

SurTec® 181

Aluminium Etching

Properties

- highly alkaline
- liquid
- free of phosphates and silicates
- free of surfactants

Application

SurTec 181 is applied in soak- and spray applications for etching and degreasing with etching attack on aluminium. SurTec 181 can therefore be combined with soak or spray surfactants of the SurTec-Range (e.g. SurTec 089 or SurTec 086, respectively). The make-up should be preferably in deionised water.

make-up value: 2-7 %vol SurTec 181 (corresponds 3-10 weight%)
+ 0.05-0.5 % surfactant (if necessary)

aluminium content: 0-50 g/l

temperature: 40-90 °C

application time: 0.5-10 min

tank material: stainless steel or alkali resistant material

heating: required, out of stainless steel or alkali resistant material

Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (at 10 g/l)
SurTec 181	liquid, colourless-yellow	1.452 (1.42-1.49)	12.5 (12-13)

Maintenance and Analysis

Analyse and adjust the concentration of SurTec 181 and of aluminium.

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 181 – Analysis by Titration

reagents: 1 N hydrochloric acid or sulfuric acid
sodium fluoride (NaF) - solid
indicator: phenolphthalein (0.1 % in ethanol)

procedure: First titration:
1. Pipette 20 ml bath sample into a 250 ml Erlenmeyer flask.
2. Dilute with deionised water to approx. 100 ml.
3. Add 3 drops of indicator.
4. Titrate with 1 N acid from red to colourless.

acid consumption (ml) = **X**

Second titration:

5. After the first titration add approx. 2.5 g solid sodium fluoride and mix thoroughly (the solution turns red again).
6. Titrate again with 1 N acid until the solution gets colourless.

acid consumption (ml) = **Y**

calculation: $0.429 \cdot (X - Y/3) =$ %vol active content of SurTec 181

$Y \cdot 0.45 =$ g/l aluminium

If bath is freshly prepared, only titration step 1 is necessary.

The calculation therefore is:

consumption in ml $\cdot 0.429 =$ %vol SurTec 181

Ingredients

- polyalcohols
- sodium hydroxide

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 181 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 181	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>

27 July 2010/DK, PV