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P.J. Dahlhausen & Co. GmbH
Emil-Hoffmann-Straße 53
DE - 50996 Köln

Hamburg, 15/05/2017

Expert opinion


Bactericidal Activity of **Feuchte Waschhandschuhe antibakteriell** in the quantitative suspension test according to DIN EN 13727:2015 (Phase 2, Step 1)

The disinfectant **Feuchte Waschhandschuhe antibakteriell** was tested and evaluated according to DIN EN 13727:2015 "Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of bactericidal activity in the medical area - Test method and requirements (phase 2, step 1)".

According to the test report no. L17/0121.1 dated 15/05/2017 of Dr. Brill + Partner GmbH the preparation showed bactericidal activity under clean conditions.

Feuchte Waschhandschuhe antibakteriell complies with the requirements of DIN EN 13727:2015 (phase 2, step 1) with the following concentration-time relationship:

Bactericidal:	clean conditions	100 %	1 minute
<i>S. aureus</i> MRSA:	clean conditions	100 %	1 minute
<i>E. faecium</i> VRE:	clean conditions	100 %	1 minute
<i>K. pneumoniae</i> ESBL:	clean conditions	100 %	1 minute



Dr. Florian H. H. Brill



Test report no L17/0121.1

Quantitative suspension test for the evaluation of basic bactericidal activity of **Feuchte Waschhandschuhe antibakteriell**
in the medical area according to DIN EN 13727:2015 (Phase 2, step 1)*

In accordance with your order, we tested the preparation **Feuchte Waschhandschuhe antibakteriell** for its activity in the quantitative suspension test according to DIN EN 13727:2015* under clean conditions.

1 General Information and Material

1.1 Client

Client: P.J. Dahlhausen & Co. GmbH, Frau Hardt, Emil-Hoffmann-Straße 53,
DE - 50996 Köln
Date of order: 14/02/2017
Confirmation no.: 201281

1.2 Identification of Test Laboratory

Location: Dr. Brill + Partner GmbH · Institute for Hygiene and Microbiology,
Stiegstück 34, DE-22339 Hamburg, Germany
Study manager: Dipl.-Biol. Dr. rer. nat. Jan-Hendrik Klock
Scientific assistant: Dipl.-Ing. Dr. rer. nat. Andreas Kampe
Laboratory technicians: Carmela Jänicke

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1.4 Identification of Sample

Name of product: **Feuchte Waschhandschuhe antibakteriell (liquid squeezed out of gloves)**

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Batch no.: 174017
Manufacturer: P.J. Dahlhausen & Co. GmbH, DE - 50996 Köln
Date of delivery: 22/02/2017
Storage conditions: room temperature and darkness
Appearance of product: wet gloves
Odour: characteristic
Product type: wet gloves
pH value, concentrate: not measured
Active agents (Manufacturer's data): 0.4 % DDAC
0.3 % chlorhexidine

1.5 Test Conditions

Test period: 11/04/ - 08/05/2017
Lab task no.: L17/0121.1-.2
Product test concentrations: 25 + 50 + 80 %
Exposure time: 1 + 5 + 15 minutes
Test temperature: 20°C ± 1°C
Incubation temperature: 36°C ± 1°C
Organic load: clean conditions (0.3 g/L bovine albumin)
Neutraliser 1: 60 g/L polysorbate 80, 20 g/L sodium oleate, 8 g/L lecithin (TL-SO)
Neutraliser 2: 60 g/L polysorbate 80, 60 g/L Saponin, 20 g/L sodium oleate, 10 g/L lecithin, 20 g/L SDS (TSL-SO-SDS)
Test organisms:
Staphylococcus aureus ATCC 6538
Enterococcus hirae ATCC 10541
Pseudomonas aeruginosa ATCC 15442
Staphylococcus aureus MRSA ATCC 33592
Enterococcus faecium VRE DSM 13590
Klebsiella pneumoniae ESBL DSM 16609

2 Methods

The tests were carried out according to DIN EN 13727:2015 "Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of bactericidal activity in the medical area - Test method and requirements (phase 2, step 1)".

