LABORATORY REPORTS & TEST CERTIFICATES

DETECTNOLOGY (UK) LTD

KILLS VIRUSES
COMBAT
19

Scientific Services

Willow Farm,
Stewton,
Louth,
Lincolnshire,
LN11 8SD

Consultant Microbiologists

K121171-2 2nd June 2020

LABORATORY REPORT

SOURCE: Dectectnology (UK) Ltd

ITEMS: Combat 19 Aerosol - fluid from can

TESTS: BSEN1276:2019
Concentration: Neat
Temperature: 20 C
Contact time: 5 minutes
Interfering substance: Bovine Albumin 3.0g/l (dirty)
Storage conditions: Room temperature, out of direct sunlight
Active substances: Not given
Test Date: 28th May 2020

Recovery: Dilution neutralisation, using:-
Tryptone Soya Broth containing Tween 80 100ml/l, Lecithin 30g/l, Sodium thiosulphate 5g/l, L-histidine 1g/l, L-cystine 1g/l

Test organisms:		
	Staphylococcus aureus	ATCC 6538
	Pseudomonas aeruginosa	ATCC 15442
	Escherichia coli	ATCC 10536
	Enterococcus hirae	ATCC 10541

SUMMARY & CONCLUSIONS:

K121171-2

Organism	Control	Combat 19 aerosol - fluid from can	Log Reduction
Staphylococcus aureus ATCC 6538	2.58x10 E7	<10 (<140)	>6.41 (>5.26)
Pseudomonas aeruginosa ATCC 15442	2.92x10 E7	<10 (<140)	>6.47 (>5.32)
Escherichia coli ATCC 10536	2.57x10 E7	<10 (<140)	>6.41 (>5.26)
Enterococcus hirae ATCC 10541	2.26x10 E7	<10 (<140)	>6.35 (>5.20)

All test results below 140 (1.4x10 E2) are required to be reported as <140

The sample complies with the criteria of BSEN1276:2019 (log 5 reduction) after 5 minutes contact against all four organisms under the test conditions stated.

KMSelf

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Detailed Results K121171-2 Combat 19 aerosol - fluid from can

Staphylococcus aureus ATCC 6538

Test Suspension (N + No)

N	V_{C1}	V_{C2}		
10^{-6}	244	270	Weighted Mean = 2.58x10 E8	log = 8.41
10^{-7}	25	28	No = N/10 = 2.58x10 E7	log = 7.41

Test (Na)

V_{C1}	V_{C2}	mean		
<1	<1	<1	Na = mean x10 = <10 (<140)	log = <1 (<2.15)

Log Reduction

>6.41 (>5.26)

Validation & Controls

Validation Suspension (Nvo)

V_{C1}	V_{C2}	mean
60	68	64

Experimental Conditions Control (A)

V_{C1}	V_{C2}	mean
65	63	64

Neutraliser Toxicity Control (B)

V_{C1}	V_{C2}	mean
60	61	60.5

Dilution Neutralisation Control (C)

V_{C1}	V_{C2}	mean
57	63	60

Detailed Results K121171-2 Combat 19 aerosol - fluid from can

Pseudomonas aeruginosa ATCC 15442

Test Suspension (N + No)

N	V_{C1}	V_{C2}		
10^{-6}	286	298	Weighted Mean = 2.92x10 E8	log = 8.47
10^{-7}	27	31	No = N/10 = 2.92x10 E7	log = 7.47

Test (Na)

V_{C1}	V_{C2}	mean		
<1	<1	<1	Na = mean x10 = <10 (<140)	log = <1 (<2.15)

Log Reduction

>6.47 (>5.32)

Validation & Controls

Validation Suspension (Nvo)

V_{C1}	V_{C2}	mean
74	73	73.5

Experimental Conditions Control (A)

V_{C1}	V_{C2}	mean
76	71	73.5

Neutraliser Toxicity Control (B)

V_{C1}	V_{C2}	mean
71	69	70

Dilution Neutralisation Control (C)

V_{C1}	V_{C2}	mean
66	74	70

Detailed Results K121171-2 Combat 19 aerosol - fluid from can

Escherichia coli ATCC 10536

Test Suspension (N + No)

