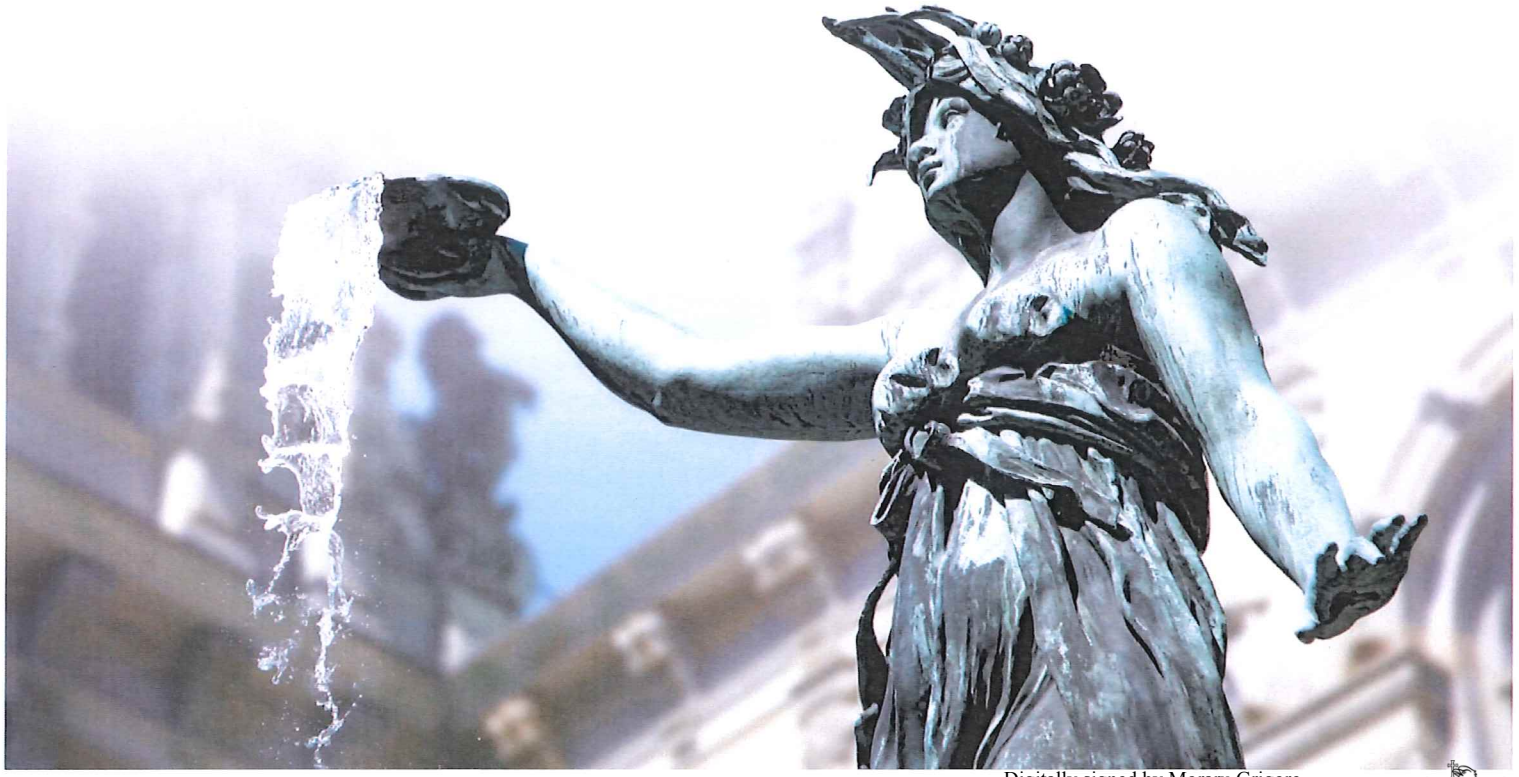
DR. BRILL + DR. STEINMANN
INSTITUT FÜR HYGIENE UND MIKROBIOLOGIE



Sterisept Ready to Use / Sterisept Wipes

Evaluation of virucidal efficacy

Test report no.	L21/00936S.2
Method	DIN EN 14476:2019-10
Endpoint	polyomavirus SV40, strain 777
Client	Chemi-Pharm AS, Mr Ivari Koppel, Tänassilma tee 11, Tänassilma küla, Saku, EST - HARJU MAAKOND 76406
Laboratory	Dr. Brill + Partner GmbH, Institute for Hygiene and Microbiology Norderoog 2, DE-28259 Bremen