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In addition to the standard organisms the above mentioned organisms were tested.

In order to test the antimicrobial efficacy of **Feuchte Waschhandschuhe antibakteriell** the liquid was squeezed out of the gloves. This liquid was used as stock solution and diluted to 25 + 50 % to perform the quantitative suspension test.

3 Results

The test results based on DIN EN 13727: 2015 are summarised in tables 1.

For the tests against *S. aureus* MRSA with 5 minutes the validation C failed. As the test product showed sufficient efficacy with 1 minute contact time and all controls were valid for this exposure time, the results are not influenced by this deviation.

The test bacteria were sufficiently (RF >5) inactivated with the following concentration-time relationship:

Bactericidal:	clean conditions	25 %	1 minute
<i>S. aureus</i> MRSA	clean conditions	25 %	1 minute
<i>E. faecium</i> VRE	clean conditions	25 %	1 minute
<i>K. pneumoniae</i> ESBL	clean conditions	50 %	1 minute

Hamburg, 15/05/2017

Dipl.-Biol. Dr. rer. nat. Jan Hendrik Klock
Study Manager

Dipl.-Ing. Dr. rer. nat. Andreas Kampe
Quality control



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Table 1.1: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Staphylococcus aureus* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **1 minute** Lab task no.: L17/0121.1

Suspension for validation (N _{vo})			Control of test conditions (A)			Control of neutraliser (B)			Valid. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Microbial count		
V _{c1}	54		V _{c1}	70		V _{c1}	86		V _{c1}	35	
V _{c2}	72		V _{c2}	75		V _{c2}	90		V _{c2}	34	
30 ≤ \bar{x} of N _{vo} ≤ 160			\bar{x} of A(1') is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of C(1') is ≥ 0,5 x \bar{x} of N _{vo} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vb})			V _{c1}			V _{c2}			30 ≤ \bar{x} of N _{vo} ≤ 160?		
			52			54			Yes		
Test suspension (N and N ₀)		N		Microbial count		V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?	
		1,00E-06		184		184	292	2,35E+08	7,37	Yes	
		1,00E-07		18		18	24	8,37			
Product-concentration [%]		N		Microbial count		V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,37)	
25		1,00E+00		2		<14	<14	<1,40E+02	< 2,15	≥ 5,23	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				
50		1,00E+00		4		<14	<14	<1,40E+02	< 2,15	≥ 5,23	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				
80		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				

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Table 1.2: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Staphylococcus aureus* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **5 minutes** Lab task no.: L17/0121.1

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C) Conc.: 80,00 %		
Microbial count			Microbial count			Microbial count			Microbial count		
V _{c1}	54		V _{c1}	84		V _{c1}	86		V _{c1}	38	
V _{c2}	72		V _{c2}	70		V _{c2}	90		V _{c2}	48	
30 ≤ \bar{x} of N _{v0} ≤ 160			\bar{x} of A(5') is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of C(5') is ≥ 0,5 x \bar{x} of N _{v0} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vB})			V _{c1}			V _{c2}			30 ≤ \bar{x} of N _{v0} ≤ 160?		
			52			54			Yes		
Test suspension (N and N ₀)		N		Microbial count		V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?	
		1,00E-06		184		184	292	2,35E+08	7,37	Yes	
		1,00E-07		18		18	24	8,37			
Product-concentration [%]		N		Microbial count		V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,37)	
25		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				
50		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				
80		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				

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Table 1.3: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Staphylococcus aureus* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **15 minutes** Lab task no.: L17/0121.1