N	V_{C1}	V_{C2}		
10^{-6}	246	268	Weighted Mean = 2.57x10 E8	log = 8.41
10^{-7}	24	28	No = N/10 = 2.57x10 E7	log = 7.41

Test (Na)

V_{C1}	V_{C2}	mean		
<1	<1	<1	Na = mean x10 = <10 (<140)	log = <1 (<2.15)

Log Reduction

>6.41 (>5.26)

Validation & Controls

Validation Suspension (Nvo)

V_{C1}	V_{C2}	mean
64	62	63

Experimental Conditions Control (A)

V_{C1}	V_{C2}	mean
66	58	62

Neutraliser Toxicity Control (B)

V_{C1}	V_{C2}	mean
61	57	59

Dilution Neutralisation Control (C)

V_{C1}	V_{C2}	mean
58	60	59

Detailed Results K121171-2 Combat 19 aerosol - fluid from can

Enterococcus hirae ATCC 10541

Test Suspension (N + No)

N	V_{C1}	V_{C2}		
10^{-6}	232	218	Weighted Mean = 2.26x10 E8	log = 8.35
10^{-7}	23	25	No = N/10 = 2.26x10 E7	log = 7.35

Test (Na)

V_{C1}	V_{C2}	mean		
<1	<1	<1	Na = mean x10 = <10 (<140)	log = <1 (<2.15)

Log Reduction

>6.35 (>5.20)

Validation & Controls

Validation Suspension (Nvo)

V_{C1}	V_{C2}	mean
56	58	57

Experimental Conditions Control (A)

V_{C1}	V_{C2}	mean
50	60	55

Neutraliser Toxicity Control (B)

V_{C1}	V_{C2}	mean
51	54	52.5

Dilution Neutralisation Control (C)

V_{C1}	V_{C2}	mean
50	56	53

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Willow Farm,
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LN11 8SD

Consultant Microbiologists

K121173-4 2nd June 2020

LABORATORY REPORT

SOURCE: Detectnology (UK) Ltd

ITEMS: Combat 19 aerosol - fluid

TESTS: BSEN1650:2019
Concentration: Neat
Temperature: 20ºC
Contact time: 15 minutes
Interfering substance: Bovine Albumin 3.0g/l (dirty)
Storage conditions: Room temperature, out of direct sunlight
Active substances: Not given
Test Date: 28th May 2020

Recovery: Dilution neutralisation, using:-
Tryptone Soya Broth containing Tween 80 100ml/l, Lecithin 30g/l, Sodium thiosulphate 5g/l, L-histidine 1g/l, L-cystine 1g/l

Test organisms:		
	Candida albicans	ATCC 10231
	Aspergillus niger	ATCC 16404

SUMMARY & CONCLUSIONS:

K121173-4

Organism	Control	Combat 19 aerosol - fluid	Log Reduction
Candida albicans ATCC 10231	2.53x10 E6	<10 (<140)	>5.40 (>4.25)
Aspergillus niger ATCC 16404	2.01x10 E6	<10 (<140)	>5.30 (>4.15)

All test results below 140 (1.4x10 E2) are required to be reported as <140.

The sample complies with the criteria of BSEN1650:2019 (log 4 reduction) after 15 minutes contact, against Candida albicans and Aspergillus niger under the test conditions stated.

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Detailed Results K121173-4 Combat 19 aerosol - fluid

Candida albicans ATCC 10231

Test Suspension (N + No)

N	V_{C1}	V_{C2}		
10^{-5}	268	240	Weighted Mean = 2.53x10 E7	log = 7.40
10^{-6}	22	26	No = N/10 = 2.53x10 E6	log = 6.40

Test (Na)

V_{C1}	V_{C2}	mean		
<1	<1	<1	Na = mean x 10 = <10 (<140)	log = <1 (<2.15)

Log Reduction

>5.40 (>4.25)

Validation & Controls

Validation Suspension (Nvo)

V_{C1}	V_{C2}	mean
60	64	62

Experimental Conditions Control (A)

V_{C1}	V_{C2}	mean
63	59	61

Neutraliser Toxicity Control (B)

V_{C1}	V_{C2}	mean
60	55	57.5

Dilution Neutralisation Control (C)