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-13412-01-01

Dr. Jochen Steinmann

c/o Dr. Brill + Partner GmbH
Institut für Hygiene und Mikrobiologie
Norderoog 2, DE 28259 Bremen
Telefon 0049-40/557631-0
Telefax 0049-40/557631-11
Email info@brillhygiene.com
Internet www.brillhygiene.com

Dr. Jochen Steinmann · c/o Dr. Brill + Partner GmbH · Norderoog 2 · DE-28259 Bremen

Chemi-Pharm AS
Tänassilma tee 11, Tänassilma küla, Saku
EST - HARJU MAAKOND 76406

Bremen, 29 March 2022

Expert opinion

Activity of **Sterisept Ready to Use / Sterisept Wipes** against polyomavirus SV40, strain 777 in the quantitative suspension test according to DIN EN 14476:2019-10 under dirty conditions

The surface disinfectant **Sterisept Ready to Use / Sterisept Wipes** was tested and evaluated according to DIN EN 14476:2019-10 "Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of virucidal activity in the medical area - Test method and requirements (Phase 2/Step 1); German version EN 14476:2013+A2:2019)".

According to this norm a disinfectant or a disinfectant solution at a particular concentration is considered as having virus-inactivating properties if within the recommended exposure period the titre is reduced by ≥ 4 $\log_{10}$ (inactivation ≥ 99.99 %).

According to the test report L21/00936S.2 dated 29/03/2022, the surface disinfectant **Sterisept Ready to Use / Sterisept Wipes** was examined undiluted at 20 °C ± 1 °C and dirty conditions. 1 and 2 minutes were chosen as exposure time. In summary, a virucidal activity against SV40 was measured as follows:

undiluted **60 seconds** **dirty conditions (3.0 g/L bovine albumine + 3.0 mL/L sheep erythrocytes)**

Dr. Jochen Steinmann

Test report no L21/00936S.2

Quantitative suspension test for the evaluation of virucidal activity of Sterisept Ready to Use / Sterisept Wipes in the medical area (DIN EN 14476:2019-10)

Table of contents

1 General Information and Material

1.1 Client

Client ..... Chemi-Pharm AS, Mr Ivari Koppel, Tänassilma tee 11, Tänassilma küla, Saku, EST - HARJU MAAKOND 76406

Date of order 03/03/2021

Confirmation no. 227123

1.2 Identification of Test Laboratory

Location ..... Dr. Brill + Partner GmbH, Institute for Hygiene and Microbiology, Norderoog 2, DE-28259 Bremen, Germany

Study manager ..... Dr. Britta Becker

Scientific assistant ..... Dr. Dajana Paulmann

Laboratory technicians ..... Talea de Freese

1.3 Identification of Sample

Name of product ..... Sterisept Ready to Use / Sterisept Wipes

Internal product identifier L21/01018-008

Formulation code ..... not specified

Batch no. 14280721

Production date 07/2021

Expiry date ..... not specified

Manufacturer ..... Chemi-Pharm AS, Tänassilma tee 11, Tänassilma küla, Saku EST – HARJU MAAKOND 76406

Date of delivery 09/08/2021

Storage conditions ..... room temperature and darkness

Appearance of product ..... clear, colorless liquid

Odour ..... characteristic

Product type ..... surface disinfectant

Area of accreditation ..... DAkkS D-PL-13412-01-01

Recommended diluent ..... n.a.

pH value, undiluted (Manufacturer's data) ..... n.a.