Suspension for validation (N _{vo})				Control of test conditions (A)				Control of neutraliser (B)				Vali. of inactivation (C) Conc.: 80,00 %			
Microbial count			\bar{x}	Microbial count			\bar{x}	Microbial count			\bar{x}	Microbial count			\bar{x}
V _{c1}	54		63	V _{c1}	81		77	V _{c1}	86		88	V _{c1}	47		40
V _{c2}	72			V _{c2}	73			V _{c2}	90			V _{c2}	33		
30 ≤ \bar{x} of N _{vo} ≤ 160			Yes	\bar{x} of A(15') is ≥ 0,5 x \bar{x} of N _{vo} ?			Yes	\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			Yes	\bar{x} of C(15') is ≥ 0,5 x \bar{x} of N _{vo} ?			Yes
Suspension for Validation (N _{vb})				V _{c1}		V _{c2}		\bar{x}		30 ≤ \bar{x} of N _{vo} ≤ 160?					
				52		54		53		Yes					

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	184		292		184	292	2,35E+08	7,37	Yes
	1,00E-07	18		24		18	24	8,37		

Product-concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,37)
25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,23
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			

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Table 1.4: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Enterococcus hirae* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **1 minute** Lab task no.: L17/0121.3

Suspension for validation (N _{vo})				Control of test conditions (A)				Control of neutraliser (B)				Valid. of inactivation (C) Conc.: 80,00 %			
Microbial count			̄	Microbial count			̄	Microbial count			̄	Microbial count			̄
V _{c1}	61		65,5	V _{c1}	72		70	V _{c1}	61		51	V _{c1}	61		68,5
V _{c2}	70			V _{c2}	68			V _{c2}	41			V _{c2}	76		
30 ≤ ̄ of N _{vo} ≤ 160			Yes	̄ of A(1') is ≥ 0,5 x ̄ of N _{vo} ?			Yes	̄ of B is ≥ 0,5 x ̄ of N _{vo} ?			Yes	̄ of C(1') is ≥ 0,5 x ̄ of N _{vo} ?			Yes
Suspension for Validation (N _{vb})				V _{c1}		V _{c2}		̄		30 ≤ ̄ of N _{vo} ≤ 160?					
				70		80		75		Yes					

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	̄ _{wm} / lg N	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	>330		>330		>660	>660	3,55E+08	7,55	Yes
	1,00E-07	38		33		38	33	8,55		

Product- concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = ̄ x 10	lg N _a	lg R (lg N ₀ =7,55)
	25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,40
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,40
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			

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Table 1.5: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Enterococcus hirae* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **5 minutes** Lab task no.: L17/0121.3

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Conc.: 80,00 %		
V _{c1}	61		V _{c1}	57		V _{c1}	61		V _{c1}	69	
V _{c2}	70		V _{c2}	69		V _{c2}	41		V _{c2}	52	
65,5			63			51			60,5		
30 ≤ \bar{x} of N _{v0} ≤ 160			\bar{x} of A(5') is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of C(5') is ≥ 0,5 x \bar{x} of N _{v0} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vB})			V _{c1}			\bar{x}			30 ≤ \bar{x} of N _{v0} ≤ 160?		
			70			75			Yes		
Test suspension (N and N ₀)			N			Microbial count			V _{c1} V _{c2} \bar{x}_{wm} / lg N		
									N ₀ =N/10; lg N ₀		
									7,17 ≤ N ₀ ≤ 7,70 ?		
			1,00E-06			>330			>660 >660 3,55E+08		
			1,00E-07			38			38 33 8,55		
									7,55		
									Yes		
Product-concentration [%]			N			Microbial count			V _{c1} V _{c2} N _a = \bar{x} x 10		
									lg N _a		
									lg R (lg N ₀ = 7,55)		
25			1,00E+00	0	0	<14	<14	<1,40E+02	< 2,15	≥ 5,40	
			1,00E-01	0	0	<14	<14				
			1,00E-02	0	0	<14	<14				
50			1,00E+00	0	0	<14	<14	<1,40E+02	< 2,15	≥ 5,40	
			1,00E-01	0	0	<14	<14				
			1,00E-02	0	0	<14	<14				
80			1,00E+00	0	0	<14	<14	<1,40E+02	< 2,15	≥ 5,40	
			1,00E-01	0	0	<14	<14				
			1,00E-02	0	0	<14	<14				

