

REPORT OF ANALYSIS No. 166875/20/TCH

Client GROUND-THERM SP Z O.O. UL. STEPOWA 30 44-105 GLIWICE	Sample description <i>(according to declaration of Client)</i> VENTIFLEX flexible duct - VTX-DN75 and VTX-DN90
Sample received: 2020-04-06	Sample without any visible damages
Analysis completed: 2020-05-22	
Report dated: 2020-05-22	
Order of 2020-04-06 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 reference strains used in the test.

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

THE END OF THE REPORT

Authorized by: Agnieszka Erber, Expert Analyst, Microbiology Laboratory Tychy
 Approved by: Hanna Wachowska, Laboratory Director *(Approved with 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

Page 1 / 1

Form PO-10/02b of 20.01.2020

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

ul. Chwaszczyńska 180, 81-571 Gdynia, Poland, tel. +48 58 766 99 00



ENCLOSURE No. 1 TO REPORT OF ANALYSIS NO. 166875/20/TCH

A) IDENTIFICATION OF THE SAMPLE:	
Name of the product	Kanał elastyczny VENTIFLEX - VTX-DN75
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	18/05/2020 – 21/05/2020
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: 22.05.2020

Authorized by: Agnieszka Erber, Expert Analyst, Microbiology Laboratory

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

This enclosure is an inseparable part of the report of analysis and cannot be reproduced partially without a priori 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 an original copy of the enclosure.

ENCLOSURE No. 1 TO REPORT OF ANALYSIS NO. 166875/20/TCH**RESULTS****Inoculum:**E.coli $2,5 \times 10^5$ cfu/mlStaphylococcus aureus $9,0 \times 10^5$ cfu/ml**The number of viable bacterial on the control sample immediately after inoculation:**E.coli (U_0 E.coli) $4,5 \times 10^4$ cfu/ cm^2 = 4,55 log $4,6 \times 10^4$ cfu/ cm^2 = 4,56 log $4,0 \times 10^4$ cfu/ cm^2 = 4,60 logStaphylococcus aureus (U_0 S.aureus) $2,3 \times 10^5$ cfu/ cm^2 = 5,46 log $2,5 \times 10^5$ cfu/ cm^2 = 5,40 log $2,2 \times 10^5$ cfu/ cm^2 = 5,34 log**The number of viable bacterial on the control sample after incubation for 24h:**

E.coli (Ut E.coli)

 $2,7 \times 10^3$ cfu/ cm^2 = 3,43 log $3,2 \times 10^3$ cfu/ cm^2 = 3,51 log $2,2 \times 10^2$ cfu/ cm^2 = 2,34 log

Staphylococcus aureus (Ut S.aureus)

 $4,2 \times 10^5$ cfu/ cm^2 = 5,62 log $7,7 \times 10^5$ cfu/ cm^2 = 5,89 log $2,4 \times 10^5$ cfu/ cm^2 = 5,38 log**The number of viable bacterial after inoculation (24h $35 \pm 1^\circ$ C) (test sample):**

E.coli (At E.coli)

 $1,0 \times 10^1$ cfu/ cm^2 1,0 log $1,0 \times 10^1$ cfu/ cm^2 1,0 log $1,0 \times 10^1$ cfu/ cm^2 1,0 log

Staphylococcus aureus (At S.aureus)

 $1,5 \times 10^1$ cfu/ cm^2 1,18 log $1,0 \times 10^1$ cfu/ cm^2 1,0 log $1,0 \times 10^1$ cfu/ cm^2 1,0 log

Date: 22.05.2020

Authorized by: Agnieszka Erber, Expert Analyst, Microbiology Laboratory

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

This enclosure is an inseparable part of the report of analysis and cannot be reproduced partially without a priori 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 an original copy of the enclosure.

ENCLOSURE No. 1 TO REPORT OF ANALYSIS NO. 166875/20/TCH**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

$$R = (3,43 - 4,65) - (1,00 - 4,65) = -1,22 - (-3,65) = 2,43$$

$$R = (3,51 - 4,66) - (1,00 - 4,66) = -1,16 - (-3,66) = 2,51$$

$$R = (2,34 - 4,60) - (1,00 - 4,60) = -2,26 - (-3,60) = 1,34$$

S.aureus

$$R = (5,62 - 5,36) - (1,18 - 5,36) = 0,26 - (-4,19) = 4,45$$

$$R = (5,89 - 5,40) - (1,00 - 5,40) = 0,49 - (-4,40) = 4,89$$

$$R = (5,38 - 5,34) - (1,00 - 5,34) = 0,04 - (-4,34) = 4,38$$

Date: 22.05.2020

Authorized by: Agnieszka Erber, Expert Analyst, Microbiology Laboratory

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

This enclosure is an inseparable part of the report of analysis and cannot be reproduced partially without a priori 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 an original copy of the enclosure.