



Update of QUALICOAT Specifications 2023

Update Sheet No. 02

applicable from 01.07.2023

Subject: **Methods of measuring conversion coating weight**

Resolution No. 3 / TC 2022.11.16

The TC asked the Pretreatment WG to reconsider 2022 Update Sheet No. 4 (Methods of measuring conversion coating weight) based on the objections raised by Qual.ION.

QUALICOAT Resolutions:

Resolution No. 2/TC 16.05.23

With the exception of Qual.Ion's representative, the TC approved update sheet No.2 "Methods of measuring conversion coating weight". The implementation date will be 1st July 2023.

Proposals/Requests:

Pretreatment WG / 2023.01.25

Qual.ION's proposal to amend the Update Sheet was declined and the Pretreatment WG agreed to resubmit the Update Sheet as originally drafted to the TC in May 2023.

Amendment to the Specifications:

Addition of a statement to:

- 3.3.2. Chemical pretreatments
- Appendix A6, section 9. Responsibility and cooperation with the coating applicator

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3. Work Specifications

[...]

3.3.2 Chemical pretreatments

Chemical pretreatments other than the chromate conversion coatings described above may not be used until they have been approved by QUALICOAT, following a test programme set out in Appendix A6.

The conductivity of the dripping water of all chemical pretreatment systems with a final rinse shall not exceed a maximum of 30 $\mu\text{S}/\text{cm}$ at 20°C. The conductivity should only be measured for open sections and not for hollow sections.

The weight of the conversion coating shall comply with the manufacturer's specified limits and be checked by the inspector.

The coating applicators shall use the products as described in the technical data sheet and in the instructions provided for the specific plant by the chemical manufacturer(s) concerning the methods for assessing the quality of the chrome VI-free conversion coating, the device prescribed for analytically determining the coating weight, and the in-house control frequencies. These specific instructions shall be accessible to the inspector.

Due to its uncertainty, QUALICOAT does not allow the gravimetric method to measure the weight of the conversion layer below 100 mg/m^2 using an analytical balance with precision 0.1 mg. The X-ray analysis and spectrophotometry are accepted methods for measuring conversion layer weight below 100 mg/m^2 .

Every two months a production sample shall be sent to the chemical manufacturer who shall carry out an acetic acid salt spray resistance test and a coating weight measurement. The test results and the measurements shall be communicated to the coater within a period of maximum four months.

The results and any corrective actions communicated by the chemical manufacturer shall be entered and retained along with the related shipping details in records readily accessible to the inspector. Unsatisfactory values shall have no influence on the result of a QUALICOAT inspection (see Appendix A6, Section 9)

A6 – Approval of chemical pretreatments

[...]

9. RESPONSIBILITY AND COOPERATION WITH THE COATING APPLICATOR

Manufacturers and coating applicators shall cooperate closely (see Chapter 3, § 3.2.2).

For all systems, there shall be technical data sheets, also giving information about other products with which a system may or may not be used.

To take into account the particular conditions in each plant, specific instructions to be followed by the persons in charge shall be provided to the coating applicator and shall specify that the conductivity of the dripping water of all chemical pretreatment systems with a final rinse shall not exceed a maximum of 30 $\mu\text{S}/\text{cm}$ at 20°C (the conductivity only being measured on open sections and not on hollow sections). The instructions for the specific plant shall also specify whether the product is to be used as a rinse or no-rinse system, or whether it is suitable for dual use, depending on the coating applicator's pretreatment line set-up.

The methods for assessing the conversion coating may differ from one system to the next since there is not a pertinent standard. The manufacturer indicates how the coating applicator has to

monitor the quality of the chrome VI-free conversion coating during in-house control. A device to check the coating weight analytically and reporting a specific quantitative figure within the given range shall be prescribed. The method shall prescribe that the device shall indicate a maximum of +/- 20% deviation accuracy. QUALICOAT recommends the coating weight to be measured in every working shift, or according to the chemical manufacturer's advice, which shall be at least once per day (see table in section [6.5](#)).

Due to its uncertainty, QUALICOAT does not allow the gravimetric method to measure the weight of the conversion layer below 100 mg/m² using an analytical balance with precision 0.1 mg. The X-ray analysis and spectrophotometry are accepted methods for measuring conversion layer weight below 100 mg/m².

The following tests shall be carried out on the production sample received every two months from the

- acetic acid salt spray resistance test
- coating weight measurement

Receipt of the samples shall be confirmed to the coating applicator immediately. Detailed results and any corrective actions shall be entered and retained along with the related shipping details in records readily accessible to the inspector and communicated to the coating applicator within a period of maximum four months.

If the chemical manufacturer fails to cooperate with the coating applicator within the specified deadlines, the following sanction procedure shall be followed:

A written notification (warning letter) shall be sent to the chemical manufacturer by the General Licensee or QUALICOAT in countries without a General Licensee, giving it four weeks to respond:

- 1) The chemical manufacturer shall immediately acknowledge receipt of the notification.
- 2) The chemical manufacturer shall respond with a justification letter within four weeks.
- 3) The justification shall be assessed by the General Licensee or QUALICOAT (possibly involving the Board of Governors if the decision is not obvious), which could lead to a withdrawal of the approval.
- 4) If no justification letter is submitted within four weeks, the approval shall be withdrawn. The chemical manufacturer shall need to wait at least three months before sending a new application for approval.