V_{C1}	V_{C2}	mean
56	61	58.5

Detailed Results K121173-4 Combat 19 aerosol - fluid

Aspergillus niger ATCC 16404

Test Suspension (N + No)

N	V_{C1}	V_{C2}		
10^{-5}	210	197	Weighted Mean = 2.01x10 E7	log = 7.30
10^{-6}	17	19	No = N/10 = 2.01x10 E6	log = 6.30

Test (Na)

V_{C1}	V_{C2}	mean		
<1	<1	<1	Na = mean x 10 = <10 (<140)	log = <1 (<2.15)

Log Reduction

>5.30 (>4.15)

Validation & Controls

Validation Suspension (Nvo)

V_{C1}	V_{C2}	mean
50	48	49

Experimental Conditions Control (A)

V_{C1}	V_{C2}	mean
47	51	49

Neutraliser Toxicity Control (B)

V_{C1}	V_{C2}	mean
52	44	48

Dilution Neutralisation Control (C)

V_{C1}	V_{C2}	mean
46	40	43

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Consultant Microbiologists

7th June 2020

Summary Report for Detectnology (UK) Ltd

Combat 19 aerosol

Residual Activity

Principle of Test

Combat 19 aerosol was applied to ceramic tiles. These were allowed to dry and were then stored at ambient temperature and humidity for seven days, without further treatment, abrasion, washing, contamination or any form of cleaning prior to testing. Aliquots of bacterial suspension were then applied to the treated tiles and surviving organisms recovered after 5 minutes contact.

Conclusion

The report (K121169-70) indicates that a reduction was achieved against Staphylococcus aureus and Pseudomonas aeruginosa. The sample tested, under the test conditions stated, exhibits residual activity after seven days.

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K121169-70

7th June 2020

LABORATORY REPORT

SOURCE: Detectnology (UK) Ltd

ITEMS: Combat 19 aerosol

TESTS: Residual Activity Test.

METHOD: Sterilised 150ml x 150ml ceramic tiles were treated with Combat 19 aerosol. The product was applied to the tiles by spraying for two seconds from approximately 30cm distance. The tiles were allowed to air dry and were then stored at ambient temperature and humidity for seven days prior to evaluating the residual activity of the product. The tiles were not subjected to washing, abrasion, contamination or any form of cleaning during the storage period. 0.1ml aliquots of suspensions of both Staphylococcus aureus ATCC 6538 and Pseudomonas aeruginosa ATCC 15442 containing 0.3g/l Bovine albumin were applied to discreet areas of the tiles and covered with sterile film (50ml x 50ml). These were maintained at 20C for 5 minutes, after which time surviving organisms were recovered by swabbing and plating out using standard techniques. Untreated tiles were used as controls.

RESULTS: See table

K121169-70 Combat 19 aerosol

Table of Results: Recoveries of viable organisms

Test Organism	Control Tile	Treated Tile	Log Reduction
Staphylococcus aureus	4.1x10 E6	2.2x10 E4	2.27
Pseudomonas aeruginosa	7.2x10 E6	7.9x10 E4	1.96

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Proprietor: K M Self, M.R.S.P.H.,M.B.I.C.Sc.,A.M.S.B., Member of the Society for General Microbiology,
Participating in the National Agricultural Check Sample Service

Scientific Services

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Stewton,
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Consultant Microbiologists

7th June 2020

Summary Report for Detectnology (UK) Ltd

Combat 19 aerosol

Residual Activity

Principle of Test

Combat 19 aerosol was applied to ceramic tiles. These were allowed to dry and were then stored at ambient temperature and humidity for seven days, without further treatment, abrasion, washing, contamination or any form of cleaning prior to testing. Aliquots of bacterial suspension were then applied to the treated tiles and surviving organisms recovered after 5 minutes contact.

Conclusion

The report (K121169-70) indicates that a reduction was achieved against Staphylococcus aureus and Pseudomonas aeruginosa. The sample tested, under the test conditions stated, exhibits residual activity after seven days.

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K121169-70

7th June 2020

LABORATORY REPORT

SOURCE: Detectnology (UK) Ltd

ITEMS: Combat 19 aerosol

TESTS: Residual Activity Test.