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Table 1.6: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Enterococcus hirae* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **15 minutes** Lab task no.: L17/0121.3

Suspension for validation (N _{vo})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Conc.: 80,00 %		
V _{c1}	61		V _{c1}	71		V _{c1}	61		V _{c1}	43	
V _{c2}	70		V _{c2}	64		V _{c2}	41		V _{c2}	52	
65,5			67,5			51			47,5		
30 ≤ \bar{x} of N _{vo} ≤ 160			\bar{x} of A(15') is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of C(15') is ≥ 0,5 x \bar{x} of N _{vo} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vb})			V _{c1}			\bar{x}			30 ≤ \bar{x} of N _{vo} ≤ 160?		
			70			75			Yes		
Test suspension (N and N _o)		N	Microbial count			V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N _o =N/10; lg N _o	7,17 ≤ N _o ≤ 7,70 ?	
		1,00E-06	>330		>330	>660	>660	3,55E+08			
		1,00E-07	38		33	38	33	8,55	7,55	Yes	
Product-concentration [%]		N	Microbial count			V _{c1}	V _{c2}	N _a = $\bar{x} \times 10$	lg N _a	lg R (lg N _o = 7,55)	
25		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,40	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				
50		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,40	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				
80		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,40	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				

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Table 1.7: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Pseudomonas aeruginosa* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **1 minute** Lab task no.: L17/0121.3

Suspension for validation (N _{vo})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Microbial count		
V _{c1}	101		V _{c1}	95		V _{c1}	58		V _{c1}	74	
V _{c2}	102		V _{c2}	67		V _{c2}	82		V _{c2}	66	
30 ≤ \bar{x} of N _{vo} ≤ 160			\bar{x} of A(1') is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of C(1') is ≥ 0,5 x \bar{x} of N _{vo} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vb})			V _{c1}			V _{c2}			30 ≤ \bar{x} of N _{vo} ≤ 160?		
			127			123			Yes		

Test suspension (N and N ₀)	N		Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70?
	1,00E-06		>330		>330		>660	>660	4,60E+08	7,66	Yes
	1,00E-07		48		44		48	44	8,66		

Product-concentration [%]	N		Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,66)
	1,00E+00		31		17		31	17	2,40E+02	2,38	5,28
	1,00E-01		1		0		<14	<14			
	1,00E-02		0		0		<14	<14			
25	1,00E+00		0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52
	1,00E-01		0		0		<14	<14			
	1,00E-02		0		0		<14	<14			
50	1,00E+00		0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52
	1,00E-01		0		0		<14	<14			
	1,00E-02		0		0		<14	<14			
80	1,00E+00		0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52
	1,00E-01		0		0		<14	<14			
	1,00E-02		0		0		<14	<14			

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Table 1.8: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Pseudomonas aeruginosa* Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **5 minutes** Lab task no.: L17/0121.3

Suspension for validation (N _{vo})				Control of test conditions (A)				Control of neutraliser (B)				Valid. of inactivation (C) Conc.: 80,00 %			
Microbial count			̄	Microbial count			̄	Microbial count			̄	Microbial count			̄
V _{c1}	101		102	V _{c1}	68		65,5	V _{c1}	58		70	V _{c1}	74		71,5
V _{c2}	102			V _{c2}	63			V _{c2}	82			V _{c2}	69		
30 ≤ ̄ of N _{v0} ≤ 160			Yes	̄ of A(5') is ≥ 0,5 x ̄ of N _{v0} ?			Yes	̄ of B is ≥ 0,5 x ̄ of N _{v0} ?			Yes	̄ of C(5') is ≥ 0,5 x ̄ of N _{v0} ?			Yes
Suspension for Validation (N _{vB})				V _{c1}		V _{c2}		̄		30 ≤ ̄ of N _{v0} ≤ 160?					
				127		123		125		Yes					

