

Order No. : 388499  
Sample No. : 010/5151767  
Client : Sarastro GmbH, D - Quierschied

21/06/2005

## ATTACHMENT

### 1 Determination of the mechanical Cleaning Performance with Scrub Tester

The preparation and the usage of the fat – pigment soil is based according the IKW recommendation for the Quality Assessment of All Purpose Cleaners (10-2004). The wiping tests are passed in accordance to the IKW recommendation.

The blood - egg soil is based on Fresenius internal methods.

#### 1.1 Pre-treatment of the Testing Surfaces

First half of the tiles or steel plates were covered. The uncovered part of the surface was treated with the undiluted disinfection product Bacoban®. The amount of disinfection product was determined by subtraction weighing. The sprayed amount was approximately 4.5 g in accordance to an area of 20 x 10 cm<sup>2</sup>. The treated plates were dried over night at ambient conditions.

#### 1.2 Test Soil

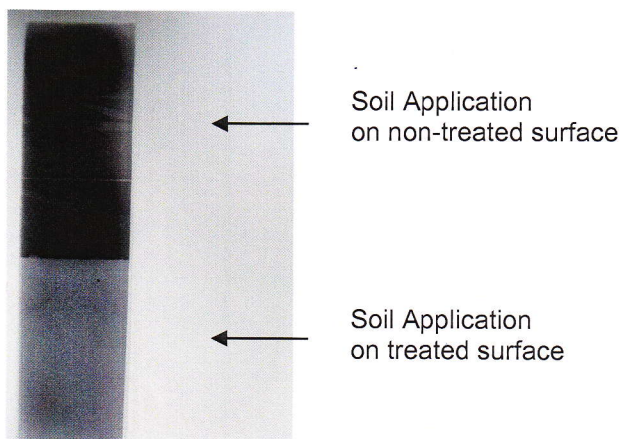
##### 1.2.1 Fat – Pigment - Soil

For the cleaning test the following soil mixtures were used:

Peanut oil	75 %
Caoline	23 %
Carbon black	2 %

The compounds are mixed under defined conditions. The mixture is defined diluted with isopropanole as a solvent, up-sprayed afterwards on white tiles and aged under defined conditions. After the aging, preliminary tests took place, in order to adapt a fixed number of strokes to the wet wipe products.

The pre-treated surface showed a different adhesive action in comparison to the non treated surface.



Order No. : 388499  
Sample No. : 010/5151767  
Client : Sarastro GmbH, D - Quierschied

21/06/2005

## ATTACHMENT

### 1.3 Testing Conditions

#### 1.3.1 General Conditions

Equipment : Sheen Wet Abrasion Scrub Tester REF 903 PG  
Weight : without  
Wipe Speed : 20 wipes / min.

#### 1.3.2 Fat-Pigment-Soil

Soil Carrier : white tiles (30x30 cm<sup>2</sup>)  
Amount of Soil : 0.35 g / tile ± 0.02 g  
Soiled Surface : 208 cm<sup>2</sup>  
Number of Wipes : 8 wipes / tile (fix), fixed in pre-tests  
Amount of IKW-cleaner : 5 ml / cloth undiluted  
Wiping Material : cloth  
Number of Measurements : 10 tiles per product

#### 1.3.3 Blood-Egg-Soil

Soil Carrier : Steel Plates (30x30 cm<sup>2</sup>)  
Amount of Soil : 1 g / plate ± 0.1 g  
Soiled Surface : 208 cm<sup>2</sup>  
Number of Wipes : 8 wipes / plate (fix), fixed in pre-tests  
Amount of IKW-Cleaner : 5 ml / sponge undiluted  
Wipe Material : sponge  
Number of Measurements : 10 plates per product

Order No. : 388499  
Sample No. : 010/5151767  
Client : Sarastro GmbH, D - Quierschied

21/06/2005

## ATTACHMENT

### 1.4 Composition of IKW-Reference Cleaner

Demineralized Water	ad. 100 %
Sodium Hydroxide, aqueous solution	1.74 %
Alkyl sulfonate, C10-13	6.00 %
Fatty Acid C12-18	1.00 %
Fatty Alcohol Polyglycol Ether, C12-18, 7EO	4.00%
Fatty Alcohol Ether Sulfate, C12-14, 2EO, Sodium-Salt	4.29%
Glutaraldehyde	0.08%

For the preparation of the IKW standard cleaner all components are mixed together.

### 1.4 Test Procedure

According to 1.1 and 1.2 the soiled surfaces are cleaned with the test products while using the Wet Abrasion Scrub Tester. This equipment offers the opportunity to test four products in parallel on one tile. During the entire test the position of each cleaner is randomized in the wet scrub tester.

The cleaning is carried out with clustered dried cloths or sponges. After putting the cloths or sponges into the scrub tester each wipe material is impregnated with a defined amount of the IKW standard cleaner. During the cleaning procedure the scrub tester produces backward and forward rubbing movements.

In preliminary tests the stroke rate was determined, which the IKW standard cleaner needed to remove 50 % soil at minimum. After more than 8 wipes both soils were nearly completely removed. The stroke rate of 8 wipes was regarded constant for the following wiping cycles.

