

# **RESUMEN DE RESULTADOS**

## **RESULTS SUMMARIZE**

### **2019AP0249**

**DETERMINACIÓN DE LA ACTIVIDAD ANTIVIRAL DE LOS PRODUCTOS TEXTILES**  
***DETERMINATION OF ANTIVIRAL ACTIVITY OF TEXTILES PRODUCTS***

# **sepiia**

**Empresa / Company: SEPIIA 2080 S.L.**

Alcoy, 19 de Octubre de 2020  
*Alcoy, October 19th, 2020*

## DETERMINACIÓN DE LA ACTIVIDAD ANTIVIRAL DE LOS PRODUCTOS TEXTILES DETERMINATION OF ANTIVIRAL ACTIVITY OF TEXTILES PRODUCTS

### Objetivo

#### Objective

Determinar la actividad antiviral frente al virus Coronavirus felino (FCoV) del tejido referenciado como “**TEJIDO SEPIIA**”, con respecto a un tejido sin tratamiento referenciado como “**CONTROL**”. *To determine the antiviral activity against Feline coronavirus (FCoV) of the tissue referenced as “SEPIIA FABRIC”, with respect to a tissue without treatment referenced as “CONTROL”.*

### Norma

#### Standard

ISO 18184:2019

### Principio del Estudio

#### Principle of the study

El virus es depositado sobre la muestra. Después de un tiempo de contacto de 2 h, se realiza el recuento del virus que queda en la muestra, y se calcula la tasa de reducción del virus en escala logarítmica, comparando los resultados de la muestra tratada con respecto a la muestra control (sin tratamiento). *The viruses are deposited onto a specimen. After 2 h of contact time, the remaining infectious virus is counted, and the reduction rate is calculated by the comparison between the antiviral product test specimen and the control specimen (without treatment).*

### Laboratorio de ensayo

#### Testing Laboratory

El estudio ha sido realizado en el laboratorio: Microbiological Solutions Ltd - MSL, Reino Unido.

*The study was carried out in the laboratory: Microbiological Solutions Ltd - MSL, in UK.*

### Controles

#### Controls

Cepa de virus analizado/ <i>Test viral strain</i>	<i>Coronavirus felino, strain Munich/ Feline coronavirus, strain Munich</i>		
	Criterio/ <i>Criteria</i>	Log Resultado/ <i>Log result</i>	Cumplimiento/ <i>Pass</i>
Inóculo inicial/ <i>Initial inoculum</i>	$10^7$	7.21	SÍ/ <i>Yes</i>
Citotoxicidad control/ <i>Control cytotoxicity</i>	Log(control)-Log(muestra) $\leq 0,5$ <i>Log(control)-Log(sample) <math>\leq 0,5</math></i>	4.13	SÍ/ <i>Yes</i>
Citotoxicidad muestra/ <i>Cytotoxicity sample</i>		4.08	
Control inicial/ <i>Initial control</i>	Log(control t=0)-Log(control t=2) $\leq 1$ <i>Log(control t=0)-Log(control t=2) <math>\leq 1</math></i>	5.35	SÍ/ <i>Yes</i>
Control ensayo/ <i>Test control</i>		4.50	

## Resultados

### Results

A continuación, se resumen los resultados obtenidos en el informe original: "TEJIDO SEPIIA"

/ The results obtained in the original report: "SEPIIA FABRIC" are summarized below.

Cepa de virus analizado / <i>Test viral strain</i>	Coronavirus felino, strain Munich/ <i>Feline coronavirus, strain Munich</i>	
Tiempo de contacto / <i>Contact time</i>	2 h ± 10 s	
Valor de Eficacia Antiviral (M <sub>v</sub> ) de la muestra "TEJIDO SEPIIA" <i>Antiviral efficacy value (M<sub>v</sub>) of the sample: "SEPIIA FABRIC"</i>	1.32 (M <sub>v</sub> )	95.21% (porcentaje de reducción/ <i>reduction percentage</i> )
Valor de Eficacia Antiviral del tejido control (sin tratamiento): "CONTROL" <i>Antiviral efficacy value of the control fabric (without treatment): "CONTROL"</i>	0.85 (M <sub>v</sub> )	85.78% (porcentaje de reducción/ <i>reduction percentage</i> )

Según el Anexo F de la norma ISO 18184:2019 el significado de los valores de actividad antiviral es: / *Meaning of the antiviral activity according to the annex F of the standard ISO 18184:2019 is:*

Valor de eficacia antiviral <i>Antiviral efficacy value (M<sub>v</sub>)</i>	Eficacia de la propiedad antiviral <i>Efficacy of antiviral property</i>	Equivalencia en % Reducción <i>% Reduction Equivalency</i>
$2 \leq M_v \leq 3$	Buen efecto / <i>Good effect</i>	99 %
$M_v \geq 3$	Efecto excelente / <i>Excellent effect</i>	99.9 %

## Conclusiones

### Conclusions

La muestra referenciada como "TEJIDO SEPIIA" ha mostrado una reducción logarítmica de 1.32, lo que supone un porcentaje de reducción del 95.21 % frente al Coronavirus felino (FCoV) tras 2 h de contacto, cuando se ha probado en las condiciones descritas en el informe original "J2036."

