

# SurTec® 498

## Desmutting Additive

### Properties

- acidic, liquid
- used in combination with sulfuric acid or used anodizing bath
- added to desmutting baths to increase the efficiency of the desmutting solution
- good wetting of the metal surfaces in capillars, edges and deepenings
- low consumption
- alternative to conventional nitric acid or nitric acid/fluoride desmuttings as no relevant emissions will be formed
- application after alkaline pickling to remove the 'smut' film which consists of particles of oxide and intermetallics which are insoluble in the alkaline solution

### Application

make-up values:	anodic oxidation		passivation &
	<i>decorative</i>	<i>hard coating</i>	pre-painting
SurTec 498	10-20 g/l	25-35 g/l	10-20 g/l
H <sub>2</sub> SO <sub>4</sub>	200 g/l (± 50 g/l)	200 g/l (± 50 g/l)	50 g/l
application time:	3-5 min		
temperature:	20-30 °C		
pH-value:	< 1		
agitation:	circulation of the bath liquid by air agitation or circulation pump		
tank material:	acid resistant stainless steel (V4A) glass fibre reinforced plastic (GRP) polypropylene tanks (PP)		
heating:	required		
exhaust:	required for worker's protection		
filtration:	possible		
hints:	Bath make-up can be made with tap or well water. Waste water treatment takes place in combination with milk of lime.		

### Technical Specification

(at 20 °C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 498	liquid, colourless, clear	1.13 (1.10-1.15)	3 (2-4)

## Maintenance and Analysis

Analyse and adjust the concentration of SurTec 498 and sulfuric acid regularly.

### 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.

### Sulfuric Acid – Analysis by Titration

reagents:	1 mol/l caustic soda solution (= 1 N NaOH solution) indicator: methyl orange (0.04 %)
procedure:	<ol style="list-style-type: none"><li>1. Pipette 5 ml bath sample into a 300 ml Erlenmeyer flask.</li><li>2. Dilute to 100 ml with deionised water.</li><li>3. Add some drops of indicator and mix (red colouration).</li><li>4. Titrate with 1 mol/l caustic soda solution until colour turns to orange/yellow.</li></ol>
calculation:	consumption in ml · 9.8 = g/l sulfuric acid
nominal values:	150-250 g/l sulfuric acid 15.3-25.5 ml of 1 mol/l caustic soda solution

### SurTec 498 – Analysis by Titration

reagents:	0.02 M potassium permanganate solution (= 0.1 N $\text{KMnO}_4$ solution) sulfuric acid (25 %)
procedure:	<ol style="list-style-type: none"><li>1. Pipette 2 ml bath sample into a 300 ml Erlenmeyer flask</li><li>2. Add 20 ml sulfuric acid.</li><li>3. Dilute to 100 ml with deionised water.</li><li>4. Titrate with 0.02 mol/l potassium permanganate solution up a constant light pink colouration. At the beginning start with slow titration due to a delayed decolourisation.</li></ol>
calculation:	consumption in ml · 2.43 = g/l SurTec 498
nominal values:	10-35 g/l SurTec 498 4.1-14.4 ml 0.02 mol/l potassium permanganate solution

## Ingredients

- peroxides

## Consumption and Stock Keeping

The following values can be taken as estimated average consumption:

SurTec 498                      1-2 g per  $\text{m}^2$

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

SurTec 498                      25-75 kg  
sulfuric acid                      400 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 498	Xn-Harmful	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>

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