METHOD: Sterilised 150ml x 150ml ceramic tiles were treated with Combat 19 aerosol. The product was applied to the tiles by spraying for two seconds from approximately 30cm distance. The tiles were allowed to air dry and were then stored at ambient temperature and humidity for seven days prior to evaluating the residual activity of the product. The tiles were not subjected to washing, abrasion, contamination or any form of cleaning during the storage period. 0.1ml aliquots of suspensions of both Staphylococcus aureus ATCC 6538 and Pseudomonas aeruginosa ATCC 15442 containing 0.3g/l Bovine albumin were applied to discreet areas of the tiles and covered with sterile film (50ml x 50ml). These were maintained at 20C for 5 minutes, after which time surviving organisms were recovered by swabbing and plating out using standard techniques. Untreated tiles were used as controls.

RESULTS: See table

K121169-70 Combat 19 aerosol

Table of Results: Recoveries of viable organisms

Test Organism	Control Tile	Treated Tile	Log Reduction
Staphylococcus aureus	4.1x10 E6	2.2x10 E4	2.27
Pseudomonas aeruginosa	7.2x10 E6	7.9x10 E4	1.96

KMSelf

K.M.Self, M.B.I.C.Sc.,M.R.S.P.H,.A.M.S.B.

Proprietor: K M Self, M.R.S.P.H.,M.B.I.C.Sc.,A.M.S.B., Member of the Society for General Microbiology,
Participating in the National Agricultural Check Sample Service

Study Title:
Quantitative suspension test for evaluation of virucidal activity in the medical area (Phase 2 Step1)

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

Angela Davies, CEO

Customer: Combat 19
Contact name: Mr Moles
Email:
Address: 17 The Waterways, Stratford Upon Avon, CV37 0AW
PO/Quote number: Q002554/1

Megan Barrett
Laboratory Manager

Peter Thistlethwaite
Technical Projects Manager

Scope

The standard method BS EN 14476 describes a test method and the minimum requirements for virucidal activity of a chemical disinfectant and antiseptic products that form a homogenous physically stable preparation when diluted with hard water – or in the case of ready to use products that are not diluted when applied, - with water. Products can only be tested at a concentration of 80% (97% with a modified method for special cases) as some dilution is always produced by adding the test organisms and interfering substances. This European Standard applies to products that are used in the medical area in the fields of hygienic handrub, hygienic handwash, instrument disinfection by immersion, surface disinfection by wiping, spraying, flooding or other means and textile disinfection.

This European standard applies to areas and situations where disinfection is medically indicated. Such indication occurs in patient care, for example: In hospitals, in community medical facilities and in dental institutions or in clinics of schools, of kindergartens and of nursing homes, and may occur in the workplace and in the home. It may also include services such as laundries and kitchens supplying products directly for patients.

Outline of Test Method (Obligatory Test Conditions)

A sample of the test product is diluted in synthetic hard water in products diluted at point of use or water in the case of ready to use products is added to a test suspension of viruses in a solution of interfering substance. The mixture is maintained at one of the temperatures and contact times specified in the standard. At the end of this contact time, an aliquot is taken; the virucidal action in this portion is immediately suppressed by a validated method (dilutions of the sample in ice-cold cell maintenance medium). The dilutions are transferred into cell culture units either using monolayer or cell suspension. Infectivity tests are done either by plaque test or quantal tests. After incubation, the titres of infectivity are calculated according to Spearman and Käber or by plaque counting. Reduction of virus infectivity is calculated from differences of lg virus titres before (virus control) and after treatment with the product. The standard minimum spectrum of test organisms is Poliovirus, Adenovirus, Coronavirus and Murine Norovirus.

Acceptance Criteria

The product when tested as above shall demonstrate at least a minimum 4 $\log_{10}$ reduction against the test virus. The test is deemed valid where all control requirements are met.