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	̄ _{wm} / lg N	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	>330		>330		>660	>660	4,60E+08	7,66	Yes
	1,00E-07	48		44		48	44	8,66		

Product- concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = ̄ x 10	lg N _a	lg R (lg N ₀ =7,66)
	25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			

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Table 1.9: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name:

Feuchte Waschhandschuhe antibakteriell

Batch:

174017

Test organism:

Pseudomonas aeruginosa

Temperature:

20°C ± 1°C

Organic load:

clean conditions

Neutraliser:

TSL-SO-SDS

Contact time:

15 minutes

Lab task no.:

L17/0121.3

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C) Conc.: 80,00 %		
Microbial count		\bar{x}	Microbial count		\bar{x}	Microbial count		\bar{x}	Microbial count		\bar{x}
V _{c1}	101	102	V _{c1}	61	58,5	V _{c1}	58	70	V _{c1}	67	67,5
V _{c2}	102		V _{c2}	56		V _{c2}	82		V _{c2}	68	
30 ≤ \bar{x} of N _{v0} ≤ 160		Yes	\bar{x} of A(15') is ≥ 0,5 x \bar{x} of N _{v0} ?		Yes	\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?		Yes	\bar{x} of C(15') is ≥ 0,5 x \bar{x} of N _{v0} ?		Yes
Suspension for Validation (N _{vB})			V _{c1}		V _{c2}		\bar{x}		30 ≤ \bar{x} of N _{v0} ≤ 160?		
			127		123		125		Yes		

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	>330		>330		>660	>660	4,60E+08	7,66	Yes
	1,00E-07	48		44		48	44	8,66		

Product-concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,66)	
	25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52
		1,00E-01	0		0		<14	<14			
		1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52	
	1,00E-01	0		0		<14	<14				
	1,00E-02	0		0		<14	<14				
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,52	
	1,00E-01	0		0		<14	<14				
	1,00E-02	0		0		<14	<14				

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Table 1.10: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Staphylococcus aureus* MRSA Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **1 minute** Lab task no.: L17/0121.1

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Valid. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Microbial count		
V _{c1}	118		V _{c1}	94		V _{c1}	160		V _{c1}	74	
V _{c2}	116		V _{c2}	128		V _{c2}	144		V _{c2}	76	
30 ≤ \bar{x} of N _{v0} ≤ 160			\bar{x} of A(1') is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of C(1') is ≥ 0,5 x \bar{x} of N _{v0} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vB})			V _{c1}			\bar{x}			30 ≤ \bar{x} of N _{v0} ≤ 160?		
			144			152			Yes		

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	>330		>330		>660	>660	4,70E+08		
	1,00E-07	58		36		58	36	8,67	7,67	Yes

Product-concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,67)
	1,00E+00	0		0		<14	<14			
	1,00E-01	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,53
25	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14			
	1,00E-01	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,53
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14			
	1,00E-01	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,53
	1,00E-02	0		0		<14	<14			

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Table 1.11: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Staphylococcus aureus* MRSA Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **5 minutes** Lab task no.: L17/0121.1

Suspension for validation (N _{vo})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Conc.: 80,00 %		
V _{c1}	118		V _{c1}	120		V _{c1}	160		V _{c1}	47	
V _{c2}	116		V _{c2}	120		V _{c2}	144		V _{c2}	66	
30 ≤ \bar{x} of N _{vo} ≤ 160			\bar{x} of A(5') is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of C(5') is ≥ 0,5 x \bar{x} of N _{vo} ?		
Yes			Yes			Yes			No		
Suspension for Validation (N _{vb})			V _{c1} V _{c2}			\bar{x}			30 ≤ \bar{x} of N _{vo} ≤ 160?		
			144 160			152			Yes		
Test suspension (N and N _o)		N	Microbial count			V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N _o =N/10; lg N _o	7,17 ≤ N _o ≤ 7,70 ?	
		1,00E-06	>330		>330	>660	>660	4,70E+08			
		1,00E-07	58		36	58	36	8,67	7,67	Yes	
Product-concentration [%]		N	Microbial count			V _{c1}	V _{c2}	N _a = $\bar{x} \times 10$	lg N _a	lg R (lg N _o = 7,67)	
25		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,53	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				
50		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,53	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				
80		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,53	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				

