

SurTec® 478

Acid Pickling Cleaner

Properties

- acidic liquid
- deoxidising agent or acid pickling cleaner
- suitable for aluminium and zinc
- in combination with SurTec 478 B used as an acid pickling cleaner
- specially developed for activation and cleaning of surfaces before passivation (yellow chromating)
- free of nitrate, nitrite and chromium
- suitable for immersion and spray process as well
- the degreasing effect can be strengthened by addition of SurTec 478 B

Application

The process SurTec 478 includes the following products:

- SurTec 478 A controls the material removal
- SurTec 478 B regulates the degreasing impact

make-up values:	<i>immersion</i>	<i>spray</i>
SurTec 478 A	17-45 ml/l	9-26 ml/l
SurTec 478 B	2 - 5 ml/l	1 - 3 ml/l
application time:	60-300 s	30-80 s
temperature:	20-40 °C	20-40 °C
tank material:	acid-resistant plastic tanks of glass fibre reinforced plastic (GRP), steel tanks with corresponding acid resistant lining or V4A stainless steel tanks (alloy 1.4571)	
heating:	required, made of acid resistant material	
exhaust:	required for worker's protection	
filtration:	oil-separator recommended	

Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 478 A	liquid, colourless	1.160 (1.14-1.18)	< 1
SurTec 478 B	liquid, colourless	1.010 (0.99-1.03)	1.5-1.9

Maintenance and Analysis

To guarantee efficient bath conditions for a longer lifetime, replenish the operation bath temporarily with SurTec 478 A.

Analyse and adjust the concentration of SurTec 478 A regularly. Due to the liquid character of the components SurTec 478 A and SurTec 478 B it is recommendable to use for replenishment an automatic dosage system.

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 478 A – 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 phenolphthalein indicator solution.4. Titrate with 1 mol/l caustic soda solution to pink colouration = consumption A (ml).5. Pipette 25 ml of the bath sample into a 250 ml Erlenmeyer flask.6. Dilute to approx. 100 ml with deionised water.7. Add 15 ml of potassium fluoride solution and mix thoroughly.8. Add some drops of phenolphthalein indicator solution.9. Titrate with 1 mol/l caustic soda solution to pink colouration = consumption B (ml).
calculation:	consumption B in ml · 4.78 = ml/l SurTec 478 A free acid consumption (A - B) in ml · 0.53 = g/l aluminium
nominal values:	9-45 ml/l SurTec 478 A 1.8-9 ml 1 mol/l caustic soda solution maximum aluminium content: 5 g/l

Ingredients

SurTec 478 A

- sulfuric acid
- hydrofluoric acid

SurTec 478 B

- surfactants

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

SurTec 478 A	9 ml per m ²
SurTec 478 B	1 ml per m ²

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

	<i>immersion</i>	<i>spray</i>
SurTec 478 A	50-100 kg	25-50 kg
SurTec 478 B	25 kg	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 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 478 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>