

# SurTec® 468

## Pickling for Steel

### Properties

- acidic, liquid concentrate
- inhibited steel pickling based on sulfuric acid and phosphoric acid
- can be used as chemical as well as electrolytic pickle
- free of nitric acid and fluorides
- environmentally friendly

### Application

	<i>chemical operation</i>	<i>electrolytic operation</i>
make-up values:	100-400 g/l	150-350 g/l
application time:	10-20 min (600-1200 s)	10-20 min (600-1200 s)
temperature:	50-80°C	20-40°C
current density:	-	5-10 A/dm <sup>2</sup>
pH-value:	< 1	< 1
tank material:	gummed steel or glass fibre reinforced plastic (GRP) tanks with PVDF (polyvinylidene fluoride) coating	
	For chemical operation, the isolation of the tank walls is recommended, in order to avoid heat loss.	
heating:	required, made of acid resistant material (heat exchanging material PVDF)	
exhaust:	required for worker's protection	
filtration:	oil-separator recommended	
hints:	Tap water can be used for initial bath preparation.	
	Above mentioned parameters refer to standard conditions. Due to special requirements of material or customer-specific plant conditions tolerances in current density values may be necessary.	
	If the pickling bath is operated electrolytically, shielding effects may occur. This may lead to an inhomogeneous pickling attack. So pay attention to fix workpieces in a way, that the electrical current will equally reach all sectors of the material. Furthermore the parts must be equipped with sufficient areas of contact.	
	In order to avoid harmful acidic aerosols it is necessary to install a bath exhausting device. In addition, it is possible to form a thin blanket of foam on the bath's surface by the help of a fume suppressant, which will act as aerosol retarder.	

## Technical Specification

(at 20°C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 468	liquid, yellow-brownish	1.55 (1.52-1.59)	< 1

## Maintenance and Analysis

Analyse the concentration of SurTec 468 by titration of the acidity regularly and adjust if necessary.

### 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 468 – Analysis by Titration

reagents:	1 mol/l caustic soda solution (= 1 N NaOH solution) buffer solution pH 4.0 buffer solution pH 9.0
equipment:	pH-meter with calibrated pH electrode
procedure:	1. Pipette 10 ml bath sample into a 250 ml beaker. 2. Dilute to approx. 100 ml with deionised water. 3. Immerse a calibrated pH electrode. 4. Titrate with 1 M caustic soda solution to pH 4.6 while stirring.
calculation:	consumption in ml · 9.27 = g/l SurTec 468
nominal values:	100-400 g/l SurTec 468 ( <i>chemical operation</i> ) 150-350 g/l SurTec 468 ( <i>electrolytic operation</i> ) 43.2 ml of 1 mol/l caustic soda solution

## Ingredients

- sulfuric acid
- phosphoric acid

## 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 per m<sup>2</sup> for chemical and electrolytic operation can be taken as estimated average consumption:

SurTec 468	15-20 g
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In order to prevent delays in the production process, per 1,000 l bath the following amounts should be kept in stock:

SurTec 468	500 kg	<i>chemical operation</i>
SurTec 468	400 kg	<i>electrolytic operation</i>

## 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 468	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>

28 September 2011/DK, WT