

**REPLACING
UPDATE SHEET No. 02
of the QCT Specifications 2022**



Update of QUALICOAT Specifications 2023

Update Sheet No. 01

applicable from 01.01.2024

Subject: Introduction of off-site anodic pretreatment

Pre-anodising WG / 2022.02.01

To introduce offsite anodising conditions and requirements in Section 3.4

Proposals / Requests:

Pre-anodising WG / 2023.01.24

To review update sheet No.2 of the 2022 Specifications taking into account the changes introduced by Update No.9 Coating Lines.

**QUALICOAT
Resolutions:**

Resolution No. 1/TC 2022.11.16

The TC approved the amended Update Sheet No. 2 (Introduction of off-site anodic pretreatment) to become effective on 1 July 2023.

Resolution No. 2 / EC 2022.11.17

The EC mandated the Pre-anodising WG to prepare a procedure for handling external pre-anodising licences.

**Amendment to the
Specifications:**

- Changes in wording and numbering of paragraphs in **§3.4** 'Anodic pretreatment (automatic SEASIDE endorsement)'
- **§3.4** sub-chaptered to **§3.4.1** and **§3.4.2** for structure
- New paragraph: **§5.1.10** SEASIDE (PRE-OX) endorsement
- **§5.2** 'Routine inspections of licensees':
 - Clarity on test requirements for renewal of 'Licences with the SEASIDE endorsement'
 - Introduction of a new paragraph for 'Licences with SEASIDE (PRE-OX) endorsement'
- **New Appendix A15** – Specifications for off-site anodisers

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3.4. Anodic pretreatment (automatic SEASIDE endorsement)

Licenseses using anodic pretreatment shall ask their coating suppliers to confirm in writing the compatibility of their coating system with this type of pretreatment.

The following minimum requirements shall be met by the coater:

3.4.1 Requirements for In-house Pre-anodising Process

For off-site pre-anodising please refer to [Appendix A15](#).

3.4.1.1 Surface preparation

The aluminium surface shall be treated to eliminate all impurities that could pose problems in the anodic pretreatment.

3.4.1.2 Etching

The aluminium parts (extrusions and sheet, not cast) shall be etched with a minimum etching rate of 2 g/m². In the case of alkaline etching, desmutting shall be necessary.

3.4.1.3 Thickness of the pre-anodised layer

The anodic pretreatment shall be chosen so as to produce an anodic coating with a thickness of at least 4 µm (not more than 10 µm) without powdering and without surface flaws.

The anodic pretreatment parameters can be as follows:

- Acid concentration (sulphuric acid): 180-220 g/l
- Aluminium content: 5-15 g/l
- Temperature: 20-30°C (± 1°C of the temperature chosen by the ~~coater~~ anodiser)
- Current density: 0.8-2.0 A/dm²
- Agitation of the electrolyte

3.4.1.4 Rinsing Post-treatment and rinsing after pre-anodising

After anodic pretreatment, the aluminium shall be rinsed for such a time and at such a temperature as is required to remove the acid from the pores and to fulfil the requirements of the wet adhesion test.

Enhancing rinsing with a hot sealing step and/or a passivation step with a QUALICOAT approved chemical pretreatment system or chromate conversion coating is permitted. The rinsing process shall not produce a sealed surface, as this increases the risk of adhesion failure. No-rinse passivation is not permitted when a period of 16 hours has passed.

Sealing additives can decrease the quality of the final product. It is the responsibility of the anodiser and the coater to verify the compatibility with the coating process.

The conductivity of the dripping water of the ~~last~~ final rinse prior to coating shall not exceed a maximum of 30 µS/cm at 20°C. The final rinse prior to the coating shall be performed in either the anodising or coating line.

Any spray and cascade installation shall be designed (or retrofitted) to allow sampling for measuring the conductivity as described above. The conductivity of the dripping water shall only be measured for open sections and not for hollow sections.