Active agents (Manufacturer's data) ..... Didecyl-Dimethyl-Ammonium Chloride (DDAC) 0.45 g, N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine 0.45 g

1.4 Identification of Reference Product Stock Solution

Name of product ..... Formaldehyde

Batch no. 03893226

Manufacturer ..... Carl Roth GmbH + Co. KG

Storage conditions ..... room temperature and darkness

1.5 Experimental Conditions

Test period ..... 08/03/2022 - 28/03/2022

Concentration of test product ..... 80.0 + 50.0 + 10.0 %

Appearance of product dilutions ..... no precipitation

Exposure time(s) ..... 1 and 2 minutes

Test temperature ..... 20 °C ± 1 °C

Incubation temperature ..... 36.5 °C – 37.1 °C

Diluent used ..... Aqua dest.

Organic load ..... dirty conditions (3.0 g/L bovine albumine + 3.0 mL/L sheep erythrocytes)

Stability of product in the mix with virus and interfering substance ..... medium clouding, strong precipitation

Procedure to stop action of disinfectant ..... immediate dilution in cell culture medium

Virus Strain ..... polyomavirus SV40, strain 777

Origin of Virus ..... PD Dr. A. Sauerbrei, Institute of Virology and Antiviral Chemotherapy at the Friedrich Schiller University of Jena, Germany

Passage of Virus 5

Cells name ..... CV-1 cells (kidney cells of African green monkey)

Origin of Cells ..... Friedrich-Löffler-Institut (FLI), Federal Research Institute for Animal Health, Isle of Riems (Dr. R. Riebe)

Passage of Cells 91

Cell culture medium ..... Eagle`s Minimum Essential Medium with Earle`s BSS (EMEM), Biozym Scientific GmbH, catalogue no. 880120

2 Methods

2.1 Preparation of test virus suspension

For preparation of test virus suspension according to EN 14476, cells were infected with a multiplicity of infection of 0.1 at 37 °C. After cells showed a cytopathic effect, they were subjected to a freeze/thaw procedure followed by a low speed centrifugation in order to sediment cell debris. After aliquotation of the supernatant, test virus suspension was stored at -80 °C.

2.2 Determination of pH values and/or active concentrations

The following pH values and concentrations of active substances were measured.

Product-conc. [%]	100
pH in diluent	10.84
Active conc.	n.a.

2.3 Preparation of disinfectant (dilutions)

The test product was tested undiluted. Due to the addition of interfering substance and test virus suspension an 80.0 % solution resulted. Furthermore, the product was evaluated as 50.0 % and 10.0 % solutions (demonstrating of non-active range). These solutions were prepared immediately before the inactivation tests.

2.4 Inactivation assay and controls

Determination of virucidal activity has been carried out in accordance to DIN EN 14476:2019-10 section 5.5.

Immediately at the end of a chosen contact time, activity of the disinfectant was stopped by dilution to 1.0E-08.

Titrations of the virus control were performed at the beginning of the test and after the longest exposure time. One part by volume of test virus suspension was mixed with one part interfering substance and eight parts by volume of WSH or Aqua bidest. (RTU products). If a 97.0 % assay was performed, 0.1 parts by volume of test virus suspension were mixed with 0.2 parts interfering substance and 9.7 parts by volume of Aqua bidest. (RTU products).

Furthermore, a cell control (only addition of medium) was incorporated.

Determination of cytotoxicity was performed.

For the control of cell sensitivity (interference control), two parts by volume of Aqua bidest. were mixed with eight parts by volume of the lowest apparently non-cytotoxic dilution of the product. This mixture or PBS as control was added to permissive cells for one hour. The disinfectant solution was then removed from the cells, and a comparative titration of the virus suspension was performed on the pre-treated cells.

Furthermore, a control of efficiency for suppression of disinfectant's activity was included.

As reference for test validation a 0.7 % formaldehyde solution was included. 5, 15, 30 and 60 minutes were chosen as contact times.

2.5 Determination of infectivity

Infectivity was determined as endpoint titration transferring 0.1 ml of each dilution into eight wells of a microtitre plate containing 0.1 ml of cell suspension. Microtitre plates were incubated at 37 °C in a 5 % CO_2-atmosphere. The cytopathic effect was read by using an inverted microscope. The infective dose $TCID_{50}$/ml was calculated with the method of Spearman (2) and Kärber (3).

