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Coolhands BV.
T.a.v. P. Leering
Professor van Vlotenweg 3
2061 EB Bloemendaal

Subject
Screening test

Dear Mr. Leering,

Please find enclosed the results of the disinfection screening tests TNO performed with your product on two bacteria, *Staphylococcus aureus* ATCC 6538 and *Pseudomonas aeruginosa* ATCC 15442. The product was received from Coolhands BV on 12th of April 2016. The product was tested in three concentrations (0.5%, 1.5% and 3%) and during three different contact times (1 min., 5 min. and 10 min).

The screening test was performed applying the exposure condition described in NEN-EN 1276 "Chemical disinfectants and antiseptics - Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics used in food, industrial, domestic and institutional areas - Test method and requirements (phase 2, step 1)" without the validation tests. The requirements for a disinfectant is showing a reduction > 5 Log units for the bacteria in the test. The results of the screening test are shown in Table 1.

From the results we conclude:

1. The product shows bactericidal activity on *Staphylococcus aureus* at a concentration of 0.5%, 1.5% and 3% (v/v) in 1 minute exposure time in distilled water at 20°C.
2. The product shows bactericidal activity on *Pseudomonas aeruginosa* at a concentration of 1.5% (v/v) and 3% (v/v) in distilled water in 1 minute exposure time at 20°C and in 5 minutes exposure time at a concentration of 0.5% (v/v) in distilled water at 20°C.

The test results are valid for this test subject only.

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Date
21 April 2016

Our reference
MSB-2016-0100296157 HEM

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Project number
060.20946/01.39.01

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Trade register number 27376655.

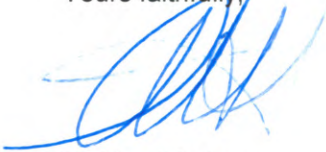
Since the product has achieved the target minimum reduction of 5 log units, this is encouraging for further work which is necessary toward registration of the product as a disinfectant for specific applications.

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Yours faithfully,



M. Heerikhuisen
Project manager Microbiology

Date
21 April 2016

Table 1. Test results (bactericidal suspension test)

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Test organism: Staphylococcus aureus ATCC 6538
Incubation temperature: 37°C

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Test suspension (N and No):	N	Vc1	Vc1	$Xg(wm) = 5,7 \times 10^8$ $\log N = 8.76$ $No = N/10$ $\log No = 7.76$ $7,17 \leq \log No \leq 7,70?$ yes <input type="checkbox"/> no <input checked="" type="checkbox"/> V
	10^{-6}	>300	>300	
	10^{-7}	65	49	

Concentration of the product	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
0,5%	10^0	<14	<14	<14	1.15	6.61	1	10^0	<14	<14	<14	1.15	6.61	5	10^0	<14	<14	<14	1.15	6.61	10
	10^{-1}							10^{-1}							10^{-1}						
	10^{-2}							10^{-2}							10^{-2}						
	10^{-3}							10^{-3}							10^{-3}						

Concentration of the product	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
1,5%	10^0	<14	<14	<14	1.15	6.61	1	10^0	<14	<14	<14	1.15	6.61	5	10^0	<14	<14	<14	1.15	6.61	10
	10^{-1}							10^{-1}							10^{-1}						
	10^{-2}							10^{-2}							10^{-2}						
	10^{-3}							10^{-3}							10^{-3}						

Concentration of the product	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
3%	10^0	<14	<14	<14	1.15	6.61	1	10^0	<14	<14	<14	1.15	6.61	5	10^0	<14	<14	<14	1.15	6.61	10
	10^{-1}							10^{-1}							10^{-1}						
	10^{-2}							10^{-2}							10^{-2}						
	10^{-3}							10^{-3}							10^{-3}						

Legend

- N = number of cfu/ml of the bacterial test suspension
- N_0 = number of cfu/ml in the test suspension at the begin of the exposure time
- R = reduction of viability
- Vc = viable count
- Na = number of cfu/ml in the test mixture at the end of the exposure time

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Table 1. Test results (bactericidal suspension test)

Test organism: *Pseudomonas aeruginosa* ATCC 15442
Incubation temperature: 37°C

Test suspension (N and No):	N	Vc1	Vc1	$Xg(wm) = 7,5 \times 10^8$ $\log N = 8.87$ $No = N/10$ $\log No = 7.87$ $7,17 \leq \log No \leq 7,70?$ yes <input type="checkbox"/> no <input type="checkbox"/> V
	10^{-6}	>300	>300	
	10^{-7}	69	81	

Concentration of the product	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
0,5%	10^0	>330	>330	169	3.23	4.64	1
	10^{-1}	169	168				
	10^{-2}	17	18				
	10^{-3}						

Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
10^0	110	116	115	2.06	5.81	5
10^{-1}	14	12				
10^{-2}						
10^{-3}						

Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
10^0	35	39	37	1.57	6.3	10
10^{-1}						
10^{-2}						
10^{-3}						

Concentration of the product	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
1,5%	10^0	<14	<14	<14	1.15	6.72	1
	10^{-1}						
	10^{-2}						
	10^{-3}						

Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
10^0	<14	<14	<14	1.15	6.72	5
10^{-1}						
10^{-2}						
10^{-3}						

Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
10^0	<14	<14	<14	1.15	6.72	10
10^{-1}						
10^{-2}						
10^{-3}						

Concentration of the product	Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
3%	10^0	<14	<14	<14	1.15	6.72	1
	10^{-1}						
	10^{-2}						
	10^{-3}						

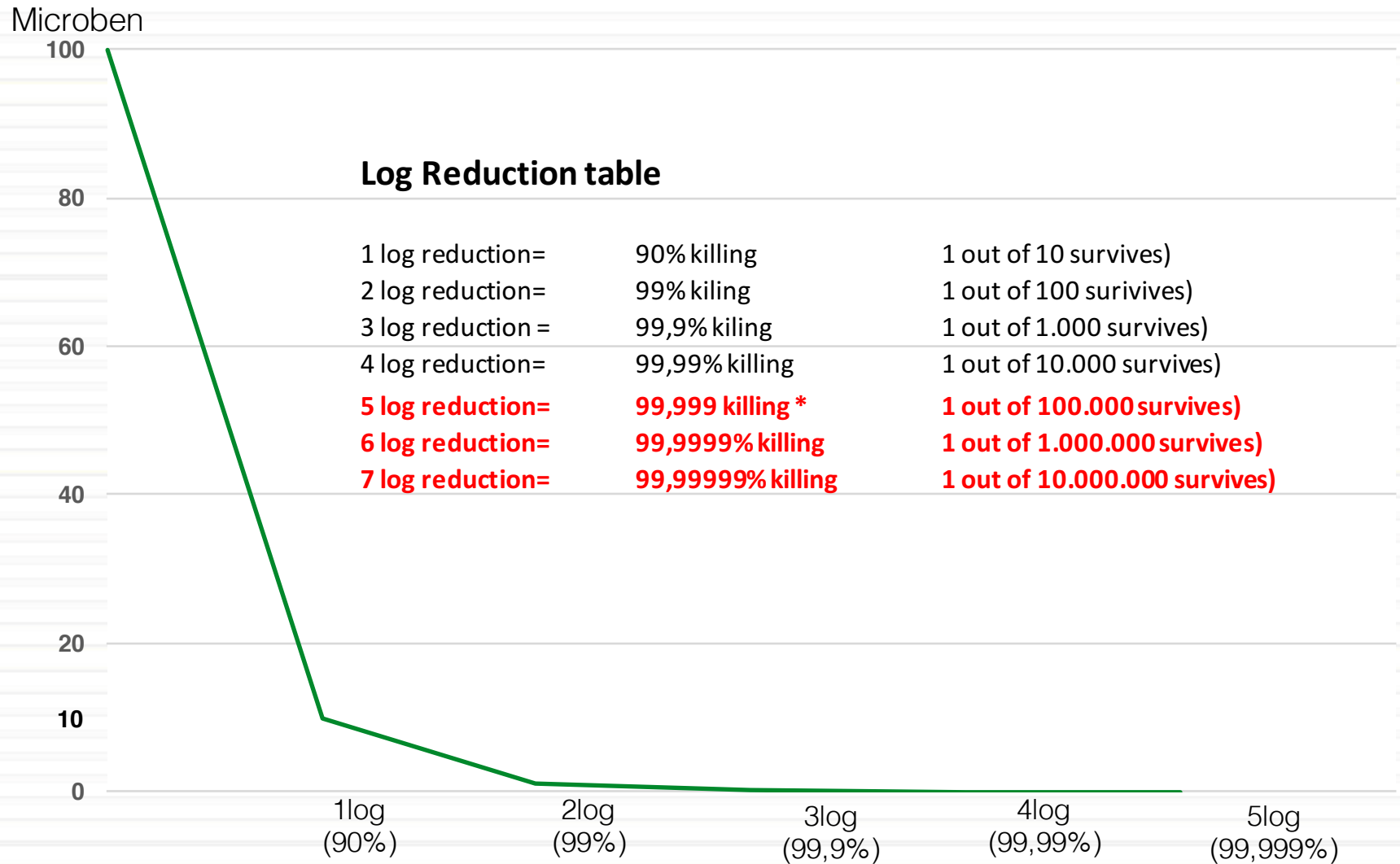
Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
10^0	<14	<14	<14	1.15	6.72	5
10^{-1}						
10^{-2}						
10^{-3}						

