

SurTec® 499

Acid Pickling Cleaning

Properties

- acidic liquid
- suitable for the treatment of aluminium and zinc
- used as deoxidiser (SurTec 499 A) or in combination with SurTec 478 B as acidic pickle cleaner
- specially developed for activation and cleaning of surfaces before green chromating
- suitable for immersion and spray application
- the degreasing effect can be strengthened by addition of SurTec 478 B

Application

The process SurTec 499 includes the following products:

- SurTec 499 A Acid Pickling Cleaner
- SurTec 478 B Acid Pickling Cleaner

make-up values:	<i>immersion</i>	<i>spray</i>
SurTec 499 A	17-44 ml/l	9-26 ml/l
SurTec 478 B	2 - 5 ml/l	1 - 3 ml/l
application time:	3-10 min (180-600 s)	2-3 min (120-180 s)
temperature:	20-40°C	20-40°C
pH-value:	< 1	< 1
tank material:	acid-resistant plastic tanks of GRP, steel tanks with appropriate coating or V4A stainless steel tanks (alloy 1.4571)	
heating:	recommended, out of acid-resistant material	
exhaust:	recommended for worker's protection	
filtration:	oil-separator recommended	
hints:	Due to the specially matched chemicals of the process SurTec 499 with the green chromating SurTec 657 (passivation) a long service life of the green chromating agents can be ensured.	

Technical Specification

(at 20°C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 499 A	liquid, colourless, clear	1.150 (1.13-1.17)	< 1
SurTec 478 B	liquid, colourless, clear	1.010 (0.99-1.03)	approx. 1.7

Maintenance and Analysis

Analyse and adjust the concentration of SurTec 499 A regularly. SurTec 478 B cannot be analysed. Replenish SurTec 478 B at a ratio of 1:10 to SurTec 499 A. Due to the liquid character of the components SurTec 499 A and SurTec 478 B it is recommendable to use an automatic dosage system for replenishment.

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 499 A and Aluminium – Analysis by Titration

reagents:	1 mol/l caustic soda solution (= 1 N NaOH solution) potassium fluoride solution (KF solution, 35 %) indicator: phenolphthalein solution (0.1 % in 70 % ethanol)
procedure:	<ol style="list-style-type: none">1. Pipette 25 ml bath sample into a 250 ml Erlenmeyer flask.2. Dilute to approx. 100 ml with deionised water.3. Add some drops of indicator.4. Titrate with 1 mol/l caustic soda solution to pink colouration. = consumption A (ml)5. Pipette another 25 ml bath sample into a 250 ml Erlenmeyer flask.6. Dilute to approx. 100 ml with deionised water.7. Add 15 ml potassium fluoride solution.8. Add some drops of indicator.9. Titrate with 1 mol/l caustic soda solution to pink colouration. = consumption B (ml)
calculation:	consumption B in ml · 4.4 = ml/l SurTec 499 A (free acid) consumption (A - B) in ml · 0.9 = g/l aluminium
nominal values:	9-44 ml/l SurTec 499 A is equivalent to: 2-10 ml 1 mol/l caustic soda solution
maximum aluminium content:	5 g/l

Ingredients

SurTec 499 A

- phosphoric acid
- hydrofluoric acid
- sulfuric acid

SurTec 478 B

- surfactants

Consumption and Stock Keeping

The following values for spray and immersion application can be taken as estimated average consumption:

SurTec 499 A	9 ml/l
SurTec 478 B	1 ml/l

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

SurTec 499 A	30-90 kg
SurTec 478 B	30 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 499 A	T - Toxic C - Corrosive	WHC 2
SurTec 478 B	-	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>