After the wiping process the tiles were rinsed under flowing water and dried at room temperature. Finally the tiles were evaluated visual according the soil residues.

The single wiping runs were observed with digital image analyse to find out differences in cleaning performance between the treated and non-treated surfaces.

Order No. : 388499  
Sample No. : 010/5151767  
Client : Sarastro GmbH, D - Quierschied

21/06/2005

## ATTACHMENT

### 2 Evaluation of Cleaning Performance

#### 2.3 Visual Evaluation of Fat-Pigment-Soil

Rate According 10graded Scale	
<b>Treated Surface</b>	<b>9 - 10</b>
<b>Non-treated Surface</b>	<b>6 - 7</b>

The chosen conditions have shown that the soil removing capacity on the treated surface was significant better in comparison to the non-treated surface.

Before reaching the fixed stroke rate the IKW-reference cleaner removed the soil completely on the treated surface. After more than 8 wipes on the non-treated surface the IKW-reference cleaner solved on an average 60 to 70 % of the soil.

#### 2.4 Visual Evaluation of Blood-Egg-Soil

Rate According 10graded Scale	
<b>Non-treated Surface</b>	<b>9</b>
<b>Treated Surface</b>	<b>9</b>

Within the marked product ranges the cleaning performance of the products is comparable to each other.

During the wiping process no significant differences in cleaning performance were observed between the non-treated and treated surface. On both sides the soil could be remove nearly completely. After 8 wipes only very small soil residues of 10 % left on the surfaces.

The visual evaluation of the soil removing is represented graphical and photographical on the following pages.

Order No. : 388499  
 Sample No. : 010/5151767  
 Client : Sarastro GmbH, D - Quierschied

21/06/2005

**ATTACHMENT**

**2 Evaluation of Cleaning Performance**

**2.7 Evaluation with digital image analyse of Fat-Pigment-Soil**

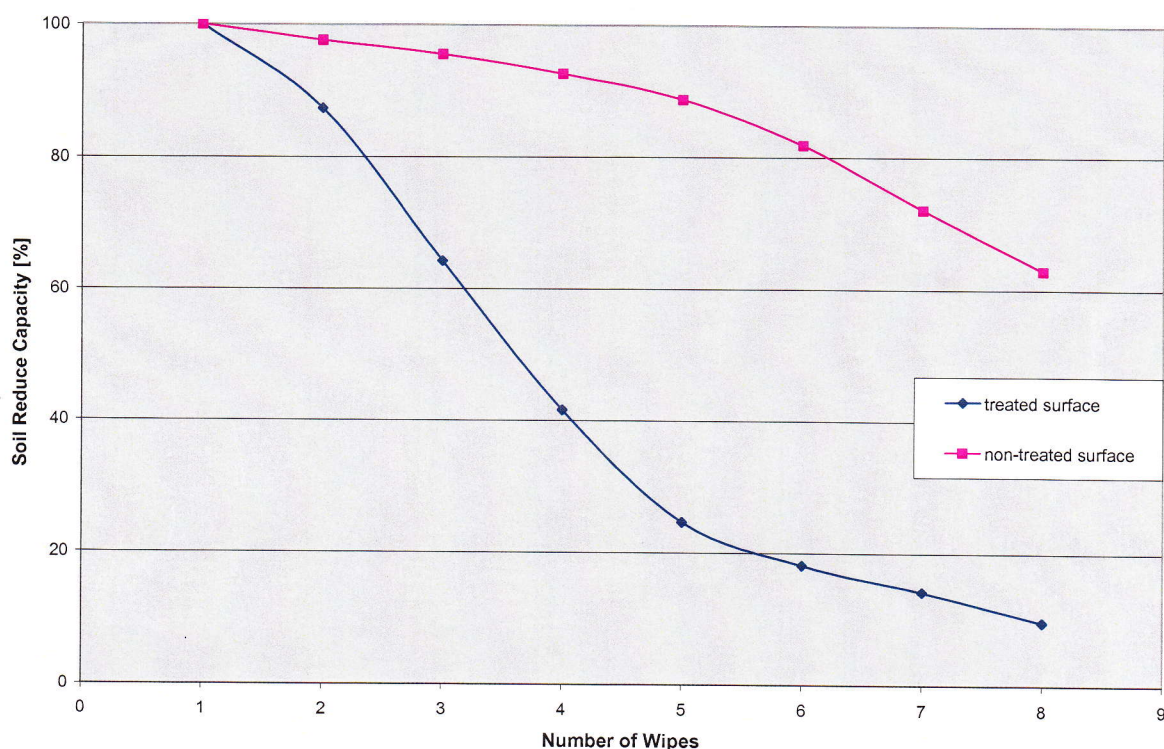


Diagram 2: Cleaning Process of Cleaner per wipe

The *treated surface* started to solve the soil after 1 – 2 wipes. After 6 – 7 wipes the soil was nearly complete removed.

While cleaning the *non-treated surface* a regular soil removal per wipe was observed. After more than 8 wipes about 60 % of the soil stayed on the white tiles.