Dilution step	Vc1	Vc2	Na = (Xg(wm))	lg Na	lg R (lg No - lg Na)	Contact time (min)
10^0	<14	<14	<14	1.15	6.72	10
10^{-1}						
10^{-2}						
10^{-3}						

Legend

- N = number of cfu/ml of the bacterial test suspension
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- R = reduction of viability
- Vc = viable count
- Na = number of cfu/ml in the test mixture at the end of the exposure time

Log Reduction in the disinfection sector



*** 5 log reduction- minimum requirement hospitals**

Screening test performed by: **TNO** innovation for life

Result on bacteria *Staphylococcus aureus*

Concentration PA	Contact time & Log Reduction		
	1 min	5 min	10 min
0,5%	6,61	6,61	6,61
1,5%	6,61	6,61	6,61
3%	6,61	6,61	6,61



S. Aureus is a common cause of skin infections such as abscesses, respiratory infections such as sinusitis, and food poisoning.

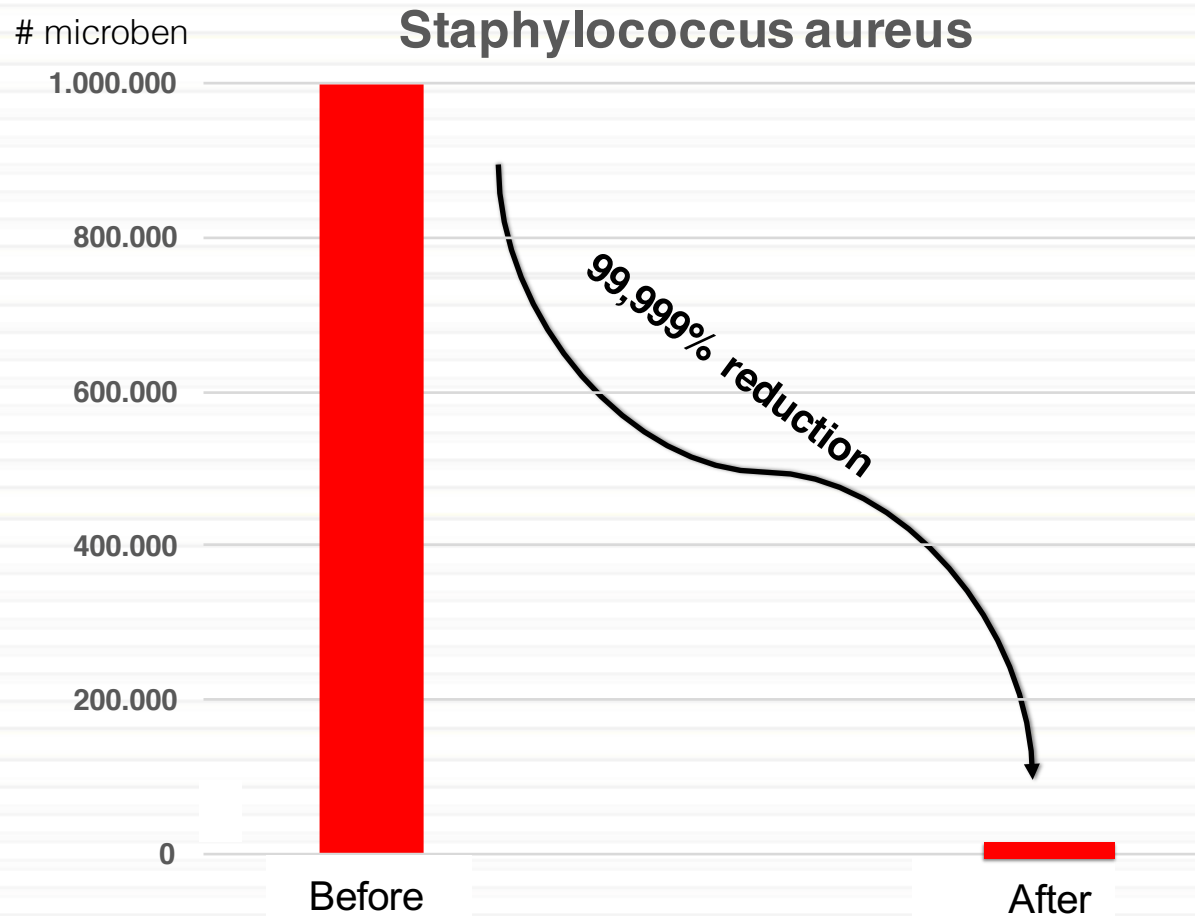
Result on bacteria *Pseudomonas aeruginosa*

Concentration PA	Contact time & Log Reduction		
	1 min	5 min	10 min
0,5%	4,64	5,81	6,3
1,5%	6,72	6,72	6,72
3%	6,72	6,72	6,72