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Table 1.12: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Staphylococcus aureus* MRSA Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **15 minutes** Lab task no.: L17/0121.1

Suspension for validation (N ₀)			Control of test conditions (A)			Control of neutraliser (B)			Valid. of inactivation (C) Conc.: 80,00 %		
Microbial count			Microbial count			Microbial count			Microbial count		
V _{c1}	118		V _{c1}	90		V _{c1}	160		V _{c1}	52	
V _{c2}	116		V _{c2}	118		V _{c2}	144		V _{c2}	78	
30 ≤ \bar{x} of N ₀ ≤ 160			\bar{x} of A(15') is ≥ 0,5 x \bar{x} of N ₀ ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N ₀ ?			\bar{x} of C(15') is ≥ 0,5 x \bar{x} of N ₀ ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{VB})			V _{c1}			V _{c2}			30 ≤ \bar{x} of N ₀ ≤ 160?		
			144			160			Yes		
Test suspension (N and N ₀)		N	Microbial count			V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?	
		1,00E-06	>330		>330	>660	>660	4,70E+08			
		1,00E-07	58		36	58	36	8,67	7,67	Yes	
Product-concentration [%]		N	Microbial count			V _{c1}	V _{c2}	N _a = $\bar{x} \times 10$	lg N _a	lg R (lg N ₀ = 7,67)	
25		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,53	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				
50		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,53	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				
80		1,00E+00	0		0	<14	<14	<1,40E+02	< 2,15	≥ 5,53	
		1,00E-01	0		0	<14	<14				
		1,00E-02	0		0	<14	<14				

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Table 1.13: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Enterococcus faecium* VRE Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **1 minute** Lab task no.: L17/0121.1

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Valid. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Conc.: 80,00 %		
V _{c1}	47		V _{c1}	60		V _{c1}	86		V _{c1}	22	
V _{c2}	45		V _{c2}	47		V _{c2}	130		V _{c2}	28	
30 ≤ \bar{x} of N _{v0} ≤ 160			\bar{x} of A(1') is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of C(1') is ≥ 0,5 x \bar{x} of N _{v0} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vB})			V _{c1} V _{c2}			\bar{x} 30 ≤ \bar{x} of N _{v0} ≤ 160?			Yes		
			60 70			65					
Test suspension (N and N ₀)		N	Microbial count			V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?	
		1,00E-06	164		228	164	228	1,97E+08	7,30	Yes	
		1,00E-07	19		23	19	23	8,30			
Product-concentration [%]		N	Microbial count			V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,30)	
25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15	
	1,00E-01	0		0		<14	<14				
	1,00E-02	0		0		<14	<14				
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15	
	1,00E-01	0		0		<14	<14				
	1,00E-02	0		0		<14	<14				
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15	
	1,00E-01	0		0		<14	<14				
	1,00E-02	0		0		<14	<14				

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Table 1.14: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Enterococcus faecium* VRE Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **5 minutes** Lab task no.: L17/0121.1

Suspension for validation (N _{vo})				Control of test conditions (A)				Control of neutraliser (B)				Vali. of inactivation (C) Conc.: 80,00 %							
Microbial count			\bar{x}	Microbial count			\bar{x}	Microbial count			\bar{x}	Microbial count			\bar{x}				
V _{c1}	47		46	V _{c1}	48		47,5	V _{c1}	86		108	V _{c1}	28		25,5				
V _{c2}	45			V _{c2}	47			V _{c2}	130			V _{c2}	23						
30 ≤ \bar{x} of N _{vo} ≤ 160				Yes	\bar{x} of A(5') is ≥ 0,5 x \bar{x} of N _{vo} ?				Yes	\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?				Yes	\bar{x} of C(5') is ≥ 0,5 x \bar{x} of N _{vo} ?				Yes
Suspension for Validation (N _{vb})				V _{c1}		V _{c2}		\bar{x}		30 ≤ \bar{x} of N _{vo} ≤ 160?									
				60		70		65		Yes									