Since it was not possible to test the test product due to cytotoxicity with the end point dilution method, in parallel to the end point dilution method the large volume plating method (LVP) was introduced. Following the large volume plating method (EN 14476, section 5.5.4.3) the inactivation assays were further diluted 1:10,000 in cell culture medium. The total volume was added (without any further dilution) to the permissive cells. By introducing such a huge dilution, it is possible to eliminate cytotoxicity of the test product in order to demonstrate a 4 log_{10} reduction of virus titre. Calculation of virus titre follows formula of Taylor or Poisson (EN 14476, section B.3).

2.6 Calculation and verification of virucidal activity

The virucidal activity of the test disinfectant was evaluated by calculating the decrease in titre in comparison with the control titration without disinfectant. The difference is given as reduction factor (RF).

According to DIN EN 14476, a disinfectant or a disinfectant solution at a particular concentration is having virus-inactivating efficacy if the titre is reduced at least by 4 log_{10} steps within the recommended exposure period. This corresponds to an inactivation of ≥ 99.99 %.

3 Results

3.1 Verification of results and pass criteria

Because following criteria were fulfilled, examination according to DIN EN 14476:2019-10 section 5.7 is valid:

a. The titre of the test virus suspension allowed the determination of a ≥ 4 $\log_{10}$ reduction.

b. Cytotoxicity of the test product allowed the detection of a 4 $\log_{10}$ reduction of virus titre.

c. The comparative titration on pre-treated (disinfectant) and non-pre-treated (PBS) cells showed no significant difference of virus titre (< 1 $\log_{10}$; norm section 5.7).

d. The control of efficacy for suppression of disinfectant's activity (80.0 %) (performed as described in EN 14476, section 5.5.5.1 in a 1:10 dilution in ice-cold cell culture medium for 30 minutes) showed a decrease of ≥ 0.88 (6.88 ± 0.37 versus 7.75 ± 0.48 $\log_{10}$ $TCID_{50}$/ml) and failed the requirement of the EN (≤ 0.5 $\log_{10}$; EN 14476, section 5.5.5.1). In these experiments at the end of the defined exposure time the test mixture was immediately diluted not 1:10 as described in the control of efficacy for suppression of disinfectant's activity but directly 1:10,000 (LVP) and the dilution transferred to the cell culture.
If the control of efficacy for suppression of disinfectant's activity fails the requirement of the EN 14476, section 5.5.5.1, the control of efficacy for suppression of disinfectant's activity can be performed with a dilution of 1:100 as described in the EN 14476, section 5.5.5.2. Therefore, the control of efficacy for suppression of disinfectant's activity (80.0 %) was performed in a 1:100 dilution in ice-cold cell culture medium for 30 minutes. This control showed no decrease in virus titre (≤ 0.5 $\log_{10}$; norm section 5.5.5.1). Therefore, this control is valid.

e. One concentration demonstrated a 4 $\log_{10}$ reduction and (at least) one concentration demonstrated a $\log_{10}$ reduction of less than 4.

3.2 Results of Efficacy testing according to DIN EN 14476:2019-10

Results of examination are shown in tables 1 to 5. Table 1 demonstrates a summary of results, whereas tables 2 to 5 represent the raw data.

Testing the test product as 50.0 % solution, no residual virus was found after 1 and 2 minutes under dirty conditions in this quantitative suspension test (tables 1 and 3). The reduction factor was ≥ 3.25 ± 0.48, respectively.

Tested as 10.0 % solution, the test product was not active within 2 minutes of exposure time (tables 1 and 3).

Since it was not possible to test the undiluted test product due to cytotoxicity with the end point dilution method, in parallel to the end point dilution method the large volume plating method (LVP) was introduced with 1 and 2 minutes of exposure time. The mean virus titre was $\log_{10}$ $TCID_{50}$/ml = 7.69 ± 0.49 (tables 1 and 2).

The undiluted test product was active after 1 minute of exposure time (tables 1 and 2). Since no residual virus was found in 576 cell culture units at this time point, the result according to the formula of Poisson was ≤ 2.84 $\log_{10}$

$TCID_{50}$. The reduction factor was therefore ≥ 4.85 ± 0.49 (7.69 ± 0.49 log_{10} $TCID_{50}$ minus ≤ 2.84 log_{10} $TCID_{50}$). This corresponded to an inactivation of ≥ 99.99 %.

