Abbott Analytical

Consulting Scientists to the Disinfectant Industry

Certificate of Analysis

Sample(s):	Comparison of Cleanitise Concentrate vs Chlorine Tablets (Sodium hypochlorite)		
Received from:	Cleanitise Ltd. 14 Cherry Grove, Sketty, Swansea, SA2 8AS		
Date received:	16 May 2011	**Date tested:**	1 June 2011
Certificate no:	11E.040-vsCT.CLE	**Certificate date:**	6 June 2011
Sample ref:	11E/040	**Page:**	1 of 3
Analysis required:	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)		

Product stored at:	Room temperature
Active substance:	Not declared
Test conditions:	Dirty
Interfering substance:	3.0g/l bovine albumin
Product test concentration:	Cleanitise Concentrate: 20% v/v Chlorine Tablets: 50ppm & 20ppm
Product diluent used during test:	Sterile hard water 300mg/l $CaCO_3$
Contact time:	5 minutes
Test temperature:	20°C ± 0.5°C
Neutralising solution:	Cleanitise Concentrate: 30g/l polysorbate 80, 3g/l lecithin, 1g/l histidine, 1g/l cysteine Chlorine Tablets: 5% Sodium thiosulpahte
Incubation temperature:	37°C ± 1°C
Identification of bacterial strain(s) used:	*Pseudomonas aeruginosa* NCIMB 10421 *Staphylococcus aureus* NCTC 10788

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Test results: Activity against Pseudomonas aeruginosa

Test Product	**Cleanitise Concentrate 20%**		**Free Chlorine 50ppm**		**Free Chlorine 20ppm**	
Validation Suspension	Vc1 200	Vc2 154	Vc1 200	Vc2 154	Vc1 200	Vc2 154
(Nv$_o$)	ẍ = 177		ẍ = 177		ẍ = 177	
Experimental Control	Vc1 132	Vc2 116	Vc1 128	Vc2 146	Vc1 128	Vc2 146
(A)	ẍ = 124	≥ 0.5Nv$_o$	ẍ = 137	≥ 0.5Nv$_o$	ẍ = 137	≥ 0.5Nv$_o$
Neutraliser Control	Vc1 124	Vc2 148	Vc1 118	Vc2 122	Vc1 118	Vc2 122
(B)	ẍ = 136	≥ 0.5Nv$_o$	ẍ = 120	≥ 0.5Nv$_o$	ẍ = 120	≥ 0.5Nv$_o$
Method Validation	Vc1 138	Vc2 106	Vc1 134	Vc2 106	Vc1 134	Vc2 106
(C)	ẍ = 122	≥ 0.5Nv$_o$	ẍ = 120	≥ 0.5Nv$_o$	ẍ = 120	≥ 0.5Nv$_o$
Test Suspension 10^{-6}	Vc1 >330	Vc2 324	Vc1 >330	Vc2 324	Vc1 >330	Vc2 324
10^{-7}	Vc1 38	Vc2 29	Vc1 38	Vc2 29	Vc1 38	Vc2 29
(N)	ẅ = 3.26 x 10^8		ẅ = 3.26 x 10^8		ẅ = 3.26 x 10^8	
(N$_o$ = 0.1N)	lg N = 8.51		lg N = 8.51		lg N = 8.51	
	lg N$_o$ = 7.51		lg N$_o$ = 7.51		lg N$_o$ = 7.51	
Results 10^0	Vc1 <14	Vc2 <14	Vc1 <14	Vc2 <14	Vc1 27	Vc2 18
(Na)	10ẍ < 140		10ẍ < 140		10ẍ = 230	
	lg Na < 2.15		lg Na < 2.15		lg Na = 2.36	
(R)	lg R > 5.37		lg R > 5.37		lg R = 5.15	
Pass: lg R ≥ 5	PASS		PASS		PASS	

Vc = plate count per ml

ẍ = average of Vc1 and Vc2

ẅ = weighted mean of ẍ

R = reduction (lg R = lg N$_o$ – lg Na)

Conclusion:

This batch of Cleanitise Concentrate, when diluted to 20% v/v, is more effective than 20ppm free Chlorine, and as effective as 50ppm free Chlorine, in 5 minutes at 20°C under dirty conditions against the reference organism detailed.

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Test results: Activity against Stpahylococcus aureus

Test Product	Cleanitise Concentrate 20%		Free Chlorine 50ppm		Free Chlorine 20ppm	
Validation Suspension	Vc1 164	Vc2 150	Vc1 164	Vc2 150	Vc1 164	Vc2 150
(Nv_o)	$\ddot{x}$ = 157		$\ddot{x}$ = 157		$\ddot{x}$ = 157	
Experimental Control	Vc1 134	Vc2 128	Vc1 128	Vc2 146	Vc1 128	Vc2 146
(A)	$\ddot{x}$ = 131	≥ 0.5Nv_o	$\ddot{x}$ = 137	≥ 0.5Nv_o	$\ddot{x}$ = 137	≥ 0.5Nv_o
Neutraliser Control	Vc1 152	Vc2 116	Vc1 118	Vc2 122	Vc1 118	Vc2 122
(B)	$\ddot{x}$ = 134	≥ 0.5Nv_o	$\ddot{x}$ = 120	≥ 0.5Nv_o	$\ddot{x}$ = 120	≥ 0.5Nv_o
Method Validation	Vc1 112	Vc2 138	Vc1 134	Vc2 106	Vc1 134	Vc2 106
(C)	$\ddot{x}$ = 125	≥ 0.5Nv_o	$\ddot{x}$ = 120	≥ 0.5Nv_o	$\ddot{x}$ = 120	≥ 0.5Nv_o
Test Suspension 10^{-6}	Vc1 >330	Vc2 328	Vc1 >330	Vc2 328	Vc1 >330	Vc2 328
10^{-7}	Vc1 30	Vc2 41	Vc1 30	Vc2 41	Vc1 30	Vc2 41
(N)	$\ddot{w}$ = 3.33 x 10^8		$\ddot{w}$ = 3.33 x 10^8		$\ddot{w}$ = 3.33 x 10^8	
	lg N = 8.52		lg N = 8.52		lg N = 8.52	
(N_o = 0.1N)	lg N_o = 7.52		lg N_o = 7.52		lg N_o = 7.52	
Results 10^0	Vc1 <14	Vc2 <14	Vc1 <14	Vc2 <14	Vc1 15	Vc2 19
(Na)	$10^{\ddot{x}}$ < 140		$10^{\ddot{x}}$ < 140		$10^{\ddot{x}}$ = 170	
	lg Na < 2.15		lg Na < 2.15		lg Na = 2.23	
(R)	lg R > 5.38		lg R > 5.38		lg R = 5.29	
Pass: lg R ≥ 5	PASS		PASS		PASS	

Vc = plate count per ml
$\ddot{x}$ = average of Vc1 and Vc2
$\ddot{w}$ = weighted mean of $\ddot{x}$
R = reduction (lg R = lg N_o – lg Na)

Conclusion:

This batch of Cleanitise Concentrate, when diluted to 20% v/v, is more effective than 20ppm free Chlorine, and as effective as 50ppm free Chlorine, in 5 minutes at 20°C under dirty conditions against the reference organism detailed.

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