

REPORT OF ANALYSIS No. 260019/21/TCH/Z1

Replaces Report of Analysis No. 260019/21/TCH of 11.06.2021

Client GROUND-THERM SP Z O.O. UL. STEPOWA 30 44-105 GLIWICE	Sample description <i>(according to declaration of Client)</i> Fittings of modular ventilation system VENTIFLEX® PLUS Sample without any visible damages
Sample received:	06.05.2021
Analysis completed (the date of performance of the laboratory activity):	11.06.2021
Report dated:	14.06.2021
Order of 06.05.2021 The samples were delivered by Client	

Test	Method	Unit	Result
Measurement of antibacterial activity on plastics and other non-porous surfaces ¹⁾	ISO 22196:2011		The sample shows antibacterial activity against the used reference strains.

¹⁾ The results of the analysis in attachment No 1 to the report of analysis.

THE END OF THE REPORT

Authorized by: Daria Depa, Analyst Specialist, Cosmetics Microbiology Laboratory

 Approved by: Hanna Wachowska, Laboratory Director *(Approved with qualified electronic signature)*

Laboratory: Tychy 43-100, Goździków 1

The results relate to the analysed samples only. Unless otherwise specified given expanded measurement uncertainty was estimated for the coverage factor k=2 at 95% confidence level. Sampling uncertainty has not been taken into consideration. Unless otherwise specified when conformity is stated J.S. Hamilton Poland Sp. z o.o. applies the simple acceptance decision rule in accordance with ILAC-G8:09/2019. This Report cannot be reproduced partially without a prior written consent of J.S. Hamilton Poland Sp. z o.o. Responsibility of J.S. Hamilton Poland Sp. z o.o. is restricted exclusively to the results and statements presented in original copy of the Report. The service confirmed by this Report is subject to the General Terms and Conditions of Services of J.S. Hamilton Poland Sp. z o.o. published on www.hamilton.com.pl

* Test method accredited; # Test performed by external provider

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Form PO-10/02b of 20.01.2020

J.S. HAMILTON POLAND Sp. z o.o.
TESTING LABORATORY

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ENCLOSURE No. 1 TO REPORT OF ANALYSIS NO. 260019/21/TCH/Z1

A) IDENTIFICATION OF THE SAMPLE:	
Name of the product	Fittings of modular ventilation system VENTIFLEX® PLUS
Composition of the antibacterial coat	-
B) TEST METHOD :	
Method	ISO 22196:2011 – Plastics- Measurement of antibacterial activity on plastics surfaces
Neutralizer	SCDLP (Soybean casein digest broth with lecithin and polyoxyethylene sorbitan monooleate)
C) EXPERIMENTAL CONDITIONS:	
Surface	50 mm x 50 mm, covered with a film size of 40 mm x 40 mm. Test and control samples were placed in sterile petri dishes.
Assay period	31/05/2020 – 03/06/2020
Temperature of incubation	35 ± 1 ° C/ 24h
Identification of the bacterial strains used	<i>Escherichia coli</i> ATCC 8739 <i>Staphylococcus aureus</i> ATCC 6538
Special remarks	The test was performed in triplicate. Test samples were used to determine amount of live cells of bacteria.
Conclusion	The sample shows antibacterial activity against the used reference strains.

Date: 14.06.2021

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RESULTS**Inoculum:**E.coli $3,2 \times 10^5$ cfu/mlStaphylococcus aureus $2,9 \times 10^5$ cfu/ml**The number of viable bacterial on the control sample immediately after inoculation:**E.coli (U₀ E.coli) $7,3 \times 10^5$ cfu / cm² = 5,86 log $7,7 \times 10^5$ cfu / cm² = 5,89 log $7,5 \times 10^5$ cfu / cm² = 5,88 logStaphylococcus aureus (U₀ S.aureus) $6,7 \times 10^5$ cfu / cm² = 5,83 log $7,8 \times 10^5$ cfu / cm² = 5,89 log $5,4 \times 10^5$ cfu / cm² = 5,74 log**The number of viable bacterial on the control sample after incubation for 24h:**

E.coli (Ut E.coli)

 $1,7 \times 10^7$ cfu / cm² = 7,23 log $2,2 \times 10^7$ cfu / cm² = 7,35 log $1,8 \times 10^7$ cfu / cm² = 7,25 log

Staphylococcus aureus (Ut S.aureus)

 $5,0 \times 10^6$ cfu / cm² = 6,70 log $3,9 \times 10^6$ cfu / cm² = 6,59 log $3,6 \times 10^6$ cfu / cm² = 6,55 log**The number of viable bacterial after inoculation (24h 35 ± 1° C) (test sample):**

E.coli (At E.coli)

 $9,8 \times 10^2$ cfu / cm² = 2,99 log<1 cfu / cm² = 0 log<1 cfu / cm² = 0 log

Staphylococcus aureus (At S.aureus)

 $3,9 \times 10^3$ cfu / cm² = 3,59 log $2,7 \times 10^5$ cfu / cm² = 5,43 log $6,3 \times 10^5$ cfu / cm² = 5,80 log

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ENCLOSURE No. 1 TO REPORT OF ANALYSIS NO. 260019/21/TCH/Z1**CALCULATIONS**

Antimicrobial efficacy (R) is determined by reducing the number of viable bacterial cells in the control sample (Ut) and the tested sample (At).

$$R = (U_t - U_0) - (A_t - U_0) = U_t - A_t$$

E.coli

$$R = (7,23 - 5,86) - (2,99 - 5,86) = 1,37 + 2,87 = 4,24$$

$$R = (7,35 - 5,89) - (0,00 - 5,89) = 1,46 + 5,89 = 7,35$$

$$R = (7,25 - 5,88) - (0,00 - 5,88) = 1,37 + 5,88 = 7,25$$

S.aureus

$$R = (6,70 - 5,83) - (3,59 - 5,83) = 0,87 + 2,24 = 3,11$$

$$R = (6,59 - 5,89) - (5,43 - 5,89) = 0,70 + 0,46 = 1,16$$

$$R = (6,55 - 5,74) - (5,80 - 5,74) = 0,81 - 0,06 = 0,75$$

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