3.3 Conclusion

The surface disinfectant Sterisept Ready to Use / Sterisept Wipes tested undiluted demonstrated activity against SV40 after an exposure time of 1 minute under dirty conditions. Therefore, the surface disinfectant Sterisept Ready to Use / Sterisept Wipes can be declared as active against SV40 as follows:

undiluted **1 minute** **dirty conditions**

4 Signature page

Bremen, 29/03/2022

Dr. Britta Becker
Director of Laboratory - Virology

Dr. Dajana Paulmann
Deputy Head of Laboratory - Virology

Table 1: Summary of results

Product name: **Sterisept Ready to Use / Sterisept Wipes** Batch: 14280721
Test organism: SV40 Temperature: 20 °C ± 1 °C
Organic load: dirty conditions

Assay	Conc. [%]	Cytotox. [log]	log_{10} $TCID_{50}$/ml after …min					≥4 log_{10} reduction after … min
			1	2	5	15	30	
1 (LVP)	80.0	4.50	≤ 2.84	≤ 2.84	n.d.	n.d.	n.d.	1
								RF ≥4.85 ± 0.49
1	50.0	3.50	≤ 4.50	≤ 4.50	n.d.	n.d.	n.d.	≥2
			± 0.00	± 0.00				RF ≥3.25 ± 0.48
1	10.0	3.50	7.00	7.00	n.d.	n.d.	n.d.	>2
			± 0.38	± 0.38				RF =0.75 ± 0.61
Controls								
Assay	Conc. [%]	Cytotox. [log]	log_{10} $TCID_{50}$/ml after …min					≥4 log_{10} reduction after … min
			0	5	15	30	60	
Virus control for assay								
1 (LVP)	n.a.	n.a.	7.50	n.d.	n.d.	n.d.	ø7.69	n.a.
			± 0.35				± 0.49	
1	n.a.	n.a.	7.50	n.d.	n.d.	n.d.	7.75	n.a.
			± 0.35				± 0.48	
Suppression control								
1	80.0 (1:10)	4.50	n.d.	n.d.	n.d.	6.88	n.d.	n.a.
						± 0.37		
1	80.0 (1:100)	4.50	n.d.	n.d.	n.d.	7.75	n.d.	n.a.
						± 0.33		
Virus control for suppression								
1	n.a.	n.a.	n.d.	n.d.	n.d.	n.d.	7.75	n.a.
							± 0.48	
Sensitivity control								
1	80.0	n.a.	n.d.	n.d.	n.d.	n.d.	7.88	n.a.
							± 0.41	
1	PBS	n.a.	n.d.	n.d.	n.d.	n.d.	7.38	n.a.
							± 0.53	
Reference control (Formaldehyde with PBS)								
1	0.7	4.50	n.d.	7.25	7.25	6.88	6.75	> 60
				± 0.44	± 0.33	± 0.37	± 0.44	RF =0.75 ± 0.64
Virus control for reference								
1	PBS	n.a.	n.d.	n.d.	n.d.	n.d.	7.50	n.a.
							± 0.46	

n.a. = not applicable n.d. = not done conc = concentration cytotox = cytotoxicity