In the event that it is not possible to measure the conductivity of the dripping water for immersion installation, the conductivity of the rinse water in the tank shall be measured with a maximum conductivity of 15 µS/cm at 20°C before immersion starts.

3.4.1.5 **Record Recording of anodising bath test results**

Licensees using this type of anodic pretreatment shall perform and record the following additional tests when processing pre-anodising:

● **Anodising bath**

- The acid concentration and aluminium content of the anodising bath shall be analysed once per day.
- The temperature of the anodising bath shall be checked every 8 hours.
- The etching rate shall be checked once per day.
- The thickness of the anodic coating shall be checked (every ~~flight bar~~ load).

● **Testing of the coated finished products**

- ~~— Before application, each coating material (i.e., each colour shade, gloss category, and manufacturer) shall be tested for resistance to boiling water, followed by an adhesion test (see § 2.4).~~
- ~~— During application, resistance to boiling water shall be tested, followed by an adhesion test every 4 hours.~~

~~Licensees using anodic pretreatment, as specified above, shall ask their coating suppliers to confirm in writing the compatibility of their coating system with this type of pretreatment.~~

3.4.2 **Requirements for Treatment and Coating of Pre-anodised Aluminium**

Applicable for coaters using in-house or off-site pre-anodising.

3.4.2.1 **Storage conditions**

Pre-anodised aluminium shall never be stored or transported in an atmosphere that is dusty, damp (condensation or similar) and detrimental to it. Good atmospheric and dry conditions shall always be maintained in the storage area and whilst being transported. All workers handling pre-anodised aluminium shall wear clean textile gloves to avoid contamination of the surface.

3.4.2.2 **Storage time and transportation**

Pre-anodised parts shall not be stored for more than 16 hours. However, the parts may be stored (including transportation, where applicable) for up to 72 hours provided that additional rinsing has occurred with demineralised water with a conductivity of maximum 30 µS/cm at 20°C and drying has taken place prior to coating (no etching allowed). The risk of insufficient adhesion increases the longer the parts are stored.

3.4.2.3 **Pretreatment and rinsing prior to coating**

~~After the anodic pretreatment,~~ The coater shall ensure that the aluminium after anodic pretreatment ~~shall be~~ has been rinsed for such a time and at such a temperature as is required to remove the acid from the pores and to fulfil the requirements of the wet adhesion test.

Sealing additives can decrease the quality of the final product. It is the responsibility of the anodiser and the coater to verify the compatibility with the coating process.

Enhancing rinsing with a hot ~~sealing~~ rinsing step and/or a passivation step with a QUALICOAT approved chemical pretreatment system or a chromate conversion coating is permitted. The rinsing process shall not produce a sealed surface, as this increases the risk of adhesion failure.

The conductivity of the dripping water of the **last** final rinse prior to coating shall not exceed a maximum of 30 $\mu\text{S}/\text{cm}$ at 20°C. The conductivity of the dripping water shall only be measured for open sections and not for hollow sections.

The rinsing for the chemical conversion coatings shall follow the requirements as described in §3.3.1 and §3.3.2.

No etching or double passivation is permitted.

3.4.2.4 **Record Recording of test results on finished products**

Licensees using this type of anodic pretreatment shall perform and record the following additional tests when processing pre-anodising:

~~• Testing of the coated finished products~~

- Before application, each coating material (i.e., each colour shade, gloss category, and manufacturer) shall be tested for resistance to boiling water, followed by an a wet adhesion test (see § 2.4).
- During application, resistance to boiling water shall be tested, followed by an adhesion test every 4 hours.

~~Licensees using anodic pretreatment, as specified above, shall ask their coating suppliers to confirm in writing the compatibility of their coating system with this type of pretreatment.~~

3.4.2.5 **Cooperation between external anodiser and coater**

Only applicable for coaters using off-site pre-anodising.