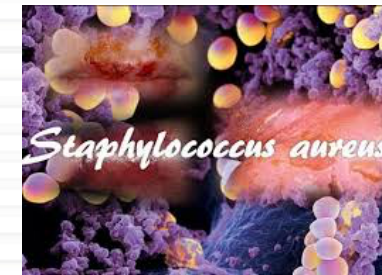


P. aeruginosa typically infects the airway, urinary tract, burns, and wounds, and also causes other blood infections.

Coolhands wipe: Test bacteriostatic performance



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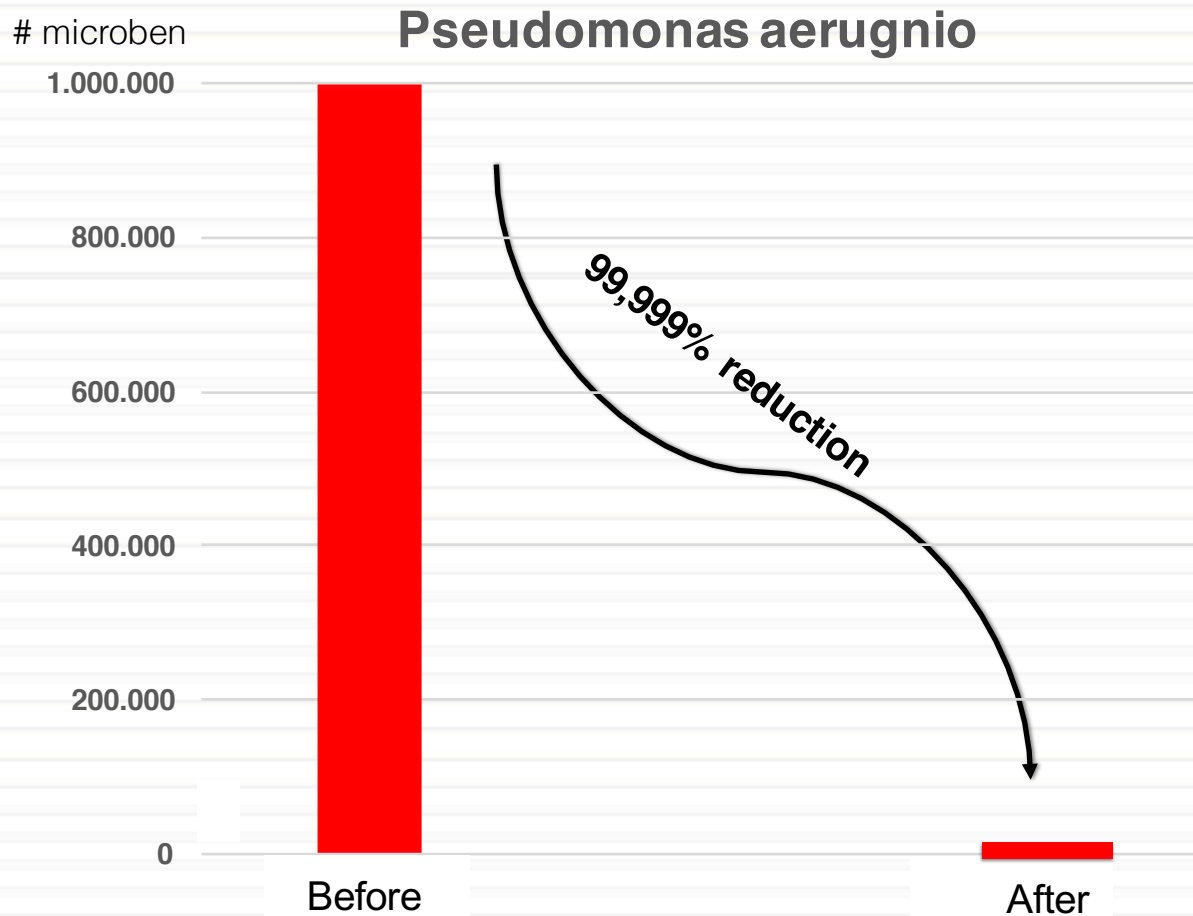
[S. Aureus is a common cause of skin infections such as abscesses, respiratory infections such as sinusitis, and food poisoning.](#)

TNO test executed April 2016, 0,5% Path Away and contact time 5 minutes. Various concentrations and contact times were tested.

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hygiene at hand

Bacteriostatic and Biodegradable

Coolhands wipe: Test bacteriostatic performance



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[P. aeruginosa typically infects the airway, urinary tract, burns, and wounds, and also causes other blood infections.](#)

TNO test executed April 2016, 0,5% Path Away and contact time 5 minutes. Various concentrations and contact times were tested.

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