

Study Title:
Measurement of antiviral activity on plastics and other non-porous surfaces

Microbiological Solutions Limited (MSL)
Gollinrod, Walmersley, Bury, BL9 5NB, UK

Angela Davies, CEO

Customer: Addmaster Ltd

Contact name: Sue Bethel

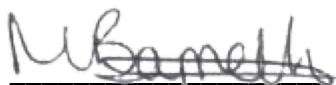
Email:

Address: Darfin House, Prestly Courty, Staffordshire Technology Park, Stafford, ST180AR

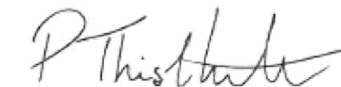
PO/Quote number: Q003745

Report date: 13/01/2020

Issue number: 1



Megan Barrett
Laboratory Manager



Peter Thistlethwaite
Technical Projects Manager

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.

Scope

The standard describes the method for measuring antiviral activity on plastics and other non-porous surfaces of antiviral-treated products against specified viruses.

Outline of Test Method (Obligatory Test Conditions)

A test suspension of is inoculated onto a test plastic surface and covered with a cover film. The surface is maintained at a specified temperature for a defined period. At the end of the contact time media is added to the surface of the plastic, and the surface is washed over to recover any remaining organism. The number of surviving organisms which can be recovered from the surface is determined quantitatively taking in to account the test surface size.

Test information		Deviation
Name of Product	Control – Raffles Paint control Test – Raffles paint treated	/
Batch Number & Expiry Date	N/S	
Date of Delivery	16/09/2020	
Period of Analysis	17/12/2020-24/12/2020	
Manufacturer / Supplier	Addmaster	
Storage Conditions	Ambient	
Appearance of the Product	Plastic squares	
Neutralisation Method	Dilution	
Test Temperature	20°C ± 1°C	
Temperature of Incubation	37°C ±1°C	
Identification of the Viral Strains:	Feline coronavirus, Strain Munich	
Contact Times	2 hours	
Stability and Appearance During Test	No Change Observed	

Test Result Summary

The test product received has achieved a 0.56 log reduction against Feline coronavirus, when tested under the condition stipulated in this report.

See page 2 for acceptance criteria and raw data tables below for complete test results.

Test results

Cytotoxicity (Test)	Negative
Cytotoxicity (Control)	Negative

Inactivation control			
	Log recovered	Difference	Valid
Test	<i>St</i> 3.96	0.37	Y
Control (Untreated)	<i>Su</i> 4.13	0.21	Y
Negative control	<i>Sn</i> 4.33	N/A	Y

Log recovery						
	1	2	3	Average	Log recovered per surface	
Test	4.75	5.29	5.21	5.08	<i>At</i>	7.08
Control (t)	5.58	5.75	5.58	5.64	<i>Ut</i>	7.64
Control (0)	5.83	5.75	5.71	5.76	<i>Uo</i>	7.76

Antiviral activity per surface (R)
0.56
$R=(Ut-Uo)-(At-Uo)$

KEY

CPE	Cytopathic effect
Counts	0-4 indicating degree of cytopathic effect 0 = No effect, 1 = 25% CPE, 2 = 50% CPE, 3 = 75% CPE, 4 = 100% CPE
d	Dilution factor (log)
Sum px	Sum of % CPE from the highest dilution showing 100% CPE to the lowest dilution assessed.
n	Number of dilutions
SD50	Dilution showing 50% of the end point according to Spearman-Kärber method
SE	Standard error
xp	Lowest dilution showing 100% CPE
TCID50	Titre causing 50% of the end point according to Spearman-Kärber

Calculation notes

All recovery and log reduction calculations were performed for TCID50 rather than plaque assays. Cytotoxicity of the test product was performed through adding 10ml of culture media and washing the surface, this solution was then added to cells in serial dilution and cytotoxicity calculated by TCID50.