External anodisers and coaters shall cooperate closely. The test results from the external anodiser shall be delivered to the coater with a delivery note, and the following information shall be included where applicable (i.e., if it was not already described in the general agreement between the external anodiser and the coater):

- Qualanod licence number or quality management system certificate number.
- Description of all pre-anodising process steps (type of surface treatment, chemical composition, temperature, and treatment time).
- Detailed description of rinsing conditions (30 μS), including information about the usage and type of hot sealing or approved passivation, including parameters, values, and limits.
- Production date and time.
- Number of test panels that are produced in the same lot together with the material.
- Alloy.
- Etching requirements of cast material.
- Location of jiggging marks.

For each delivery, the coater shall communicate the following information to the anodiser:

- Name and licence number of the coater.
- Date of anodising.
- Date of coating.
- Order number.
- Rinsing water conductivity.
- P-No and colour.
- Results of the wet adhesion test.

This information shall be readily available to the inspector.

5.1. Granting of a licence (quality label)

[...]

5.1.9 SEASIDE endorsement

If the **coater** has applied for the endorsement SEASIDE an inspection shall be carried out following the specifications as set out in § [3.2.1](#) ~~or § 3.4~~ and a filiform corrosion test shall be carried out on finished products (§ [2.19](#)).

[...]

5.1.10 SEASIDE (PRE-OX) endorsement

A SEASIDE (PRE-OX) endorsement can be granted by QUALICOAT either to coaters using in-house anodic pretreatment or to coaters using off-site pre-anodised products.

If the coater has applied for the SEASIDE (PRE-OX) endorsement, an inspection shall be carried out following the specifications as set out in § [3.4](#)., and in the case of off-site anodic pretreatment in Appendix A15. A filiform corrosion test shall be conducted on finished products (§ [2.19](#)) in addition to the tests listed in § [5.1.5](#).

If the results of the inspection meet the requirements, the SEASIDE (PRE-OX) endorsement shall be granted **for the coating line inspected**.

If the results of the inspection do not meet the requirements, the coater shall wait at least three months before making a new application for a SEASIDE (PRE-OX) endorsement.

5.2 Routine inspections of licensees

[...]

Licences with **the SEASIDE** endorsement <<SEASIDE>>

Routine SEASIDE inspections are carried out as set out in § [3.2.1](#) ~~or § 3.4~~ during QUALICOAT inspections and a filiform corrosion test is performed on finished products (§ [2.19](#)) during the first inspection of the year, **in addition to the tests listed in § [5.1.5](#)**.

[...]

Licences with SEASIDE (PRE-OX) endorsement

Routine SEASIDE (PRE-OX) inspections are carried out as set out in § [3.4](#) and in Appendix A15 if applicable during QUALICOAT inspections, and a filiform corrosion test is performed on finished products (§ [2.19](#)) in addition to the tests listed in § [5.1.5](#) during the first inspection of the year.

For lines where parts with chemical conversion as well as parts with anodic pretreatment are coated, the rules stated in the introduction of section § [5.2](#) apply.

If a coating line is equipped to only produce pre-anodising, then two annual inspections based on pre-anodising shall be conducted.

If the inspection results meet the requirements, SEASIDE (PRE-OX) endorsement shall be confirmed.

If the FFC test result is D, another complete inspection, including SEASIDE (PRE-OX), shall be conducted.

If the repeat inspection produces unsatisfactory results, the SEASIDE (PRE-OX) endorsement shall be withdrawn immediately. The coater shall wait for at least three months before making a new application for a SEASIDE (PRE-OX) endorsement.

Appendices

[...]

A15 – Specifications for off-site anodisers

The anodising plant shall have a PRE-OX licence granted by QUALICOAT, according to [Section 3 of this appendix](#).

Licensed coaters using off-site anodic pretreatment shall have a SEASIDE (PRE-OX) endorsement granted by QUALICOAT, according to Section § [5.1.10](#) of the Specifications.

1. Work specifications for off-site anodisers

The following minimum requirements shall be met by the off-site anodiser:

1.1. Surface Preparation

The aluminium surface shall be treated to eliminate all impurities that could pose problems in the anodic pretreatment.

