

SurTec® 662

Heat Resistant Blue Passivation

Properties

- liquid concentrate
- trivalent blue passivation without chromium(VI) and oxidising agents
- meets the corrosion protection standards for blue passivated parts, even after heat treatment up to 210°C for 10 h (see: [SurTec Technical Letter 8](#))
- produces coatings with intensive blue colour even at short immersion times; the passivation layer can be coloured with organic dyes
- long service life (see: [SurTec Technical Letter 4](#))
- can be analysed and controlled by addition of the concentrate
- IMDS-number: 900924

Application

make-up value:	7 %vol	(5-12 %vol)
temperature:	20°C	(15-30°C)
pH-value:	1.8	(1.6-2.2)
	adjust with nitric acid or sodium hydrogen carbonate	
	pH-value < 1.7: decrease of the corrosion protection	
	pH-value > 2.2: yellowish appearance of the passivation film, decrease of the corrosion protection	
immersion time:	30 s	(15-60 s)
	With higher service life of the bath, concentration and immersion time has to be adapted, according to the 66x Correction Card (see: SurTec Technical Letter 4).	
agitation:	rack movement or air agitation	
tank material:	steel tanks with acid resistant plastic coating	
hints:	SurTec 662 has a potentially unlimited service life; the limiting factor is the iron concentration. Depending on the make-up concentration, the critical iron value ranges within 250-500 ppm.	
	SurTec 662 is sensitive against lead and other heavy metal impurities (do not use lead as weight for air blowing tubes!).	

Technical Specification

(at 20°C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 662	liquid, black-green	1.130 (1.11-1.15)	0.8 (0.4-1.2)

Maintenance and Analysis

Check the pH-value and analyse and adjust the concentration of SurTec 662 regularly.

Sample Preparation

Take a sample at a homogeneously mixed position and filter it with a folded filter.

SurTec 662 – Analysis by Photometry

equipment: spectrophotometer or
 filter photometer with 600 nm filter unit (± 50 nm)
 100 ml volumetric flask
 1 cm cuvette

procedure: Plot of the calibration curve (quarterly):
 Prepare standards with SurTec 662 concentrate in a 100 ml
 volumetric flask:

6 %vol	Fill up 6 ml concentrate to 100 ml and mix well
8 %vol	Fill up 8 ml ...
10 %vol	Fill up 10 ml ...
12 %vol	Fill up 12 ml ...

Fill each standard into a 1 cm cuvette and measure all standards at 600 nm photometrically against air and plot the absorbance against the concentration.

Sample measurement:

1. Fill the filtrated bath sample into the same cuvette that was used for determining the calibration curve.
2. Measure the solution in the photometer at 600 nm against air.
3. Determine the concentration using the calibration curve.

SurTec 662 – Analysis by Titration

reagents: sodium hydroxide (10 %)
 H₂O₂ (30 %)
 hydrochloric acid (conc.)
 potassium iodide
 0.1 N sodium thiosulfate solution (= 0.1 mol/l)
 starch solution (1 %)

procedure: 1. Pipette 10 ml bath sample into a 250 ml Erlenmeyer flask.
 2. Dilute with approx. 50 ml deionised water.
 3. Add sodium hydroxide solution to a pH-value of approx. pH 10 (colour changes).
 4. Add approx. 0.3 ml H₂O₂.
 5. Boil the solution for 30-40 min. (It is important to remove excessive H₂O₂ completely! Maximum evaporation loss: 25 ml)
 6. Cool down the solution and acidify with hydrochloric acid (colour changes to orange).
 7. Add approx. 2 g potassium iodide.
 8. Titrate with 0.1 N sodium thiosulfate until it is slightly yellowish.
 9. Add some drops of starch solution (colour changes to blue).
 10. Continue titrating to complete discolouration.

calculation: consumption in ml · 0.89 = %vol SurTec 662

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 662 75 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 662	Xi - Irritant	WHC 2

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>

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