

Test report n°: **18LA09767** of 25/06/2018

LAB N° 1165

Dear  
**Parx Plastics Europe BV**  
Westblaak 189  
3012KJ Rotterdam ()

**Sample Information**

Description: **TPU0008/M17083101/10130/TPE manual added 24 hours - E. coli**

Test subject: **Polymers**

Registration date: **06/06/2018** Registration hour: **14.49**

Date of arrival: **06/06/2018** Hour of arrival: **14.49**

Notes on receipt: **Idoneo**

Date analysis commenced: **19/06/2018** Date analysis completed: **22/06/2018**

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**Sampling data**

Sampling by: **Customer**

Transport: **Customer**

The analytical results are exclusively referred to the sample.

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Laboratory management system certified UNI EN ISO 9001: 2008 by CSQA with the No. 14270. Inclusion in the list of regional laboratories carrying out analysis in the context of self-control procedures for Food Industries No. 52. Recommended by AIC for the analysis of quantification of gluten in food matrices. Registered laboratory for the analysis of food contact materials intended for export to Japan.

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Parameter - Note Method - Note	U.M.	Result Note	LoQ
Determination of antibacterial activity (R) - $R=(U_t-U_o)-(A_t-U_o)$ ISO 22196:2011		<b>6,2</b> Reduction of 99.999%	0,6
Size of test specimens (H x L)	mm	<b>50x50</b>	
Thickness of test specimens	mm	<b>2,0</b>	
Type of polymer used for the cover film		<b>Polipropilene</b>	
Size of the cover film (H x L)	mm	<b>40x40</b>	
Thickness of the cover film	mm	<b>0,10</b>	
Type of Gram-negative strain		<b>Escherichia coli - ATCC 25922</b>	
Volume of test inoculum	ml	<b>0,4</b>	
Number of viable bacteria in the test inoculum	n°	<b>380000</b>	
U <sub>o</sub> - N° of viable bacteria recovered from the untreated test specimens after inoculation	log	<b>4,4</b>	0,4
U <sub>t</sub> - N° of viable bacteria recovered from the untreated test specimens after 24 h	log	<b>6,2</b>	0,4
A <sub>t</sub> - Count bacteria recovered from the treated samples 24 hours post inoculation	log	<b>&lt; 0,4</b>	0,4

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Mod.PT01.01 Rev.6

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**18LA09767/01 S. aureus**

Parameter - Note Method - Note	U.M.	Result Note	LoQ
Determination of antibacterial activity (R) - $R=(U_t-U_o)-(A_t-U_o)$ ISO 22196:2011		<b>3,4</b> Reduction of 99.960%	0,6
Size of test specimens (H x L)	mm	<b>50x50</b>	
Thickness of test specimens	mm	<b>4,0</b>	
Type of polymer used for the cover film		<b>Polipropilene</b>	
Size of the cover film (H x L)	mm	<b>40x40</b>	
Thickness of the cover film	mm	<b>0,10</b>	
Type of Gram-positive strain		<b>Staphylococcus aureus - ATCC 25923</b>	
Volume of test inoculum	ml	<b>0,4</b>	
Number of viable bacteria in the test inoculum	n°	<b>320000</b>	
U <sub>o</sub> - N° of viable bacteria recovered from the untreated test specimens after inoculation	log	<b>4,3</b>	0,4
U <sub>t</sub> - N° of viable bacteria recovered from the untreated test specimens after 24 h	log	<b>5,3</b>	0,4
A <sub>t</sub> - Count bacteria recovered from the treated samples 24 hours post inoculation	log	<b>1,9</b>	0,4

LEGEND: U.M. = Unit of measurement; (Sup) = upper limit; (Inf) = Lower Limit ; x + y = acceptable range; LoQ = limit of quantification, the threshold value below which you choose not to bring any numerical result for the parameter in question; this limit is provided directly by the method, or is chosen on the basis of the experimental detection limits (LoQ or LoD) so as not to be changed over time or according to the chemical-physical or microbiological single sample; LOD = limit of detection; NQ = unquantifiable, indicates a value less than LoQ

"<x" or ">x" respectively indicate a value lower or higher than the measuring range of the test

UNLESS OTHERWISE SPECIFIED: Quantitative microbiological tests are performed on single replica and two consecutive dilutions in accordance with UNI EN ISO 7218: 2013 (with the exception of the analysis of water and MPN); the results of this test report are not correct for recovery factors (R) as the values of recovery are in the tolerance specified in the test method; summations are calculated using the criterion of the lower bound (LB)

If the sampling isn't the responsibility of 3ALaboratori Ltd., the test results were obtained on the basis of the data declared.