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} /$ lg N	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	164		228		164	228	1,97E+08	7,30	Yes
	1,00E-07	19		23		19	23	8,30		

Product-concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ =7,30)
	25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			

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Table 1.15: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Enterococcus faecium* VRE Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TL-SO
Contact time: **15 minutes** Lab task no.: L17/0121.1

Suspension for validation (N _{vo})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Microbial count		
V _{c1}	47		V _{c1}	62		V _{c1}	86		V _{c1}	38	
V _{c2}	45		V _{c2}	55		V _{c2}	130		V _{c2}	68	
30 ≤ \bar{x} of N _{vo} ≤ 160			\bar{x} of A(15') is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			\bar{x} of C(15') is ≥ 0,5 x \bar{x} of N _{vo} ?		
Yes			Yes			Yes			Yes		
Suspension for Validation (N _{vb})			V _{c1}			V _{c2}			30 ≤ \bar{x} of N _{vo} ≤ 160?		
			60			70			Yes		
Test suspension (N and N ₀)		N		Microbial count		V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?	
		1,00E-06		164		164	228	1,97E+08	7,30	Yes	
		1,00E-07		19		19	23	8,30			
Product-concentration [%]		N		Microbial count		V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,30)	
25		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				
50		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				
80		1,00E+00		0		<14	<14	<1,40E+02	< 2,15	≥ 5,15	
		1,00E-01		0		<14	<14				
		1,00E-02		0		<14	<14				

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Table 1.16: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name:	Feuchte Waschhandschuhe antibakteriell	Batch:	174017
Test organism:	<i>Klebsiella pneumoniae</i> ESBL	Temperature:	20°C ± 1°C
Organic load:	clean conditions	Neutraliser:	TSL-SO-SDS
Contact time:	1 minute	Lab task no.:	L17/0121.3

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C)		
Microbial count			Microbial count			Microbial count			Conc.: 80,00 %		
V _{c1}	60		V _{c1}	52		V _{c1}	49		V _{c1}	53	
V _{c2}	70		V _{c2}	45		V _{c2}	44		V _{c2}	47	
65			48,5			46,5			50		
30 ≤ \bar{x} of N _{v0} ≤ 160			\bar{x} of A(1') is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?			\bar{x} of C(1') is ≥ 0,5 x \bar{x} of N _{v0} ?		
Yes			Yes			Yes			Yes		

Suspension for Validation (N _{vB})			V _{c1}			V _{c2}			\bar{x}			30 ≤ \bar{x} of N _{v0} ≤ 160?		
			62			57			59,5			Yes		

Test suspension (N and N ₀)		N		Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} / \lg N$	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
		1,00E-06		>330		>330		>660	>660	3,00E+08		
		1,00E-07		26		34		26	34	8,48	7,48	Yes

Product-concentration [%]		N		Microbial count				V _{c1}	V _{c2}	N _a = $\bar{x} \times 10$	lg N _a	lg R (lg N ₀ = 7,48)
		1,00E+00		37		31		37	31	3,40E+02	2,53	4,95
		1,00E-01		2		5		<14	<14			
		1,00E-02		0		0		<14	<14			
		1,00E+00		0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,33
		1,00E-01		0		0		<14	<14			
		1,00E-02		0		0		<14	<14			
		1,00E+00		0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,33
		1,00E-01		0		0		<14	<14			
		1,00E-02		0		0		<14	<14			

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Table 1.17: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Klebsiella pneumoniae* ESBL Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **5 minutes** Lab task no.: L17/0121.3

