

# SurTec® 451

## Chemical Deburring

### Properties

- easy, safe and economical
- for immersion application
- applicable for automatic dosage because of high reproducibility and ready-for-use solution

### Application

For treatment, parts can be immersed into the bath either separately fixed at a rack or loosely placed in bags, plates or barrels.

Prepare the new make-up of the bath together with one of our SurTec field engineers using SurTec 451 A Make-up Solution for Chemical Deburring.

For replenishment use SurTec 451 concentrate.

analytical values:	oxidable ingredients: calculated as H <sub>2</sub> O <sub>2</sub>	120-150 ml/l
	free fluoride content	12 - 15 g/l
pH-value:	approx. 4	
application time:	depending on the desired grade of deburring	
surface abrasion:	approx. 2 µm/min	
grade of abrasion:	depending on size, form and material and can be controlled by application time	
	Due to continuous dosage there is no change of the abrasion grade.	
bath load:	0.5-1 dm <sup>2</sup> /l	
reproducibility:	+/- 0.5 µm	
temperature range:	20-30°C (the desired temperature must be determined individually)	
cooling:	required	
tank material:	plastic tank out of PP	
filtration:	required for continuous operation	
exhaust:	required for worker's protection	

### Technical Specification

(at 20°C)	Appearance	Density (g/ml)	pH-value (conc.)
SurTec 451	liquid, yellow-orange, clear	1.180 (1.13-1.25)	approx. 3.8
SurTec 451 A	liquid, yellow, clear	1.050 (1.02-1.08)	approx. 4.3

## Maintenance and Analysis

After first filling of the tank with SurTec 451 A Make-up Solution replenish continuously during processing only with SurTec 451, for maintenance of a long service life.

Analyse the concentration of hydrogen peroxide and free fluoride regularly and adjust by adding SurTec 451, if necessary.

The fluoride content should be analysed by our SurTec laboratory in regular intervals.

### 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.

### Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>) – Analysis by Titration

reagents:                   sulfuric acid (25 %, e. g. Sigma Aldrich ref.-no. 84736)  
                                  0.1 N potassium permanganate solution  
                                  (0.02 mol/l KMNO<sub>4</sub> solution)

procedure:                1. Pipette 0.5 ml bath sample into a 300 ml Erlenmeyer flask.  
                                  2. Dilute with approx. 100 ml deionised water.  
                                  3. Add 5 ml sulfuric acid.  
                                  4. Titrate with 0.1 N potassium permanganate solution to a  
                                      constant rose-violet colouring.

calculation:              consumption in ml · 8.6 = ml/l H<sub>2</sub>O<sub>2</sub>

correction:               For 100 l bath volume:  
  
                                  For each ml difference between the actually titrated H<sub>2</sub>O<sub>2</sub> content  
                                  and the desired value, add 0.4 ml SurTec 451.  
  
                                  Remove the same volume out of the bath before and lead it in the  
                                  waste water treatment (see “product safety and environment”).

## Consumption

The consumption depends heavily on the surface geometry.

To determine the exact amounts of drag-out, see [SurTec Technical Letter 11](#).

The following values can be taken as estimated average consumption:

SurTec 451           0.3-0.5 l   for each minute immersion time per m<sup>2</sup> surface

## 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 451	C - Corrosive	WHC 1
SurTec 451 A	C - Corrosive	WHC 1

## **Waste Water Treatment**

Use lime milk for waste water treatment.

## **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>

24 October 2011/DK, UK