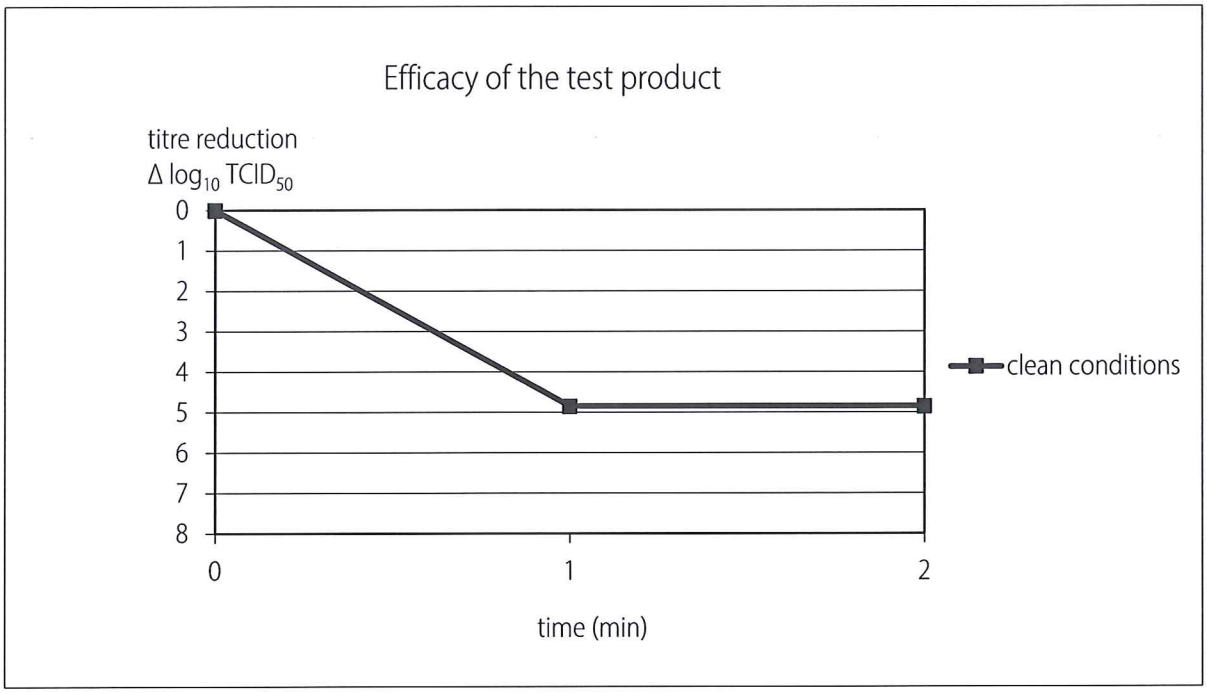


Figure 1: Virus-inactivating properties of Sterisept Ready to Use / Sterisept Wipes (80.0 %) against SV40