1.2. Etching

The aluminium parts (extrusions and sheet, not cast) shall be etched with a minimum etching rate of 2 g/m². In the case of alkaline etching, desmutting shall be necessary.

1.3. Thickness of the pre-anodised layer

The anodic pretreatment shall be chosen to produce an anodic coating with a thickness of at least 4 µm (not more than 10 µm) without powdering or surface flaws.

The anodic pretreatment parameters can be as follows:

- Acid concentration (sulphuric acid): 180–220 g/l.
- Aluminium content: 5–15 g/l.
- Temperature: 20–30°C (± 1°C of the temperature chosen by the anodiser).
- Current density: 0.8–2.0 A/dm².
- Agitation of the electrolyte.

1.4. Post-treatment and Rinsing after Pre-anodising

After anodic pretreatment, the aluminium shall be rinsed for such a time and at such a temperature as is required to remove the acid from the pores and to fulfil the requirements of the wet adhesion test.

Enhancing rinsing with a hot sealing step and/or a passivation step with a QUALICOAT approved chemical pretreatment system or chromate conversion coating is permitted. The rinsing process shall not produce a sealed surface, as this increases the risk of adhesion failure. No-rinse passivation is not permitted when a period of 16 hours has passed.

The conductivity of the dripping water of the final rinse prior to coating shall not exceed a maximum of 30 µS/cm at 20°C. The final rinse prior to the coating shall be performed in either the anodising or coating line. The conductivity of the dripping water shall only be measured for open sections and not for hollow sections.

In the event that it is not possible to measure the conductivity of the dripping water for immersion installation, the conductivity of the rinse water in the tank shall be measured with a maximum conductivity of 15 µS/cm at 20°C before immersion starts.

Sealing additives can decrease the quality of the final product. It is the responsibility of the anodiser and the coater to verify the compatibility with the coating process.

1.5. Storage conditions

Pre-anodised aluminium shall never be stored or transported in an atmosphere that is dusty, damp (condensation or similar), or detrimental to it. Good atmospheric and dry conditions shall always be maintained in storage areas during transportation. All workers handling pre-anodised aluminium shall wear clean textile gloves to avoid surface contamination.

1.6. Storage time and transportation

Pre-anodised parts shall not be stored for more than 16 hours. However, the parts may be stored (including transportation, where applicable) for up to 72 hours, provided that additional rinsing has occurred with demineralised water with a conductivity of maximum 30 $\mu\text{S}/\text{cm}$ at 20°C and drying has taken place prior to coating (no etching allowed). The risk of insufficient adhesion increases the longer the parts are stored.

1.7. Mandatory minimum equipment

The anodiser's laboratory shall have the apparatus and chemicals necessary for testing and controlling the process solutions and finished products. The laboratory shall at least be equipped with the following apparatus and equipment:

- Conductivity meter.
- pH-meter.
- Thickness meter.
- Calibration tools for the tests stipulated.

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

1.8. Recording of anodising bath test results

The anodising plant shall perform and record the following additional tests when processing anodic pretreatment:

- The acid concentration and aluminium content of the anodising bath shall be analysed once daily.
- The temperature of the anodising bath shall be checked every 8 hours.
- The etching rate shall be checked once per day.
- The thickness of the anodic coating shall be checked (every load).

2. Cooperation between external anodiser and coater

External anodisers and coaters shall cooperate closely.

The test results from the external anodiser shall be delivered to the coater with a delivery note, and the following information shall be included where applicable (i.e., if it was not already described in the general agreement between the external anodiser and the coater):

- Qualanod licence number or quality management system certificate number.
- Description of all pre-anodising process steps (type of surface treatment, chemical composition, temperature, and treatment time).
- Detailed description of rinsing conditions (30 μS), including information about the usage and the type of hot sealing or approved passivation, including parameters, values, and limits.
- Production date and time.
- Number of test panels that are produced in the same lot together with the material.
- Alloy.
- Etching requirements of cast material.
- Location of jiggling marks.