Suspension for validation (N _{v0})			Control of test conditions (A)			Control of neutraliser (B)			Vali. of inactivation (C) Conc.: 80,00 %		
Microbial count		\bar{x}	Microbial count		\bar{x}	Microbial count		\bar{x}	Microbial count		\bar{x}
V _{c1}	60	65	V _{c1}	68	65,5	V _{c1}	49	46,5	V _{c1}	74	71,5
V _{c2}	70		V _{c2}	63		V _{c2}	44		V _{c2}	69	
30 ≤ \bar{x} of N _{v0} ≤ 160		Yes	\bar{x} of A(5') is ≥ 0,5 x \bar{x} of N _{v0} ?		Yes	\bar{x} of B is ≥ 0,5 x \bar{x} of N _{v0} ?		Yes	\bar{x} of C(5') is ≥ 0,5 x \bar{x} of N _{v0} ?		Yes
Suspension for Validation (N _{vb})			V _{c1}		V _{c2}	\bar{x}		30 ≤ \bar{x} of N _{v0} ≤ 160?			
			62		57	59,5		Yes			

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} /$ lg N	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	>330		>330		>660	>660	3,00E+08	7,48	Yes
	1,00E-07	26		34		26	34	8,48		

Product- concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,48)
25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,33
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,33
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,33
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			

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Table 1.18: Validation, Controls and Evaluation (DIN EN 13727:2015*)

Product name: **Feuchte Waschhandschuhe antibakteriell** Batch: 174017
Test organism: *Klebsiella pneumoniae* ESBL Temperature: 20°C ± 1°C
Organic load: clean conditions Neutraliser: TSL-SO-SDS
Contact time: **15 minutes** Lab task no.: L17/0121.1

Suspension for validation (N _{vo})				Control of test conditions (A)				Control of neutraliser (B)				Vali. of inactivation (C) Conc.: 80,00 %			
Microbial count			\bar{x}	Microbial count			\bar{x}	Microbial count			\bar{x}	Microbial count			\bar{x}
V _{c1}	65		64	V _{c1}	50		51	V _{c1}	58		70	V _{c1}	34		34
V _{c2}	63			V _{c2}	52			V _{c2}	82			V _{c2}	34		
30 ≤ \bar{x} of N _{vo} ≤ 160			Yes	\bar{x} of A(15') is ≥ 0,5 x \bar{x} of N _{vo} ?			Yes	\bar{x} of B is ≥ 0,5 x \bar{x} of N _{vo} ?			Yes	\bar{x} of C(15') is ≥ 0,5 x \bar{x} of N _{vo} ?			Yes
Suspension for Validation (N _{vb})				V _{c1}		V _{c2}		\bar{x}		30 ≤ \bar{x} of N _{vo} ≤ 160?					
				65		66		65,5		Yes					

Test suspension (N and N ₀)	N	Microbial count				V _{c1}	V _{c2}	$\bar{x}_{wm} /$ lg N	N ₀ =N/10; lg N ₀	7,17 ≤ N ₀ ≤ 7,70 ?
	1,00E-06	204		272		204	272	2,43E+08	7,39	Yes
	1,00E-07	36		23		36	23	8,39		

Product- concentration [%]	N	Microbial count				V _{c1}	V _{c2}	N _a = \bar{x} x 10	lg N _a	lg R (lg N ₀ = 7,39)
25	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,24
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
50	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,24
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			
80	1,00E+00	0		0		<14	<14	<1,40E+02	< 2,15	≥ 5,24
	1,00E-01	0		0		<14	<14			
	1,00E-02	0		0		<14	<14			

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Name of Product **Feuchte Waschhandschuhe antibakteriell**
Method DIN EN 13727:2015*

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4 List of Abbreviations

A	=	control of test conditions
B	=	control of neutraliser
C	=	validation of method at highest product concentration
N	=	test suspension
N _{vo}	=	suspension for validation
n.t.	=	not tested
N ₀	=	microbial count of test suspension N / 10 (microbial count at time index 0)
R	=	germ reduction in log ₁₀ -steps
V _c	=	viable microbial count per ml
\bar{x}	=	weighted mean of N

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