

SurTec® 580 ChromiPhos

Properties

- liquid, trivalent chromium passivation as post-treatment for phosphatings before lacquer finishing
- intensifies phosphate layers by filling the pores
- causes an excellent lacquer adhesion
- improves the corrosion protection and prevents underfilm corrosion
- is suited for immersion or spray application
- can be used for the passivation of phosphatings made of Zn, Mn, Zn/Ca or tri-cationic phosphatings (e.g. SurTec 610, SurTec 615, SurTec 614, SurTec 617)
- also suitable for the post-treatment of Fe phosphatings (e.g. SurTec 600, SurTec 601)

Application

SurTec 580 ChromiPhos can be used in immersion or spray application.

make-up value: 7 ml/l (7-10 ml/l)

make-up: Steps for make-up:

1. Dissolve SurTec 580 ChromiPhos in deionised water portion by portion with strong agitation.
2. Adjust the pH-value to pH 3.8 using sodium hydroxide solution (1 % solution).

temperature: 30°C (20-40°C)

pH-value: 3.8 (3.7-4.0)

For new make-up adjust with sodium hydroxide solution (1 %).

During the process, the pH-value rises slowly and has to be lowered by adding SurTec 580 ChromiPhos.

conductivity: 0.12-1.50 mS/cm

application time: 20 s (20-90 s)

tank material: made of PP or PVC

filtration: recommended

heating: recommended; made of acid resistant material

exhaust: required for workers' protection

recommended process sequence:

1. degreasing combined with phosphating (e.g. SurTec 601)
2. rinsing
3. rinsing with deionised water
4. SurTec 580 ChromiPhos
5. rinsing with deionised water
6. hot air drying at max. 65°C

Maintenance and Analysis

Check the pH-value regularly and adjust it by adding SurTec 580 ChromiPhos. Measure the conductivity regularly. At more than 1.5 mS/cm reject the bath and prepare a new make-up.

If required, the concentration of SurTec 580 ChromiPhos can be analysed by titration or by AAS.

Sample Preparation

Take a sample at a homogeneously mixed position. Let it cool down to room temperature. If the sample is turbid, let the turbidity settle down and filter the solution with a blue band filter.

SurTec 580 – Analysis by Titration

reagents: sodium hydroxide (10 %)
 H₂O₂ (30 %)
 hydrochloric acid (17 %)
 potassium iodide
 0.1 N sodium thiosulfate solution
 starch solution (1 %)

procedure: 1. Pipette 500 ml bath sample into a 1000 ml Erlenmeyer flask.
 2. Add 20 ml sodium hydroxide.
 3. Add 5 ml H₂O₂, let it react 5 min while stirring.
 4. Add another 5 ml H₂O₂ and stir 5 min.
 5. Heat up the solution while stirring and concentrate it to 100 ml.
 6. Let the solution cool down and filter with a blue band filter.
 7. Wash the filter paper with approx. 10 ml deionised water. The filtrate had to be clear and free of precipitations.
 8. Acidify the filtrate (about 100 ml) with 40 ml hydrochloric acid (colour changes from yellow to orange).
 9. Add 1 g potassium iodide.
 10. Titrate with 0.1 N sodium thiosulfate solution until the solution is only slightly yellowish.
 11. Add some drops of starch solution (colour changes to blue-grey) and continue titrating to complete discolouration.

calculation: consumption in ml · 2.258 = ml/l SurTec 580

SurTec 580 – Analysis by AAS

equipment: atomic absorption spectrometer (AAS)
 wave length: 357.9; slit: 0.7 nm

reagents: nitric acid (1:1) p.a.

procedure: Make an exact dilution 1:5
 1. Pipette 5 ml nitric acid into a 100 ml measuring flask.
 2. Add 20 ml bath sample and mix well.
 3. Let it react 5 min.
 4. Dilute to approx. 100 ml with deionised water and mix well.
 5. Measure against a chromium standard solution by AAS and calculate the value in ppm.

hint: For older bathes and higher concentration a stronger dilution may be necessary.

calculation: measured value in ppm · 3.25 = ml/l SurTec 580

Technical Specifications

(at 20 °C)	Appearance	Density (g/ml)	pH-value (1 %vol)
SurTec 580 ChromiPhos	liquid, green	1.008 (1.00-1.02)	3-4

Ingredients

- chromium(III) salts

Consumption and Stock Keeping

The consumption depends heavily on the drag-out. To determine the exact amounts of drag-out, see [SurTec Technical Letter 11](#).

In order to prevent delays in the production process, per 1,000 l bath the following amount should be kept in stock:

SurTec 580 ChromiPhos 25 kg

Product Safety and Ecology

The safety instructions and the instructions for environmental protection have to be followed in order to avoid hazards for people and environment. The Material Safety Data Sheets (according to European legislation) contain explicit details for this.

The following hazard designations and classifications into water hazard classes (WHC) have to be taken into account:

<u>product</u>	<u>hazard designation</u>	<u>water hazard class</u>
SurTec 580 ChromiPhos	-	WHC 1

Warranty

We are responsible for our products in the context of the valid legal regulations. The warranty exclusively accesses for the delivered state of a product. Warranties and claims for damages after the subsequent treatment of our products do not exist. For details please consider our [general terms and conditions](#).

Further Information and Contact

In our forum, you can discuss topics of the surface technology:

<http://forum.SurTec.com/>

If you have any questions concerning the process, please contact your local technical department: <http://SurTec.com/International.html>