*The sample referenced as "SEPIIA FABRIC" has shown a logarithmic reduction of 1.32, which represents a reduction percentage of 95,21% against the feline Corona virus (FCoV) after 2 h of contact, when it has been tested under the conditions described in the original report. "J2036".*

# **ANEXO: INFORME ORIGINAL “J2036”**

**ANNEXED:  
ORIGINAL REPORT “J2036”**

# ISO 18184:2019 Textiles- Determination of antiviral activity of textile products

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Angela Davies, CEO

Customer: Asociacion de Investigacion de la Industria Textil (AITEX)

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PO/Quote number: Q003214

Report Date: 08/10/2020

Issue Number: 1



Megan Barrett  
Laboratory Manager



Peter Thistlethwaite  
Technical Projects Manager

Test information		Deviation
Name of Product	Test – White Fabric Control – White Fabric	/
Batch Number & Expiry Date	N/S	
Date of Delivery	29/06/2020	
Period of Analysis	24/09/2020-01/10/2020	
Manufacturer / Supplier	Asociacion de Investigacion de la Industria Textil (AITEK)	
Storage Conditions	Ambient	
Appearance of the Product	White fabric	
Neutralisation Method	Dilution	
Test Concentrations	As supplied	
Test Temperature	25°C $\pm$ 1°C	
Temperature of Incubation	37°C $\pm$ 1°C	
Identification of the Viral Strains:	Feline corona virus, Strain Munich	
Contact Times	2 hour $\pm$ 10s	

**Test Result Summary**

**The test fabric showed an overall log reduction of 1.32 when tested against Feline coronavirus with a 2 hour contact time.**

The test results on this report refer only to the items tested as supplied by the customer. This report shall not be reproduced except in full and with written approval of Microbiological Solutions Ltd. All reports are archived for a minimum of 2 years.  
The sample will be retained for 1 month unless otherwise requested in writing.

	Feline coronavirus	COVID-19 (SARS—CoV2)
Realm	Riboviria	Riboviria
Order	Nidovirales	Nidovirales
Family	Coronaviridae	Coronaviridae
Genus	Alphacoronavirus	Betacoronavirus
Species	Alphacoronavirus 1	COVID-19

The members of the family Coronaviridae are enveloped and have a positive sense RNA genome. Coronaviruses have a distinct morphology with an outer ‘corona’ of embedded envelope spikes. These viruses cause a broad spectrum of animal and human disease.

Andrew M.Q. King, Michael J. Adams, Eric B. Carstens, and Elliot J. Lefkowitz ‘Virus Taxonomy, Classification and Nomenclature of Viruses, Ninth Report of the International Committee on Taxonomy of Viruses’ 2012 ISBN 9780123846846

**Scope**

This standard outlines the test method for the determination of the antiviral activity of the textile products against specified viruses.

**Method**

A 20mmx20mm sample of test material is cut (overall mass should be 0.40g and can be made up with extra material if required). 9 control pieces are required and 6 test pieces.

3 pieces of each material are used to test the effect of the fabric on cells without virus (cytotoxicity), 3 control pieces are used to recover the starting titre of virus. The remaining pieces are inoculated with 200µl of virus at a concentration of  $\sim 10^7$  TCID<sub>50</sub> (giving a final concentration of  $10^5$ ) and left for the contact time.

Following the contact time, the fabric is recovered in 20ml of cell culture media and enumerated onto an appropriate cell line. TCID<sub>50</sub> is calculated following the appropriate incubation time. Antiviral activity is calculated by comparison of the antiviral test material to the immediate recover from the control fabric.

**Test Results**

0 hours		
Sample	Log recovery	Average
Control 1	5.38	5.35
Control 2	5.46	
Control 3	5.21	

Controls		
Initial inoculum	7.21	Valid
Cytotoxicity Control	4.13	Valid
Cytotoxicity Test 1	4.08	Valid

Contact time:2 hour				
Sample	Log recovery	Average	Reduction	Percentage
Control 1	4.25	4.50	0.85	85.78%
Control 2	4.58			
Control 3	4.67			
Test 1	3.96	4.03	1.32	95.21%
Test 2	4.00			
Test 3	4.13			

\*Control fabric must not show >1 log reduction