RAL 8001 (base coat) and RAL 8014 (top coat). § 5.2.	• WALNUT decoration with RAL 8011 (base coat) and RAL 8017 (top coat). • PINE decoration, with RAL 8001 (base coat) and RAL 8014 (top coat). § 5.2.
SAMPLING (RENEWALS)	Samples of two decorations taken from production and selected by the inspector from the suppliers' lists of self-tested decorations or from the decorator's list of approved decorations. § 4.3.1	Samples of two decorations selected from the list of approved decorations (just one if only one class 2 decoration is approved). § 4.3.1	Two different decorations selected by the QUALIDECO laboratories from the list of self-tested decorations to check every decoration system approved. § 3.1.3	Two decorations selected from the list of the film supplier's approved class 2 decorations (just one if only one class 2 decoration is approved). § 3.1.3	Two different decorations selected by the QUALIDECO laboratories from the list of self-tested decorations to check every decoration system approved. § 3.2.3	Two decorations selected from the list of the powder supplier's approved class 2 decorations (just one if only one class 2 decoration is approved). § 3.2.3	Samples of two decorations taken from production and selected by the inspector from the list of QUALIDECO approved decorations. § 6.3.2	Samples of two decorations taken from production and selected by the inspector from the list of QUALIDECO approved decorations (just one if only one class 2 decoration is approved). § 6.3.2	Two decorations chosen by QUALICOAT/QUALIDECO. § 5.3.	Two decorations chosen by QUALICOAT/QUALIDECO. § 5.3.



		SUBLIMATION					POWDER-ON-POWDER				
		DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
		CLASS 1	CLASS 2	CLASS 1	CLASS 2	CLASS 1	CLASS 2 S	CLASS 1	CLASS 2	CLASS 1	CLASS 2
GLOSS EN ISO 2813		§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.	§ 2.1.
COATING THICKNESS EN ISO 2360		§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.	§ 2.2.
RESISTANCE. TO HUMID.ATM. ISO 3231		§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.	§ 2.3.
INTER- COATING ADH.ESI ON								§ 2.6.	§ 2.6.	§ 2.6.	§ 2.6.
ACCELE RATED Testing time		1000 hours § 2.4.	2000 hours § 2.4.	1000 hours § 2.4.	2000 hours § 2.4.	1000 hours § 2.4.	2000 hours § 2.4.	1000 hours § 2.4.	2000 hours § 2.4.	1000 hours § 2.4.	2000 hours § 2.4.



		SUBLIMATION					POWDER-ON-POWDER					
		DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5		
		CLASS 1	CLASS 2	CLASS 1	CLASS 2	CLASS 1	CLASS 2 S	CLASS 1	CLASS 2	CLASS 1	CLASS 2	
Gloss & colour	After 1000 hours § 2.4.	Every 500 hours § 2.4.	After 1000 hours § 2.4.	Every 500 hours § 2.4.	After 1000 hours § 2.4.	Every 500 hours § 2.4.	After 1000 hours § 2.4.	Every 500 hours § 2.4.	After 1000 hours § 2.4.	Every 500 hours § 2.4.	After 1000 hours § 2.4.	Every 500 hours § 2.4.
	Gloss requirements	After 1000 hours 50% residual gloss for all categories. § 2.4.	After 2000 hours - 50% residual gloss for category 1 - 70% residual gloss for categories 2 and 3. § 2.4.	After 1000 hours 50% residual gloss for all categories. § 2.4.	After 2000 hours - 50% residual gloss for category 1 - 70% residual gloss for categories 2 and 3. § 2.4.	After 1000 hours 50% residual gloss for all categories. § 2.4.	After 2000 hours - 50% residual gloss for category 1 - 70% residual gloss for categories 2 and 3. § 2.4.	After 1000 hours 50% residual gloss for all categories. § 2.4.	After 2000 hours - 50% residual gloss for category 1 - 70% residual gloss for categories 2 and 3. § 2.4.	After 1000 hours 50% residual gloss for all categories. § 2.4.	After 2000 hours - 50% residual gloss for category 1 - 70% residual gloss for categories 2 and 3. § 2.4.	After 2000 hours - 50% residual gloss for category 1 - 70% residual gloss for categories 2 and 3. § 2.4.
		Colour requirements	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.	<ul style="list-style-type: none"> Visual assessment with min. value of 4 on the grey scale Instrumental measurement (for info only). § 2.4.