Technical Director

 Dr. Giovanni Mitaritonna  
Chemist

Ordine Interprov. Chimici del Veneto - Padova n° 910 SEZ. A

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### Sample Information

Description: TPU0008/M17083101/10130/TPE compounded 24 hours - E. coli

Test subject: Polymers

Registration date: 06/06/2018 Registration hour: 14.49

Date of arrival: 06/06/2018 Hour of arrival: 14.49

Notes on receipt: Idoneo

Date analysis commenced: 19/06/2018 Date analysis completed: 22/06/2018

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### Sampling data

Sampling by: Customer

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Parameter - Note <i>Method - Note</i>	U.M.	Result Note	LoQ
Determination of antibacterial activity (R) - $R=(U_t-U_o)-(A_t-U_o)$ ISO 22196:2011		<b>5,4</b> Reduction of 99.999%	0,6
Size of test specimens (H x L)	mm	<b>50x50</b>	
Thickness of test specimens	mm	<b>2,0</b>	
Type of polymer used for the cover film		<b>Polipropilene</b>	
Size of the cover film (H x L)	mm	<b>40x40</b>	
Thickness of the cover film	mm	<b>0,10</b>	
Type of Gram-negative strain		<b>Escherichia coli - ATCC 25922</b>	
Volume of test inoculum	ml	<b>0,4</b>	
Number of viable bacteria in the test inoculum	n°	<b>380000</b>	
U <sub>o</sub> - N° of viable bacteria recovered from the untreated test specimens after inoculation	log	<b>4,4</b>	0,4
U <sub>t</sub> - N° of viable bacteria recovered from the untreated test specimens after 24 h	log	<b>6,2</b>	0,4
A <sub>t</sub> - Count bacteria recovered from the treated samples 24 hours post inoculation	log	<b>0,8</b>	0,4

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**18LA09765/01 S. aureus**

Parameter - Note Method - Note	U.M.	Result Note	LoQ
Determination of antibacterial activity (R) - $R=(U_t-U_o)-(A_t-U_o)$ ISO 22196:2011		<b>2,9</b> Reduction of 99,874%	0,6
Size of test specimens (H x L)	mm	<b>50x50</b>	
Thickness of test specimens	mm	<b>4,0</b>	
Type of polymer used for the cover film		<b>Polipropilene</b>	
Size of the cover film (H x L)	mm	<b>40x40</b>	
Thickness of the cover film	mm	<b>0,10</b>	
Type of Gram-positive strain		<b>Staphylococcus aureus - ATCC 25923</b>	
Volume of test inoculum	ml	<b>0,4</b>	
Number of viable bacteria in the test inoculum	n°	<b>320000</b>	
U <sub>o</sub> - N° of viable bacteria recovered from the untreated test specimens after inoculation	log	<b>4,3</b>	0,4
U <sub>t</sub> - N° of viable bacteria recovered from the untreated test specimens after 24 h	log	<b>5,3</b>	0,4
A <sub>t</sub> - Count bacteria recovered from the treated samples 24 hours post inoculation	log	<b>2,4</b>	0,4

LEGEND: U.M. = Unit of measurement; (Sup) = upper limit; (Inf) = Lower Limit ;  $x + y$  = acceptable range; LoQ = limit of quantification, the threshold value below which you choose not to bring any numerical result for the parameter in question; this limit is provided directly by the method, or is chosen on the basis of the experimental detection limits (LoQ or LoD) so as not to be changed over time or according to the chemical-physical or microbiological single sample; LOD = limit of detection; NQ = unquantifiable, indicates a value less than LoQ

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