



Textilní zkušební ústav, s.p.  
Cejl 480/12, 602 00 Brno, Czech Republic  
(Textile Testing Institute)

## TESTING LABORATORY

# TEST REPORT



AZL 21/ 1363

**CUSTOMER:** VZDUCHOTECHNIK, s.r.o.  
Tovární 548  
463 31 Chrastava  
Czech Republic

**SAMPLE:** **Sample:** microbicial and virucidal nanofiber filter membrane  
(according to the customer order) XC130  
Colour of tested sample: red (possible shades – yellow-orange to grey)  
**Control sample:** nanofiber polymer membrane  
Colour of tested sample: white

**SUBJECT OF ASSESSMENT:** Measurement of antibacterial activity

**CONDITIONS OF APPLICATION OF THE TEST REPORT:** Test Report contains results of the tests related to the submitted sample only. Sampling has been done by customer. The Report may not be reproduced in any way other than as a complete set. Reproduction of certain parts of the Report is subject to approval of the test laboratory, which has issued it. All information about subcontracted tests results or unaccredited test methods is presented in text part of the test report. This Report is a literal translation of the Czech version.

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#### PROCEDURE OF ASSESSMENT:

##### ***Measurement of antibacterial activity and efficiency***

was determined according to modification on a basis of methods JIS Z 2801 and EN ISO 20743.

Used germ (cultures delivered from the Czech collection of Microorganisms):

CCM 4517	<i>Escherichia coli</i>
CCM 4224	<i>Enterococcus faecalis</i>

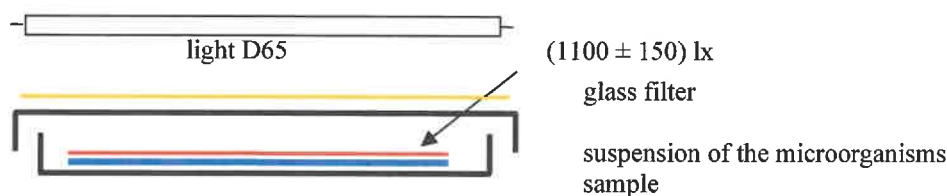
#### Conditions of assessment:

- size of the sample: 50 x 50 mm
- test inoculum: 500x diluted nutrient broth (*E. coli*) – concentration  $3.8 \times 10^5$  CFU/ml  
20x diluted nutrient broth (*E. faecalis*), concentration  $1.0 \times 10^5$  CFU/ml
- volume of test inoculum applied on the samples: 0.3 ml
- washing-out medium: tryptone water
- volume of washing-out medium: 10 ml
- dilution medium: tryptone water
- temperature for incubation of the samples:  $(26 \pm 2)$  °C
- relative humidity for incubation of the samples:  $(95 \pm 2)$  %
- influence time of microorganisms on the samples: 18 h
- agar: PCA (Plate Count Agar)
- temperature in the incubator for incubation of Petri dishes: 37 °C

#### Specification of light source:

- D65 light (light of the northern sky)
- distance between light and samples: 30 cm
- intensity of the light on the surface of the samples:  $(1100 \pm 150)$  lx (measured through glass filter and covering lid of Petri dish where sample was deposited, meaning that it is the real intensity of light which was in contact with sample)
- device for measurement of the intensity of the light: Light meter, LX-105, LT Lutron

#### Scheme of the testing set:



#### Results:

Result is an average count of bacteria on the surface of the sample (CFU/cm<sup>2</sup>) obtained from three parallel measurements.





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TEST RESULTS:

<b>Microbicidal and virucidal nanofiber filter membrane XC130</b> Colour of tested sample: red <i>Escherichia coli</i> CCM 4517		
sample identification	time 0 h (CFU/cm <sup>2</sup> )	time 18 h (CFU/cm <sup>2</sup> )
control sample (illuminated)	7.41 x 10 <sup>3</sup>	3.03 x 10 <sup>3</sup>
control sample (lightless)	7.41 x 10 <sup>3</sup>	6.57 x 10 <sup>3</sup>
antibacterial treated sample (illuminated)	-	1.89 x 10 <sup>1</sup>
antibacterial treated sample (lightless)	-	< 10

<b>Microbicidal and virucidal nanofiber filter membrane XC130</b> Colour of tested sample: red <i>Enterococcus faecalis</i> CCM 4224		
sample identification	time 0 h (CFU/cm <sup>2</sup> )	time 18 h (CFU/cm <sup>2</sup> )
control sample (illuminated)	1.73 x 10 <sup>3</sup>	1.44 x 10 <sup>4</sup>
control sample (lightless)	1.73 x 10 <sup>3</sup>	2.92 x 10 <sup>4</sup>
antibacterial treated sample (illuminated)	-	< 10
antibacterial treated sample (lightless)	-	< 10

Approved:

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Head of microbiological laboratory