Test information		Deviation
Name of Product	Combat 19, room/ space sanitizer	
Batch Number & Expiry Date	NPD9400	
Date of Delivery	01/05/2020	
Period of Analysis	03/06/2020-08/06/2020	
Manufacturer / Supplier	Combat 19	
Storage Conditions	Ambient	
Appearance of the Product	Clear Liquid	
Neutralisation Method	Dilution	
Product Diluent	Distilled water	
Test Concentrations	Neat (80%), Mid-range (50%), Non active (0.1%)	
Experimental Conditions	Clean	
Interfering Substance	Clean 0.3g/l Bovine Albumin	
Test Temperature	20°C ± 1°C	
Temperature of Incubation	37°C ±1°C	
Identification of the Viral Strains:	Modified vaccinia virus Ankara (MVA), ATCC VR-1508	
Contact Times	5 minutes ± 10s	
Stability and Appearance During Test	No Change Observed	

Deviations from Standard Method

There were no deviations from the standard method

Test Result Summary

The test product received has achieved a minimum 4-log reduction against Vaccinia virus, when tested under the condition stipulated in this report.

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

Summary Vaccinia virus

Controls					
Conditions	**Concentration**	**Contact time**	**log TCID50**	**log reduction**	**Control validation**
Virus control (water)	N/A	5 minutes	8.00	N/A	Validated
Cytotoxicity (product)	Neat	N/A	2.50	N/A	Validated
Product supression control	Neat	Neat	7.96	0.04	Validated
Reference virus inactivation (formaldyehyde)	1.4%	5 minutes	5.46	2.54	Validated
Reference virus inactivation (formaldyehyde)	1.4%	15 minutes	4.17	3.83	Validated
Cytotoxicity (formaldehyde)	1.4%	N/A	2.50	N/A	Validated

Interference controls					
Condition	**Concentration**	**Contact time**	**log TCID50**	**Log difference**	**Control validation**
Interference control (untreated)	N/A	N/A	8.21	N/A	N/A
Interference control (treated)	Neat	N/A	8.13	0.08	Validated

Test Results					
Condition	**Concentration**	**Contact time**	**log TCID50**	**log reduction**	**Pass/Fail**
Test product	Neat	5 minutes	3.50	>4	Pass
Test product	50%	5 minutes	3.75	>4	Pass

Test identification Reference: **J001681-1**

BS EN 14476:2013+A2:2019

Raw data

Virus control (water)				Contact time		5 minutes		
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	4	4	4	4	4	4	1	0
-5	4	4	4	4	4	4	1	0
-6	4	4	4	4	4	4	1	0
-7	4	3	3	4	4	4	0.91666667	0.076389
-8	2	2	2	3	1	1	0.45833333	0.248264
-9	1	1	1	0	0	0	0.125	0.109375

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	2.50
n	8
SD50	-8.00
SE	0.25
xp	-6

Cytotoxicity (product)				Product concentration			Neat	
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	0	0	0	0	0	0	0	0
-4	0	0	0	0	0	0	0	0
-5	0	0	0	0	0	0	0	0
-6	0	0	0	0	0	0	0	0
-7	0	0	0	0	0	0	0	0
-8	0	0	0	0	0	0	0	0
-9	0	0	0	0	0	0	0	0

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	1.00
n	8
SD50	-2.50
SE	0.00
xp	-2

Product supression control				Product concentration			Neat	
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	4	4	4	4	4	4	1	0
-5	4	4	4	4	4	4	1	0
-6	4	4	4	4	4	4	1	0
-7	3	3	4	4	4	4	0.91666667	0.076389
-8	2	2	2	1	2	2	0.45833333	0.248264
-9	1	1	0	0	0	0	0.08333333	0.076389

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	2.46
n	8
SD50	-7.96
SE	0.24
xp	-6

Interference control (untreated)				Product concentration			Neat	
Dilution	Counts						% CPE	p(1-p)
-1	4	4	4	4	4	4	1	0
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	4	4	4	4	4	4	1	0
-5	4	4	4	4	4	4	1	0
-6	4	4	4	4	4	4	1	0
-7	4	4	4	4	4	4	1	0
-8	2	2	2	2	3	3	0.58333333	0.243056
-9	1	1	1	0	0	0	0.125	0.109375
-10	0	0	0	0	0	0	0	0

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	1.7083
n	10
SD50	-8.208
SE	0.1979
xp	-7

Microbiological Solutions Ltd
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Company number: 4218514