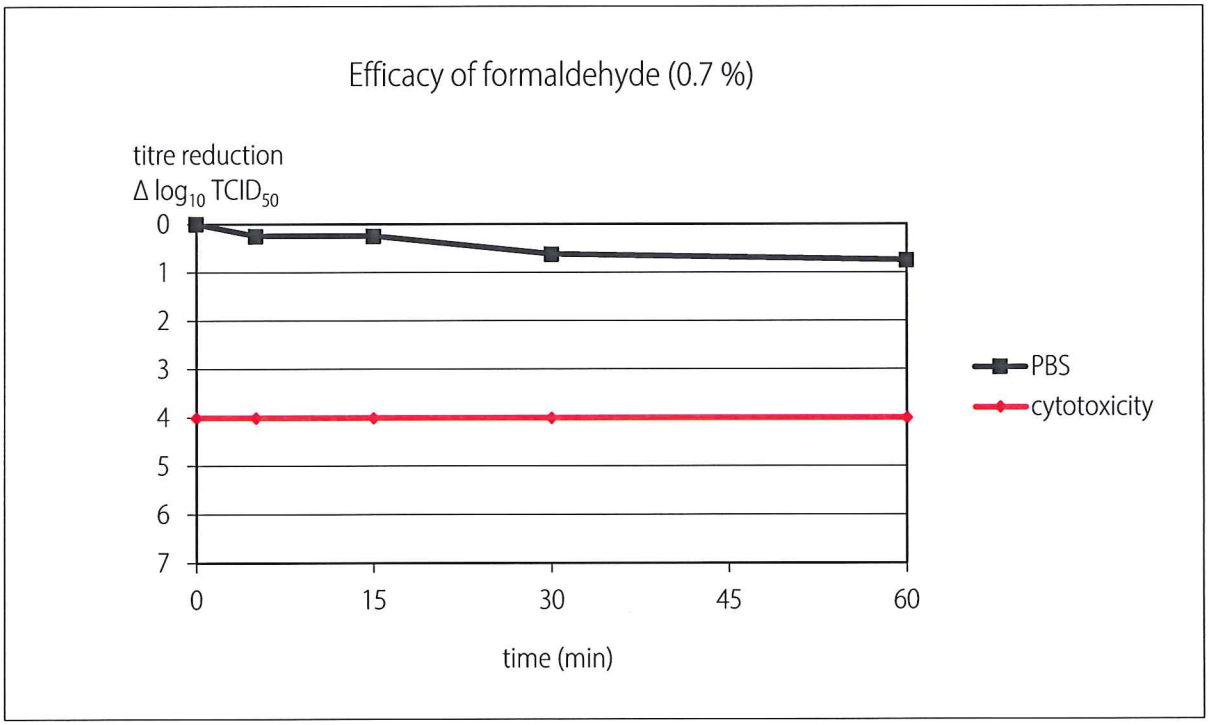


Figure 2: Virus-inactivating properties of the formaldehyde (0.7 %) against SV40

Table 2: Raw data for efficacy test following LVP

Product name:	**Sterisept Ready to Use / Sterisept Wipes**	Batch:	14280721
Test organism:	SV40	Temperature:	20 °C ± 1 °C
Organic load:	dirty conditions	Test Run:	1st assay
No. of assay:	#7878		

Conc. [%]: 80.0	Dilution: 1:10,000	Contact time [min]: 1

	Row											
Plate	1	2	3	4	5	6	7	8	9	10	11	12
1	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
2	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
3	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
4	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
5	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
6	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000

Conc. [%]: 80.0	Dilution: 1:10,000	Contact time [min]: 2

	Row											
Plate	1	2	3	4	5	6	7	8	9	10	11	12
1	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
2	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
3	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
4	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
5	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000
6	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000	0000 0000

Conc. [%]	Contact time [min]	Dilutions [log_{10}]								
		1	2	3	4	5	6	7	8	9
Virus control										
80.0	0	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4334 4404	4000 0000	0000 0000	0000 0000
	60	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4023 3344	2000 0300	2000 0000	0000 0000
	60	n.d.	n.d.	4444 4444	4444 4444	4444 4344	4400 2444	4020 0040	0000 0000	0000 0000

n.a. = not applicable 0 = no virus present t = cytotoxic conc = concentration
n.d. = not done 1 to 4 = virus present (degree of CPE in 8 cell culture units) (wells of microtitre plates)

Table 3: Raw data for efficacy test

Product name:	**Sterisept Ready to Use / Sterisept Wipes**	Batch:	14280721
Test organism:	SV40	Temperature:	20 °C ± 1 °C
Organic load:	dirty conditions	Test Run:	1st assay
No. of assay:	#7878		

Conc. [%]	Contact time [min]	Dilutions [log_{10}]								
		1	2	3	4	5	6	7	8	9
50.0	1	n.d.	n.a.	n.a.	0000 0000	0000 0000	0000 0000	0000 0000	n.d.	n.d.
	2	n.d.	n.a.	n.a.	0000 0000	0000 0000	0000 0000	0000 0000	n.d.	n.d.
10.0	1	n.d.	n.a.	n.a.	4444 4444	4444 4444	4033 0040	0000 0000	n.d.	n.d.
	2	n.d.	n.a.	n.a.	4444 4444	4444 4344	4330 0020	0000 0000	n.d.	n.d.
Virus control										
n.a.	0	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4334 4404	4000 0000	0000 0000	0000 0000
	60	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4023 3344	2000 0300	2000 0000	0000 0000
Cytotoxicity control										
80.0	n.a.	tttt tttt	tttt tttt	tttt tttt	0000 0000	n.d.	n.d.	n.d.	n.d.	n.d.
50.0	n.a.	tttt tttt	tttt tttt	0000 0000	0000 0000	n.d.	n.d.	n.d.	n.d.	n.d.
10.0	n.a.	tttt tttt	tttt tttt	0000 0000	0000 0000	n.d.	n.d.	n.d.	n.d.	n.d.

n.a. = not applicable 0 = no virus present t = cytotoxic conc = concentration
n.d. = not done 1 to 4 = virus present (degree of CPE in 8 cell culture units) (wells of microtitre plates)

Table 4: Raw data for controls

Product name: **Sterisept Ready to Use / Sterisept Wipes** Batch: 14280721
Test organism: SV40 Temperature: 20 °C ± 1 °C
Organic load: dirty conditions Test Run: 1st assay
No. of assay: #7878