		SUBLIMATION					POWDER-ON-POWDER				
		DECORATOR (LICENCE) Chapter 4		FILM SUPPLIER (LICENCE) Chapter 3, § 3.1.		POWDER SUPPLIER (LICENCE) Chapter 3, § 3.2.		DECORATOR (LICENCE) Chapter 6		POWDER SUPPLIER (P/P APPROVAL) Chapter 5	
		CLASS 1	CLASS 2	CLASS 1	CLASS 2	CLASS 1	CLASS 2 S	CLASS 1	CLASS 2	CLASS 1	CLASS 2
NATURAL WEATHERING TEST	Testing time		3 years § 2.5.	1 year § 2.5.	3 years § 2.5.	1 year § 2.5.	3 years § 2.5.		3 years § 2.5.	1 year § 2.5.	3 years § 2.5.
	Gloss requirements		After 1 year: ▶ at least 75% After 2 years: ▶ at least 60% After 3 years ▶ at least 50%. § 2.5.	After 1 year 50% residual gloss for all categories. § 2.5.	After 1 year: ▶ at least 75% After 2 years: ▶ at least 60% After 3 years ▶ at least 50%. § 2.5.	After 1 year 50% residual gloss for all categories. § 2.5..	After 1 year: ▶ at least 75% After 2 years: ▶ at least 60% After 3 years ▶ at least 50%. § 2.5..		After 1 year: ▶ at least 75% After 2 years: ▶ at least 60% After 3 years ▶ at least 50%. § 2.5..	After 1 year 50% residual gloss for all categories. § 2.5.	After 1 year: ▶ at least 75% After 2 years: ▶ at least 60% After 3 years ▶ at least 50%. § 2.5..
	Colour requirements		• Visual assessment with a min. acceptable value of 4 on the grey scale.	• Visual assessment with a min. acceptable value of 4 on the grey scale.	• Visual assessment with a min. acceptable value of 4 on the grey scale.	• Visual assessment with a min. acceptable value of 4 on the grey scale.	• Visual assessment with a min. acceptable value of 4 on the grey scale.	• Visual assessment with a min. acceptable value of 4 on the grey scale.		• Visual assessment with a min. acceptable value of 4 on the grey scale.	• Visual assessment with a min. acceptable value of 4 on the grey scale.

APPENDIX VI – Approval of organic coatings for sublimation (DP-No.)

1. Basic principles

Organic coating materials have a reference identifying a specific chemical formulation. Every organic coating material can have a variety of gloss categories (matt, satin or gloss) and appearances.

Approvals are granted for each powder coating material, gloss level category and appearance.

Approvals are requested by the powder suppliers themselves. If the powder supplier hasn't been granted yet a licence, an inspection of the plant shall be carried out to check that its in-house control meets the requirements specified in [§ 3.2.1.2](#).

An approval is granted for one single production site. If an approval holder changes their source, they shall advise the General Licensee and/or QUALICOAT and have the new organic coating materials approved.

Any modification of the chemical composition of the binder (the resins and/or hardening agents) is tantamount to a new product and absolutely requires a new approval. Furthermore, if the physical appearance of the final coating is modified, a new specific approval shall be required¹⁸.

After an approval of organic coating has been granted, the powder manufacturer shall apply for a decoration system within one month. If this is not the case, the approval of the organic coating will be cancelled after three months.

2. Granting of an approval¹⁹

2.1. Technical data sheet

The powder manufacturer shall send coating materials and reference coated samples (for colour visual information) to a laboratory approved for QUALIDECO testing (hereafter called "laboratory responsible for testing" or "laboratory"), together with the relevant technical data sheet and MSDS.

The data sheet shall include at least the following information:

- Product description including reference powder code
- Colour shade, gloss category and appearance
- Curing conditions including a curing window with a minimum of 2 temperatures and minimum and maximum time for each temperature.

E.g.: - 12 min. to 30 min at 180°C

- 7 min. to 20 min at 190°C

- 5 min. to 15 min at 200°C

- Shelf life and maximum storage temperature (XX months <YY°C)

¹⁸ See Section E - Compulsory declaration of changes in formulation for organic coating materials

¹⁹ See flow charts at the end of this appendix



2.2. Basic colours

Laboratory tests shall be carried out as prescribed in the QUALICOAT Specifications (§ 4.1.3), on the following colours:

- **BEIGE** with a specific reference powder code provided by the powder supplier
- **BROWN** with a specific reference powder code provided by the powder supplier

2.3. Sampling and testing

The laboratory responsible for testing shall prepare the test samples using approved non-chromate chemical pre-treatment and selecting always the minimum curing time and temperature specified by the manufacturer.

After checking the colour and gloss, the laboratory shall perform laboratory tests on the coated samples as specified in the QUALICOAT Specifications.

For the natural weathering test, the panels shall be sent before 1st March of the year in which the exposure is starting to the laboratory responsible for the coordination of the Florida test.

2.4. Assessment of test results

The laboratory submits the test report to the General Licensee or to QUALICOAT in countries where there is no General Licensee.

The laboratory test report is assessed by the General Licensee. Under the supervision of QUALICOAT, the General Licensee decides whether to grant an approval.

- If the results of any laboratory tests do not meet the requirements for one basic colour, the manufacturer of the organic coating material tested will be informed that no DP-approval can be granted for the time being, stating the details and reasons.
- If the results of all the laboratory tests meet the requirements for the basic colours a DP-approval will be granted, and the powder supplier shall have the powder coating tested with a film.
- The DP-approval shall be confirmed if the results of the natural weathering test in Florida are satisfactory for both basic colours. Otherwise, the DP-approval will be withdrawn.

