

SurTec® 965

Reduction Additive

for Plating on Plastic

Properties

- liquid additive
- reduces chromium(VI) after chromo-sulfuric acid pickling (SurTec 960) and double rinse

Application

make-up value: 40 ml/l (30-50 ml/l)

make-up: Steps for make-up:

1. Fill 2/3 of the deionised water into the tank.
2. Add SurTec 965 Reduction Additive portion by portion, stirring vigorously (make-up solution becomes a little bit warm).

temperature: 27°C (21-32°C)

application time: 1 min (0.5-2 min)

agitation: slight air agitation

tank material: steel with PVC, PE or PP coating

heating: if necessary, made of acid resistant material (Teflon)

exhaust: required for worker's protection

recommended process sequence (for ABS):

1. chromo-sulfuric acid pickling with SurTec 960
2. **reduction with SurTec 965**
3. Pd-Activator SurTec 966
4. Accelerator SurTec 969
5. Electroless Nickel Process SurTec 835
6. Watts Nickel Process SurTec 850
(2 min at 2 Volt, than 8 min at 4 Volt, approx. 10 min)
7. Bright Acid Copper Process SurTec 869
8. Semi Bright Nickel Process SurTec 854
9. Bright Nickel Process SurTec 855
10. (optional: Microporous Nickel Process SurTec 859)
11. Bright Chromium Process *trivalent:* SurTec 876
hexavalent: SurTec 871

Between each step, there has to be rinsed very well. The rinsing methods have to be adapted to the plating line.

Technical Specification

(at 20°C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 965	liquid, colourless-yellowish	1.317 (1.29-1.35)	< 1

Maintenance and Analysis

Analyse and adjust the concentration of SurTec 965 regularly.

In order to reach a high service life of the reduction bath, we recommend a very good rinsing after the chromo-sulfuric acid pickling before this reduction bath. For constantly high quality of the parts, prepare a fresh make-up of the bath regularly. For orientation:

New make-up of SurTec 965 after each 90,000 dm² treated surface.

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 965 – Analysis by Titration

reagents: 0.1 M sodium hydroxide solution
indicator: methyl orange solution (0.04 %)

procedure: 1. Pipette 2 ml bath sample into a 300 ml Erlenmeyer flask.
2. Dilute with 100 ml deionised water.
3. Add some drops of indicator.
4. Titrate with 0.1 M sodium hydroxide solution from red to yellow.

calculation: consumption in ml · 4.904 = ml/l SurTec 965

Stock Keeping

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

SurTec 965 50 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 965	C - Corrosive	WHC 3

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>