Abbott Analytical

Consulting Scientists to the Disinfectant Industry

15 February 2010

Busy Cleaning Ltd
Charter Court,
Phoenix Way,
Swansea,
SA7 9FS

For attention of Chris Luxton

Dear Chris,

Further to our telephone conversation last week I write to confirm that the product GreenGold shows good bactericidal activity after 30 minutes contact as shown by the results of EN 1276 testing.

Residual activity on for example hospital window ledges or nursing home kitchen tables would depend entirely on the amount of activity in these areas. For example cleaning of window ledges tends to be a daily chore and depending, on the location may or may not have contamination due to human activity interfering with the residual active component of the product. In those areas where human intervention is limited it is possible that GreenGold will remain active for some time following application. In ledges, for example close to beds, it is likely that human contamination will be considerably higher and GreenGold may only remain active for an hour or so.

In the kitchen situation the residual activity of GreenGold will be reduced by the organic matter from the food being prepared on the surface and it is highly recommended that surfaces be cleaned after each period of use and certainly between say meat preparation and vegetable preparation. There is no evidence to suggest that there is any residual left behind which will cause 'taint' problems.

The sample of GreenGold was tested at 5% dilution and use of the concentrate undiluted will not only give a better kill of micro-organisms due to the extra active component present but will also act over a longer time period as more active will remain on the surface after drying.

Yours sincerely,

D C Watson

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Certificate of Analysis

Sample(s):	One sample of GreenGold		
Received from:	Busy Cleaning, Charter Court, Phoenix Way, Swansea, SA7 9FS		
Date received:	11 February 2010	**Date tested:**	12 February 2010
Certificate no:	10B.067B-KR.CLE	**Certificate date:**	15 February 2010
Sample ref:	10B/067	**Page:**	2 of 4
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'
Product test concentration:	20% v/v
Product diluent used during test:	Sterile hard water 300mg/l $CaCO_3$
Contact times:	30 seconds & 1 minute
Test temperature:	20°C ± 0.5°C
Interfering substance:	3g/l bovine albumin
Neutralising solution:	30g/l polysorbate 80, 3g/l lecithin, 1g/l histidine, 1g/l cysteine
Incubation temperature:	37°C ± 1°C
Identification of bacterial strain(s) used:	*Pseudomonas aeruginosa* ATCC 15442 *Escherichia coli* NCTC 10418 *Staphylococcus aureus* NCTC 10788 *Enterococcus hirae* NCIMB 8191

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Test results: (30 seconds)

Test Organism	*Pseudomonas aeruginosa*		*Escherichia coli*		*Staphylococcus aureus*		*Enterococcus hirae*	
10^{-1} Validation Suspension	Vc1 214	Vc2 236	Vc1 414	Vc2 508	Vc1 566	Vc2 614	Vc1 614	Vc2 538
	Nv0 2.25 x10^{3}		Nv0 4.61 x10^{3}		Nv0 5.90 x10^{3}		Nv0 5.76 x10^{3}	
10^{0} Experimental Control	Vc1 158	Vc2 176	Vc1 376	Vc2 342	Vc1 482	Vc2 504	Vc1 502	Vc2 496
	A 1.67 x10^{2}		A 3.59 x10^{2}		A 4.93 x10^{2}		A 4.99 x10^{2}	
10^{0} Neutraliser Control	Vc1 182	Vc2 134	Vc1 336	Vc2 314	Vc1 476	Vc2 438	Vc1 488	Vc2 534
	B 1.58 x10^{2}		B 3.25 x10^{2}		B 4.57 x10^{2}		B 5.11 x10^{2}	
10^{0} Method Validation	Vc1 124	Vc2 136	Vc1 328	Vc2 350	Vc1 422	Vc2 488	Vc1 472	Vc2 552
	C 1.30 x10^{2}		C 3.39 x10^{2}		C 4.55 x10^{2}		C 5.12 x10^{2}	
10^{-6} Test Suspension	Vc1 116	Vc2 152	Vc1 346	Vc2 412	Vc1 488	Vc2 536	Vc1 544	Vc2 572
10^{-7} Test Suspension	Vc1 17	Vc2 21	Vc1 46	Vc2 50	Vc1 62	Vc2 58	Vc1 60	Vc2 43
	N 1.62 x10^{8}		N 4.30 x10^{8}		N 5.56 x10^{8}		N 5.37 x10^{8}	
10^{-2} Results	Vc1 0	Vc2 0	Vc1 2	Vc2 1	Vc1 5	Vc2 8	Vc1 8	Vc2 11
	Na < 1.00 x10^{2} R > 1.62 x10^{6}		Na 1.50 x10^{2} R 2.86 x10^{6}		Na 6.50 x10^{2} R 8.55 x10^{5}		Na 9.50 x10^{2} R 5.65 x10^{5}	
Log Reduction	> 6.21		6.46		5.93		5.75	