Conc. [%]	Contact time [min]	Dilutions [log_{10}]								
		1	2	3	4	5	6	7	8	9
Suppression control										
80.0 1:10	30	n.d.	4444 4444	4444 4444	4444 4444	4433 4444	0200 0042	0000 0000	n.d.	n.d.
80.0 1:100	30	n.d.	4444 4444	4444 4444	4444 4444	4444 4444	4434 4443	0002 0020	n.d.	n.d.
Virus control for suppression										
n.a.	60	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4023 3344	2000 0300	2000 0000	n.d.
Sensitivity control										
80.0	60	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4444 4443	0400 0040	0400 0000	n.d.
PBS	60	n.d.	n.d.	4444 4444	4444 4444	4444 4444	0003 4044	0040 0304	0000 0000	n.d.

n.a. = not applicable 0 = no virus present t = cytotoxic conc = concentration
n.d. = not done 1 to 4 = virus present (degree of CPE in 8 cell culture units) (wells of microtitre plates)

Table 5: Raw data for reference test

Reference:	Formaldehyde	Batch:	03893226
Test organism:	SV40	Temperature:	20 °C ± 1 °C
Organic load:	PBS	Test Run:	1st assay
No. of assay:	#7878		

Conc. [%]	Contact time [min]	Dilutions [log_{10}]								
		1	2	3	4	5	6	7	8	9
0.7	5	n.d.	tttt tttt	tttt tttt	4444 4444	4444 4444	4440 0303	2000 0000	n.d.	n.d.
	15	n.d.	tttt tttt	tttt tttt	4444 4444	4444 4444	4403 0442	0000 0000	n.d.	n.d.
	30	n.d.	tttt tttt	tttt tttt	4444 4444	4244 3344	0044 0004	0000 0000	n.d.	n.d.
	60	n.d.	tttt tttt	tttt tttt	4444 4444	3330 2333	4020 2000	0000 0000	n.d.	n.d.
Virus control										
n.a.	60	n.d.	n.d.	4444 4444	4444 4444	4444 4444	4043 0444	0030 2000	0000 0000	n.d.
Cytotoxicity control										
0.7	n.a.	tttt tttt	tttt tttt	tttt tttt	0000 0000	n.d.	n.d.	n.d.	n.d.	n.d.

n.a. = not applicable 0 = no virus present t = cytotoxic
n.d. = not done 1 to 4 = virus present (degree of CPE in 8 cell culture units) (wells of microtitre plates)

5 Appendix

5.1 Version history

Previous versions are replaced by most recent version.

Version	Date	Reason of change and changelog	Author
01	29/03/2022	-	IW

5.2 Accreditation and certificates

DIN EN 14476:2019-10 is included in our accreditation according to DIN EN ISO/IEC 17025.

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-13412-01-01

5.3 Terms of use

No copying or transmission, in whole or in part, of this test report without the explicit prior written permission. The test results exclusively apply to the tested samples. Information on measurement uncertainty and Version history on request.

5.4 Literature

1 DIN EN 14476:2019-10 "Chemical disinfectants and antiseptics – Quantitative suspension test for the evaluation of virucidal activity in the medical area - Test method and requirements (phase 2, step 1); German version EN 14476:2013+A2:2019)"

2 Spearman, C.: The method of "right or wrong cases" (constant stimuli) without Gauss's formulae. Brit J Psychol; 2 1908, 227-242

3 Kärber, G.: Beitrag zur kollektiven Behandlung pharmakologischer Reihenversuche. Arch Exp Path Pharmak; 162, 1931, 480-487

5.5 List of Abbreviations

DIN	=	Norm by German institute for normation (German: Deutsches Institut für Normung)
EN	=	European norm (issued by European Committee for Standardization – CEN)
IEC	=	International Electrotechnical Commission
ISO	=	International Organization for Standardization
$TCID_{50}$	=	Tissue Culture Infectious Dose 50
PBS	=	Phosphate buffered saline (see norm section 5.2.2.3 for receipe)
n.d.	=	Not detected
n.a.	=	Not applicable