Update of QUALICOAT Specifications 2023

Update Sheet No. 09

applicable from 01.01.2014

Subject:	**Conductivity of final rinse and dripping water**
Proposal / Requests:	To counteract and avoid different interpretations, QCT worked closely with VOA to develop a proposal that was discussed and approved at the QUALISURFAL meeting on 11.10.2022.
QUALICOAT Resolution:	**Resolution No. 11/TC 2023.05.16** The TC finally agreed that an update sheet should be prepared by the Pretreatment WG regarding the conductivity of the final rinse and dripping water. However, it was also decided that the GLs would be invited to submit their concerns**.** A video meeting of the WG should be organised before the next TC meeting to address all the concerns before an update sheet is submitted for ratification.
Amendment to the Specifications:	New provisions in: • 3.3.1 Chromate conversion coatings • 3.3.2 Chemical pretreatments • Appendix A6, section 9. Responsibility and cooperation with the coating applicator

~~Sample text~~	= deletion
Sample text	= updates approved by TC & EC on 2023.05.17
Sample text	= updates approved by Pretreatment WG on 2023.09.06

Author:	QCT Specifications WG Pascale Bellot
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3. Work Specifications

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3.3.1 Chromate conversion coatings

This chemical chromate or chromate-phosphate conversion shall be carried out according to EN 12487.

The conductivity of the final rinse preceding chemical chromate conversion's step shall comply with the manufacturer's specifications and be checked by the inspector.

Demineralised water shall be used for the final rinse after chemical chromate conversion before drying. The conductivity of the dripping water shall not exceed a maximum of 30 µS/cm at 20°C.

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 process tank shall be measured with a maximum conductivity of 15 µS/cm at 20°C before immersion starts.

The weight of the chromate conversion coating shall be between 0.6 and 1.2 g/m² for chemical chromate conversion (yellow coating) and between 0.6 and 1.5 g/m² for chemical chromate-phosphate conversion (green coating).

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

The results and any corrective actions communicated by the chemical chromate conversion 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.

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.

In terms of rinsing, there are two types of chemical pretreatment systems according to Appendix A6:

a) Rinse system

There is a final rinse after the conversion coating stage.

The conductivity of the dripping water of all chemical pretreatment systems with a final rinse shall not exceed a maximum of 30 µS/cm at 20°C.

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 process tank shall be measured with a maximum conductivity of 15 µS/cm at 20°C before immersion starts.

b) No-rinse system

There is no final rinse after the conversion stage (a spray mist step after the conversion stage is not considered as final rinse).

The conductivity of the dripping water of the last rinse before the conversion stage shall not exceed a maximum conductivity as prescribed by the chemical supplier in the manual adapted to the coating line, which shall not be higher than 100 µS/cm at 20°C.

Any installation should preferably 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, the conductivity of the last rinse water applied on the pieces ~~in the process tank~~ shall not exceed a maximum conductivity as prescribed by the chemical supplier in the manual adapted to the coating line, which shall not be higher than 50% of the limit prescribed for the dripping water.

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

The licensees shall use the products as described in the technical data sheet and in the ~~instructions~~ adapted manual provided for the specific coating line 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~~ manual adapted to the coating line 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/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.

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).

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3.8 Laboratory

The production site shall have laboratory facilities which are separate from the production facilities. The 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:

1) Specular glossmeter suitable to measure in 60° incident light mode
2) 2 instruments for measuring coating thickness according to **ISO 2360** (corresponding calibration standards <60 µm and >60 µm)

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10) pH-meter (calibration solution corresponding to the pH value of the coating line) if specified in the technical data sheet and ~~specific instructions~~ the manual adapted to the coating line provided by the chemical manufacturer, as described in Appendix A6.

11) Device prescribed for the analytical coating weight determination (only for chemical pretreatment according to § 3.3.2)

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A6 – Approval of chemical pretreatments

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9. RESPONSIBILITY AND COOPERATION WITH THE LICENSEE

Manufacturers and coaters shall cooperate closely (see Chapter 3, § 3.3.2).

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*~~ a manual adapted to the coating line to be followed by the persons in charge shall be provided to the licensee 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 µS/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 in the respective coating line. ~~*or whether it is suitable for dual use, depending on the licensee's pretreatment line set-up.*~~ The manual adapted to the coating line shall also specify the rinsing requirements according to Chapter 3, § 3.3.2.

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