

<b>SUBJECT:</b>	<b>PROCEDURE FOR CLASS 2 DECORATIONS</b>
<b>RATIFICATION DATE:</b>	<b>21 February 2018</b>
<b>UPDATE EFFECTIVE FROM:</b>	<b>1 June 2018</b>
<b>AMENDMENT TO THE SPECIFICATIONS:</b>	<b>APPENDIX II</b>

## **APPENDIX II – Procedure for class 2 decorations**

### **A – SUBLIMATION**

#### **A1 – Licensed film suppliers**

##### **1. APPROVAL OF A CLASS 2 DECORATION**

- a) The film supplier shall submit to a QUALIDECO laboratory 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 decoration name (designation), decoration reference code, QUALICOAT 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 QUALIDECO laboratory shall perform the tests prescribed in § A3.
- d) A provisional approval for every single decoration shall be granted if all the laboratory tests are satisfactory.
- e) If one or more tests is unsatisfactory, the laboratory shall inform both the film supplier and the powder supplier of the unsatisfactory results.
- f) The provisional approval shall be confirmed if the result of the natural weathering test (Florida exposure) is satisfactory.

##### **2. CERTIFICATE**

A list of approved class 2 decorations shall be appended to the film supplier's certificate.

##### **3. RENEWAL OF A CLASS 2 DECORATION**

Every year, two decorations selected from the list of the supplier's approved class 2

decorations shall be tested according to § A3.

#### **4. WITHDRAWAL OF A CLASS 2 DECORATION**

Every decoration that is not satisfactory after the natural weathering test shall be cancelled and published on the QUALIDECO website in a list together with the film supplier's certificate.

## **A2 – Licensed powder suppliers**

### **1. APPROVAL OF A CLASS 2 DECORATION**

- a) The powder supplier shall submit to a QUALIDECO laboratory 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 QUALIDECO laboratory shall perform the tests prescribed in § A3.
- d) A provisional approval for every single decoration shall be granted if all the laboratory tests are satisfactory.
- e) If one or more tests is unsatisfactory, the laboratory shall inform both the powder supplier and the film supplier of the unsatisfactory results.
- f) The provisional approval shall be confirmed if the results of the natural weathering test are satisfactory.

### **2. CERTIFICATE**

A list of approved class 2 decorations shall be published on the QUALIDECO website together with the powder supplier's certificate.

### **3. RENEWAL OF A CLASS 2 DECORATION**

Every year, two decorations selected from the list of the supplier's approved class 2 decorations shall be tested according to § A3.

### **4. WITHDRAWAL OF A CLASS 2 DECORATION**

Every decoration that is not satisfactory after the natural weathering test shall be cancelled and published on the QUALIDECO website in a list together with the powder supplier's certificate.

## **A3 – Tests**

### **1. ACCELERATED WEATHERING TEST (ISO 16474-2)**

Testing time: 2000 hours, with gloss and color change measured every 500 hours.

REQUIREMENTS:

- Gloss variation (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. RESISTANCE TO HUMID ATMOSPHERES CONTAINING SULPHUR DIOXIDE  
(EN ISO 3231 – 0.2 l SO<sub>2</sub> – 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 change<sup>1</sup> or blistering in excess of 2 (S2) according to ISO 4628-2.

**3. NATURAL WEATHERING TEST (ISO 2810)**

Samples shall be exposed facing 5° south for **3 years with an annual evaluation**.

10 test panels per decoration are required (3 per year for weathering and 1 reference panel).

REQUIREMENTS:

Gloss variation (after 3 years): 50% residual gloss for all categories

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<sup>1</sup> In case of colour change, the samples shall be heated at 105°C for 30 minutes and a new assessment of the colour change shall be made.

## **B - POWDER ON POWDER**

### **B1 – Powder suppliers**

#### **1. PRELIMINARY CONDITIONS**

- a) The base and top coatings shall be produced by the same manufacturer and approved by QUALICOAT as class 2 powder coatings with the same or different P-numbers.
- b) The pre-curing of the base coating and the system curing conditions shall be defined by the powder supplier in its technical data sheets.
- c) Tests (excluding natural weathering) shall be carried out on the colours RAL 8011 (base coat) and RAL 8017 (top coat) as prescribed in § 4.1.3 of the QUALICOAT Specifications.

#### **2. GRANTING OF AN EXTENSION**

In order for an extension for powder on powder to be granted, laboratory tests shall be carried out on WALNUT decoration as prescribed in § B3 to check the compatibility of the RAL colours mentioned in the preliminary conditions above.

#### **3. RENEWAL OF AN EXTENSION**

Every year, the powder supplier shall submit powders (base and top coating) for the tests prescribed in § B3 to be carried out on a decoration chosen by QUALIDECO.

#### **4. WITHDRAWAL OF AN EXTENSION**

The extension for powder on powder for an approved QUALICOAT class 2 powder coating shall be withdrawn after an unsatisfactory result in the natural weathering test.

### **B2 – Decorators**

#### **1. PRELIMINARY CONDITIONS**

- a) The decorator shall hold the QUALIDECO quality label to ensure that the process is carried out under the correct conditions.
- b) The decorator shall use only base and top coatings produced by the same manufacturer and approved by QUALICOAT as class 2 powder coatings with the same or different P-numbers.

**2. APPROVAL OF A CLASS 2 DECORATION**

A decoration clearly identified by a specific base coating code and a top coating code shall be approved as class 2 if all the results of the laboratory tests prescribed in § B3 are satisfactory.

**3. CERTIFICATE**

The list of approved class 2 decorations shall be published on the QUALIDECO website together with the decorator's certificate.

**4. RENEWAL OF A CLASS 2 DECORATION**

Every year, two approved decorations shall be tested for renewal.

**5. WITHDRAWAL OF A CLASS 2 DECORATION**

Every decoration that is not satisfactory after the natural weathering test shall be cancelled and published on the QUALIDECO website in a list appended to the decorator's certificate.

**B3 – Tests**

**1. ACCELERATED WEATHERING TEST (ISO 16474-2)**

Testing time: 2000 hours, with gloss and color change measured every 500 hours.

REQUIREMENTS:

a) Gloss variation (after 2000 hours)

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

b) 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. INTERCOATING ADHESION TEST**

The method for testing intercoating adhesion consists of 2 tests:

**FIRST TEST: 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.

**SECOND TEST: 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.

Make a cross-cut (see § 4.2.1 of the QUALICOAT Specifications) after one hour but within two hours. Apply an adhesive tape (see § 2.4) to the surface, ensuring that no air is trapped. After one minute, remove the tape at any angle of 45° with a sharp even pull.

REQUIREMENTS: The result shall be 0.

**3. RESISTANCE TO HUMID ATMOSPHERES CONTAINING SULPHUR DIOXIDE  
(EN ISO 3231 – 0.2 I SO<sub>2</sub> – 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 change<sup>2</sup> or blistering in excess of 2 (S2) according to ISO 4628-2.

**4. NATURAL WEATHERING TEST (ISO 2810)**

Samples shall be exposed facing 5° south for **3 years with an annual evaluation**.

10 test panels per decoration are required (3 per year for weathering and 1 reference panel).

REQUIREMENTS:

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

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<sup>2</sup> In case of colour change, the samples shall be heated at 105°C for 30 minutes and a new assessment of the colour change shall be made.