

SurTec® 549

Anticorrosion for Black Chromates

Properties

- clear, non-etching liquid
- seals resp. stabilizes especially black chromated parts
- free of complexing agents
- improves wiping and abrading resistance of the passivation
- increases significantly the corrosion protection without organic film
- reduces efficiently over chromating and washing off the chromate layer

Application

make-up value: 1.5 %vol SurTec 549 (0.5-2.5 %vol)

pH-value: 4.4 (4.2-4.6)
adjust with acetic acid

temperature: 20 °C (10-30 °C)

application time: 30 s (10-50 s)

tank material: steel with plastic coating

recommended process sequence:

1. zinc plating
2. rinsing
3. activation (approx. 0.5 % nitric acid)
4. DI-rinsing
5. black chromate with SurTec 690, 692, or 693
6. static rinsing (3 g/l chromic acid + 5 ml/l acetic acid (chloride free) in deionised water)
7. flow rinsing (recycled water < 50 µS/cm)
8. stabilization SurTec 549
9. drying

special hints: Technically, the flow rinsing (step 7) is not absolutely necessary, but it increases significantly the service life of the stabilization SurTec 549, because it is negatively influenced by drag-in of hexavalent chromium. Thus, step 6, 7, and 8 are representing three rinsing steps.

Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 549	liquid, colourless, clear	1.129 (1.10-1.16)	5.5 (5.0-6.5)

Maintenance and Analysis

Check the pH-value regularly. Analyse and adjust the concentration of SurTec 549 regularly.

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 decant or filter the solution.

SurTec 549

reagents: 0.1 N potassium dichromate solution
 hydrochloric acid (conc.) p. a.
 potassium iodide p. a.
 starch solution (1%)
 0.1 N sodium thiosulfate solution

procedure: 1. Pipette 25 ml potassium dichromate solution into a 300 ml Erlenmeyer beaker.
 2. Acidify with 10 ml hydrochloric acid.
 3. Add approx. 100 ml deionised water.
 4. Add 2 g potassium iodide.
 5. Add 50 ml bath solution (solution becomes brown).
 6. Titrate with 0.1 N sodium thiosulfate solution until nearly complete discoloration.
 7. Add 0.5 ml starch solution (solution becomes dark blue).
 8. Continue the titration slowly until the blue colour disappears.

calculation: $(25 - \text{consumption in ml}) \cdot 0.158 = \% \text{vol SurTec 549}$

Ingredients

- inorganic and organic buffer substances

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 549	-	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>