Test identification Reference: **J001681-1**

BS EN 14476:2013+A2:2019

Raw data

Interference control (treated)				Product concentration			Neat	
Dilution	Counts						% CPE	p(1-p)
-1	4	4	4	4	4	4	1	0
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	4	4	4	4	4	4	1	0
-5	4	4	4	4	4	4	1	0
-6	4	4	4	4	4	4	1	0
-7	4	4	4	4	3	4	0.95833333	0.039931
-8	2	2	2	2	2	2	0.5	0.25
-9	1	1	1	1	0	0	0.16666667	0.138889
-10	0	0	0	0	0	0	0	0

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	2.625
n	10
SD50	-8.125
SE	0.2183
xp	-6

Reference virus inactivation (formaldyehyde)				Contact time			5 minutes	
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	4	4	4	4	4	4	1	0
-5	2	2	3	3	3	3	0.66666667	0.222222
-6	1	1	1	1	2	1	0.29166667	0.206597
-7	0	0	0	0	0	0	0	0
-8	0	0	0	0	0	0	0	0
-9	0	0	0	0	0	0	0	0

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	1.96
n	8
SD50	-5.46
SE	0.25
xp	-4

Reference virus inactivation (formaldyehyde)				Contact time			15 minutes	
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	3	3	3	2	2	1	0.58333333	0.243056
-5	1	1	0	0	0	0	0.08333333	0.076389
-6	0	0	0	0	0	0	0	0
-7	0	0	0	0	0	0	0	0
-8	0	0	0	0	0	0	0	0
-9	0	0	0	0	0	0	0	0

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	1.67
n	8
SD50	-4.17
SE	0.21
xp	-3

Cytotoxicity (formaldehyde)								
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	0	0	0	0	0	0	0	0
-4	0	0	0	0	0	0	0	0
-5	0	0	0	0	0	0	0	0
-6	0	0	0	0	0	0	0	0
-7	0	0	0	0	0	0	0	0
-8	0	0	0	0	0	0	0	0
-9	0	0	0	0	0	0	0	0

Organism *Vacciniavirus* ATTC VR-1508	
d	1
sum px	1.00
n	8
SD50	-2.50
SE	0.00
xp	-2

Test identification Reference: **J001681-1**

BS EN 14476:2013+A2:2019

Raw data

Test product		Product concentration			Neat	Contact time		5 minutes
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	0	0	0	0	0	0	0	0
-5	0	0	0	0	0	0	0	0
-6	0	0	0	0	0	0	0	0
-7	0	0	0	0	0	0	0	0
-8	0	0	0	0	0	0	0	0
-9	0	0	0	0	0	0	0	0

Organism *Vaccinia virus* ATTC VR-1508	
d	1
sum px	1.00
n	8
SD50	-3.50
SE	0.00
xp	-3

Test product		Product concentration			50%	Contact time		5 minutes
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	1	1	1	1	1	1	0.25	0.1875
-5	0	0	0	0	0	0	0	0
-6	0	0	0	0	0	0	0	0
-7	0	0	0	0	0	0	0	0
-8	0	0	0	0	0	0	0	0
-9	0	0	0	0	0	0	0	0

Organism *Vaccinia virus* ATTC VR-1508	
d	1
sum px	1.25
n	8
SD50	-3.75
SE	0.16
xp	-3

Test product		Product concentration			0.10%	Contact time		5 minutes
Dilution	Counts						% CPE	p(1-p)
-2	4	4	4	4	4	4	1	0
-3	4	4	4	4	4	4	1	0
-4	4	4	4	4	4	4	1	0
-5	4	4	4	4	4	4	1	0
-6	4	4	4	4	4	4	1	0
-7	4	4	4	4	3	3	0.91666667	0.076389
-8	2	2	2	1	3	1	0.45833333	0.248264
-9	1	1	0	0	0	0	0.08333333	0.076389

Organism *Vaccinia virus* ATTC VR-1508	
d	1
sum px	2.46
n	8
SD50	-7.96
SE	0.24
xp	-6

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		
PASS	= lg R greater than or equal to 4		
FAIL	= lg R less than 4		
>	greater than	≥	equal to or greater than
<	less than	≤	equal to or less than