

SurTec® 462

Chemical Brightening

Properties

- acidic liquid
- phosphate based brightening bath for chemical brightening of aluminium and aluminium alloys
- free of nitric acid and heavy metals
- environmentally friendly
- depending on the aluminium alloy, the product produces very high degrees of gloss
- best degrees of gloss will be achieved on polished bright alloys

Application

make-up value: 100 %vol

analytical values: density: 1.8-1.86 g/cm³
conductivity: 20 - 26 mS/cm
Al-content: 40 - 45 g/l (recommended)

application time: 30-300 s

temperature: 92-105 °C

tank material: polyvinylidene fluoride (PVDF)

heating: required

exhaust: required for worker's protection

filtration: not required

hints: To produce a correspondingly high degree of gloss, an aluminium content of at least 30 g/l is strictly necessary

Due to the presence of hydrogen during the treating process the installation of a goods movement has to be considered to avoid gas formation on the polished surfaces.

After the brightening process the work pieces have to be rinsed thoroughly in several working steps. If the rinsing will not be adjusted thoroughly there may occur rinse water corrosion in the subsequent rinsing stages. That can be avoided by the usage of our product SurTec 460 N Inhibitor.

In case of using titanium as rack material please note that titanium will be attacked by the electrolyte. Only small amounts of aluminium must be dissolved during the brightening process (max. 5 kg / 1000 litres), due to the exothermal reaction the brightening bath will be warmed up strongly. For further hints please note our "Data Sheet for start up of brightening baths"

Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 462	liquid, colourless, clear	1.73 (1.71-1.75)	< 1

Maintenance and Analysis

So analyse density, conductivity and aluminium content of the brightening bath regularly and replenish with SurTec 462 if necessary.

Sample Preparation

Take a sample at a homogeneously mixed position. Let it cool down to room temperature. If the sample is cloudy, allow the cloudiness to settle down and decant or filter the solution.

SurTec 462 – Determination of Density, Conductivity and Aluminium Content

reagents:	0.1 mol/l EDTA-solution 0.1 mol/l zinc sulfate solution sodium acetate solution (15 %) indicator: xylene orange (1 g grinded up finely into 99 g NaCl)
procedure:	Adjust the density of the polishing bath at 20 °C with an aerometer. Adjust the conductivity of polishing bath at 20 °C. Determination of the aluminium content: <ol style="list-style-type: none">1. Cool down the polishing bath to 20 °C.2. Pipette 5 ml bath sample into a 1000 ml volumetric flask.3. Dilute to 1000 ml with deionised water and mix well.4. Transfer exactly 100 ml of this dilution to a 250 ml beaker.5. Add 25 ml 0.1 mol/l EDTA solution and mix well.6. Wait for 15 minutes for reaction.7. Then adjust the pH-value to pH 5.4 with sodium acetate solution.8. Add a spatula tip of indicator.9. Titrate with 0.1 mol/l zinc sulfate solution from yellow to red-violet.
calculation:	$[25 - \text{consumption in ml}] \cdot 5.4 = \text{g/l aluminium}$

Ingredients

- sulfuric acid
- phosphoric acid
- organic inhibitors

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](#).

The following values can be taken as estimated average consumption:

SurTec 462 200-400 g per m²

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

SurTec 462 1000 kg

Product Safety and Ecology

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

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 462	C - Corrosive	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>

19 February 2010/DK, WT