

## Protection upgraded

# SurTec® 181 Aluminium Etching

### Properties

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

### Application

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

Make-up value:	SurTec 181	2-7 %vol	(corresponds 3-10 weight%)
	+ surfactant	0.05-0.5 %	(if necessary)
Aluminium content:	0-50 g/l		
Temperature:	40-90°C		
Application time:	0.5-10 min		
Tank material:	made of stainless steel or alkali-resistant material		
Heating:	required, made 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 bath sample at a homogeneously mixed position and 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 mol/l hydrochloric acid (= 1 N) or 0.5 mol/l sulfuric acid (= 1 N)  
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 to approx. 100 ml with deionised water.
3. Add 3 drops of indicator.
4. Titrate with 1 N acid from red to colourless.  
acid consumption in ml = X (ml)

Second titration:

5. After the first titration add approx. 2.5 g solid sodium fluoride and mix thoroughly (the solution becomes red again).
6. Titrate again with 1 N acid until the solution is colourless.  
acid consumption in ml = Y (ml)

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

$Y \text{ in ml} \cdot 0.45 = \text{g/l aluminium}$

If the bath is freshly prepared, only the first titration is necessary.  
The calculation therefore is:

$X \text{ in ml} \cdot 0.429 = \text{\%vol SurTec 181}$

## 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

Classification and designation are noted in the **Material Safety Data Sheets** (according to the European legislation). The safety instructions and the instructions for environmental protection have to be followed in order to avoid hazards for people and environment. Please pay attention to the explicit details in our Material Safety Data Sheets.

## 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 further processing of our products do not exist. For details, please find our country-specific **General Terms and Conditions** for downloading on our homepage or ask your regional SurTec representative.

## Further Information and Contact

If you have any questions concerning the process, please contact your local technical department.

For further information and contact details, please visit our homepage:

<http://www.SurTec.com>

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