

SurTec® 400 C

Antistone Additive

Properties

- alkaline liquid
- stabilises the aluminium content in alkaline etching baths
- prevents the formation of aluminium stone, even at aluminium contents up to 50 g/l
- extends the service life of alkaline etching baths
- easy to dose product
- good biodegradable

Application

For immersion application:

make-up values:

SurTec C 400 C 5-15 g/l
caustic soda 40-60 g/l

application time: 1-5 min (60-300 s)

temperature: 40-60 °C

pH-value: strongly alkaline

aluminium content: maximum 50 g/l

tank material: heatable steel tanks (alloy ST 35) or polypropylene (PP) tanks,
(PP tanks up to 70 °C working temperature only)

heating: required, made of alkaline resistant material

exhaust: required for worker's protection

filtration: not necessary

Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 400 C	liquid, yellowish, clear	1.230 (1.21-1.25)	11.5 (11-12)

Maintenance and Analysis

Analyse and adjust the concentration SurTec 400 C 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 400 C – Analysis by Titration

reagents:	0.02 mol/l potassium permanganate solution (= 0.1 N KMnO_4) 0.05 mol/l oxalic acid solution (= 0.1 N $\text{C}_2\text{H}_2\text{O}_4$) acid mixture (95 ml sulfuric acid (H_2SO_4 96 %) + 5 ml phosphoric acid (H_3PO_4 85 %))
procedure:	<ol style="list-style-type: none">1. Pipette 2 ml bath sample into an Erlenmeyer flask.2. Dilute with approx. 50 ml deionised water.3. Add 50 ml potassium permanganate solution.4. Heat up to 60-70 °C.5. Let the solution react for 5 minutes and then cool down.6. Add 5 ml acid mixture.7. Heat up to 60-70 °C again.8. Add 50 ml of oxalic acid solution and wait until the solution becomes clear.9. Titrate with potassium permanganate solution until a constant slightly pink colouration is reached.
calculation:	consumption in ml · 0.45 = g/l SurTec 400 C
nominal values:	content: 5-15 g/l SurTec 400 C consumption: 11.1-33.3 ml 0.02 mol/l potassium permanganate solution

Ingredients

- complexing agent

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 value can be taken as estimated average consumption:

SurTec 400 C 2-5 g per m^2

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

SurTec 400 C 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 400 C	Xi-Irritant	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>

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