Vc = Viable count
Nv = cfu/ml in the validation suspension
N = cfu/ml in the test suspension
Na = cfu/ml in the test mixture
R = Reduction in viability

Conclusion:

This batch of GreenGold, when diluted to 20% v/v, passes the requirements of EN 1276 for bactericidal activity in 30 seconds at 20°C under 'dirty' conditions against the reference organisms detailed.

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Test results: (1 minute)

Test Organism	*Pseudomonas aeruginosa*		*Escherichia coli*		*Staphylococcus aureus*		*Enterococcus hirae*	
10^{-1} Validation Suspension	Vc1 214	Vc2 236	Vc1 414	Vc2 508	Vc1 566	Vc2 614	Vc1 614	Vc2 538
	Nv0 2.25 x10^3		Nv0 4.61 x10^3		Nv0 5.90 x10^3		Nv0 5.76 x10^3	
10^{0} Experimental Control	Vc1 158	Vc2 176	Vc1 376	Vc2 342	Vc1 482	Vc2 504	Vc1 502	Vc2 496
	A 1.67 x10^2		A 3.59 x10^2		A 4.93 x10^2		A 4.99 x10^2	
10^{0} Neutraliser Control	Vc1 182	Vc2 134	Vc1 336	Vc2 314	Vc1 476	Vc2 438	Vc1 488	Vc2 534
	B 1.58 x10^2		B 3.25 x10^2		B 4.57 x10^2		B 5.11 x10^2	
10^{0} Method Validation	Vc1 124	Vc2 136	Vc1 328	Vc2 350	Vc1 422	Vc2 488	Vc1 472	Vc2 552
	C 1.30 x10^2		C 3.39 x10^2		C 4.55 x10^2		C 5.12 x10^2	
10^{-6} Test Suspension	Vc1 116	Vc2 152	Vc1 346	Vc2 412	Vc1 488	Vc2 536	Vc1 544	Vc2 572
10^{-7}	Vc1 17	Vc2 21	Vc1 46	Vc2 50	Vc1 62	Vc2 58	Vc1 60	Vc2 43
	N 1.62 x10^8		N 4.30 x10^8		N 5.56 x10^8		N 5.37 x10^8	
10^{-2} Results	Vc1 0	Vc2 0	Vc1 0	Vc2 0	Vc1 0	Vc2 0	Vc1 0	Vc2 0
	Na < 1.00 x10^2 R > 1.62 x10^6		Na < 1.00 x10^2 R > 4.30 x10^6		Na < 1.00 x10^2 R > 5.56 x10^6		Na < 1.00 x10^2 R > 5.37 x10^6	
Log Reduction	> 6.21		> 6.63		> 6.75		> 6.73	

Vc = Viable count
Nv = cfu/ml in the validation suspension
N = cfu/ml in the test suspension
Na = cfu/ml in the test mixture
R = Reduction in viability

Conclusion:

This batch of GreenGold, when diluted to 20% v/v, passes the requirements of EN 1276 for bactericidal activity in 1 minute at 20°C under 'dirty' conditions against the reference organisms detailed.

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