2.5. Numbering of approvals

After an approval has been granted to an organic coating for sublimation, it shall be allocated an identification number as follows: **DP-XXXX** (XXXX being a progressive number given to a single specific approval).

3. Renewal of DP-approvals

After an approval has been granted, laboratory tests and natural weathering test shall be performed annually on two colours with a specific reference powder code provided by the powder supplier.

3.1. Sampling and testing

The manufacturer shall send organic coating materials and coated panels to the laboratory in charge by end of June, together with the relevant technical data sheet and MSDS



The colours to be sent for renewal shall be different from those of the previously granted approval (one shade for every basic colour beige and brown) and codified with a specific reference powder code provided by the powder supplier.

The laboratory in charge shall apply the coating material and perform the same tests as those prescribed for granting.

For the natural weathering test, the panels shall be sent before 1st March of the year in which the exposure is starting to the laboratory responsible for the coordination of the Florida test.

3.2. Assessment of laboratory test results

The laboratory submits the test report to the General Licensee or to QUALICOAT in countries where there is no General Licensee.

The laboratory test reports are assessed by the General Licensee. Under the supervision of QUALICOAT, the General Licensee decides whether to renew an approval.

- If the results of the laboratory tests meet the requirements for the colours sent for renewal the approval will be renewed.
- If the results of any of the laboratory test(s) do not meet the requirements for a colour, all the tests on this colour shall be repeated within one month, using new samples.
- If the results of this second series of tests are again unsatisfactory, the colour shall be banned.

3.3. Assessment of the Florida test results

- If the results of the natural weathering test in Florida are satisfactory, the approval shall be renewed.
- If the results of the natural weathering test in Florida are unsatisfactory for one colour, the colour shall be banned.

3.4. Procedure regarding banned colours

The manufacturers shall have banned colours tested again as soon as possible after having received notification.

Colours with unsatisfactory results that are undergoing re-testing shall be considered as suspended.

A list of all colours (currently) banned including suspended colours shall be published.

4. Withdrawal of an approval

All classes

A DP-approval shall be withdrawn if the results of a basic colour are unsatisfactory after the natural weathering test or as soon as three colours are banned. In applying this rule suspended colours will not be considered.

5. Compulsory declaration of changes in formulation for organic coating materials

Any modification of the chemical composition of the binder (the resins and/or hardening agents) is tantamount to a new product and absolutely requires a new approval. Furthermore, if the physical appearance of the final coating is modified, a new specific approval shall be required.

Organic coating materials essentially consist of 4 kinds of components:

- binder
- pigments
- extenders
- additives

These are the organic coating material's components that determine the organic coating's characteristics.

5.1. Binder

The binder consists of resin(s) + hardening agent together; it imparts the principal characteristics to the organic coating material (reactivity, application properties, mechanical properties etc.). The main types of resins used in Europe are:

- saturated carboxylated polyester
- saturated hydroxylated polyester
- epoxy
- acrylic

These different types of resins can be used with several different kinds of hardeners.

It is quite obvious that variations in the chemical composition of the different resins or changes in the chemical molecular structure of the hardening agent can bring about modifications in the properties or characteristics of the organic coating and require a new approval.

5.2. Pigments

Pigments can be organic, inorganic or metallic; they impart colour, appearance and opacity to the organic coating.

5.3. Extenders

Extenders improve the rheological or chemical properties of the organic coating.

5.4. Additives

These are substances added to the organic coating material in small quantities to improve certain characteristics of the organic coating (vapour relief, gloss etc.).

These other components (pigments, extenders or additives) of organic coating material can also have some influence on the film properties and characteristics controlled within the quality label. Nevertheless, as these constituents can be numerous and varied, it is up to the organic coating manufacturers to control their formulations so that they comply with the quality label.

5.5. Appearance of the final organic coating

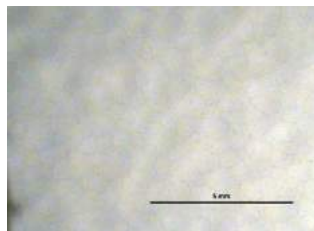
Like all other coatings, organic coating materials – after curing – can give the final organic coating different appearances, for example a smooth appearance or a structured appearance.

A structured appearance cannot be treated like a smooth appearance. Even if the change in formulation is based on special additives, an organic coating imparting an uneven appearance, which does not involve colour gloss or metallic effect, needs a special approval in a different category from the approvals granted for smooth organic coatings.

Definition criteria for structured finishes

These finishes can be split into the following three types. An approval is necessary for each type.

a) Leathered or orange-peel appearance (waves)



b) Textured or sandpaper appearance (sharp edges)



c) Wrinkled or vein appearance (heterogeneous)