For each delivery, the anodiser shall gather the following records from the coater:

- Name and licence number of the coater.
- Date of anodizing.
- Date of coating.
- Order number.
- Rinsing water conductivity.
- P-No and colour.
- Results of the wet adhesion test.

This information shall be readily available to the inspector.

3. Licensing of off-site anodisers

The anodising plant shall have a QUALANOD licence or be certified by an accreditation body with a Quality Management System.

3.1. Granting of a PRE-OX licence to an anodiser

One inspection shall be satisfactory for a PRE-OX licence to be granted to an anodiser. This inspection will be made by appointment at the anodiser's request.

3.1.1. Inspection

The inspectors shall take along the following equipment:

- Conductivity meter.
- Thickness meter.
- Calibration tools for the tests stipulated.

The inspector shall check the following using the inspection form approved by QUALICOAT:

- Inspection of laboratory equipment.
- Delivery appointments.
- In-house control.
- Records for every delivery.

3.1.2. Final assessment for granting the PRE-OX licence

The inspector submits the inspection report to the General Licensee for the evaluation.

Under the supervision of QUALICOAT, the General Licensee must adhere to the following procedure:

- If the results of the inspection meet the requirements, the PRE-OX licence shall be granted. A specific QUALICOAT PRE-OX certificate shall be issued stating that the anodising plant installation can produce finished products that meet the QUALICOAT PRE-OX requirements.
- If the results of the inspection do not meet the requirements, the anodiser shall wait at least three months before making a new application for a PRE-OX licence.

3.2. Licence renewal

After an anodising plant is granted a PRE-OX licence, it shall be inspected once a year.

Routine inspections shall be conducted without prior notice. Inspectors will only be authorised by the GL or QUALICOAT Secretariat to announce an inspection in the case of travel safety issues or visa problems.

3.2.1. Inspection

The inspectors shall take along the following equipment:

- Conductivity meter.
- Thickness meter.
- Calibration tools for the tests stipulated.

The inspector shall check the following using the inspection form approved by QUALICOAT:

Review of in-house control and registers

The inspector shall check that in-house control has been carried out in accordance with section § 1. above and that the anodiser maintains close cooperation with the coater as described in section § 2 above.

3.2.2. Final assessment for renewing the licence

Under the supervision of QUALICOAT, the General Licensee must adhere to the following procedure:

- If the inspection results meet the requirements, authorisation to use the quality label will continue.
- If the results of the inspection do not meet the requirements, another inspection shall be conducted within one month (allowing for holiday periods) after the anodiser has received a notification of an unsatisfactory inspection from the General Licensee and/or QUALICOAT. In the meantime, the licensee shall rectify the non-conformities and immediately inform the General Licensee or QUALICOAT.
- If the repeat inspection produces unsatisfactory results, the PRE-OX licence will be withdrawn immediately. The anodiser shall wait for at least three months before making a new application for a licence to use the quality label.

3.3. Anodisers' right of appeal

The anodising plant shall receive a copy of each inspection report. If the results do not meet the requirements, full details and reasons shall be given. The plant shall be entitled to appeal within 10 days.

3.4. Confidentiality of information

All information concerning the inspection results and their assessment shall be confidential.

3.5. Deadlines for submission of inspection reports

All inspection reports (including test results) shall reach QUALICOAT's Secretariat within three months of the dates of the inspections.

3.6. Use of the logo by PRE-OX anodisers



Licence PRE-OX ANODISER
n° xxxx

The logo may be used on the products themselves, business stationery, quotations or invoices, price lists, cards, display boxes, on all company literature, brochures, catalogues and newspaper advertisements.

By applying the logo to a product, the anodiser guarantees that the quality of the finished product supplied to QCT licenced coaters meets all the requirements of the Specifications.

Whenever an anodiser mentions or references to QUALICOAT, it shall systematically indicate its licence number. This shall apply to both the use of the logo and in texts.