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Campden BRI
food and drink innovation

Investigation into the effectiveness of Sagewash Sanitiser when tested in accordance with BS EN 1276:1997 - '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'
(MA-FH-004)

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SUMMARY

When tested in accordance with the method of BS EN 1276:1997, Sagewash Sanitiser (FH/118555/1b and FH/118555/1c) tested neat (~250 ppm), possesses bactericidal activity in 5 minutes at 20°C under clean (0.03% bovine albumen final concentration in the test) and dirty (0.3% bovine albumen final concentration in the test) conditions against: *Escherichia coli* and the additional test strains: *Escherichia coli* O157:H7 and *Salmonella* Typhimurium.

When tested in accordance with the method of BS EN 1276:1997, Sagewash Sanitiser (FH/118555/1b and FH/118555/1c) tested neat (~250 ppm), possesses bactericidal activity in 5 minutes at 20°C under clean (0.03% bovine albumen final concentration in the test) conditions against: *Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae* and the additional test strains: *Listeria monocytogenes* and Methicillin Resistant *Staphylococcus aureus*.

When tested in accordance with the method of BS EN 1276:1997, Sagewash Sanitiser (FH/118555/1b and FH/118555/1c) tested neat (~250 ppm), does not possess bactericidal activity in 5 minutes at 20°C under dirty (0.3% bovine albumen final concentration in the test) conditions against: *Staphylococcus aureus, Pseudomonas aeruginosa, Enterococcus hirae* and the additional test strains: *Listeria monocytogenes* and Methicillin Resistant *Staphylococcus aureus*.

INTRODUCTION

Sage Systems requested the Food Hygiene Department of Campden Technology Limited (Campden BRI) to assess the efficacy of Sagewash Sanitiser for bactericidal activity in accordance with BS EN 1276:1997 - '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' (MA-FH-004).

METHOD

For the bactericidal tests, BS EN 1276:1997 - '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' (MA-FH-004) was followed.

NOTES

The test was carried out at only 2 concentrations: neat (~250 ppm) and 1:10 (~25 ppm), under clean and dirty conditions.

Bactericidal activity in general use conditions

a)	IDENTIFICATION OF THE TEST LABORATORY	**Food Hygiene Department, Campden BRI**
b)	IDENTIFICATION OF THE SAMPLE	**FH/118555/1b, FH/118555/1c**
	Name of the product	**Sagewash Sanitiser**
	Batch number	**Not supplied**
	Manufacturer	**Sage Systems**
	Condition on receipt	**OK**
	Date of delivery	**22.09.09**
	Storage conditions	**Food Hygiene Sample Store, Dark, Ambient**
	Product diluent recommended by the manufacturer for use	**N/A**
	Active substance(s) and its (their) concentrations(optional)	**N/A**
c)	EXPERIMENTAL CONDITIONS	
	Period of analysis	**December 2009**
	Product diluent used during the test	**Water of Standard Hardness (WSH)**
	Product test concentrations	**Neat (~250 ppm) , 1:10 (~25 ppm)**
	Appearance of diluted product	**Clear**
	Contact time	**Bactericidal Tests – 5 minutes**
	Test temperature	**Bactericidal Tests - 20°C**
	Interfering substance	**Bovine Serum Albumin @ 0.03% ("CLEAN") and 0.30% ("DIRTY") in Sterile Distilled Water (SDW)**
	Stability of the mixture (interfering substance and product diluted in hard water)	**Stable**
	Temperature of incubation	**Bactericidal Tests - 37°C ± 1°C**
	Identification of bacterial strains used	**Standard bactericidal test strains:**
		Escherichia coli **Ec FH 64/g**
		Enterococcus hirae **Eh FH 65/f**
		Staphylococcus aureus **Sa FH 73/f**
		Pseudomonas aeruginosa **Pa FH 72/h**
		Additional test strains:
		Listeria monocytogenes **Lm FH 66/d**
		***Salmonella* Typhimurium** **St FH 68/d**
		***Escherichia coli* O157:H7 (non toxigenic)** **FH 45/a**
		Methicillin Resistant *Staphylococcus aureus* **MRSA FH 80/l**

d) OPERATING PROCEDURE

Methods used	**Bactericidal Test – BS EN 1276:1997 (MA-FH-004)**
Deviations from methods	**None**
Neutralisation method	**Dilution Neutralisation**
Neutraliser/ rinse media	**Sodium thiosulphate neutraliser** - sodium thiosulphate 5 g/l, deionised water 1000ml

e) TEST RESULTS — **See attached tables**

f) CONCLUSION

When tested according to the method of BS EN 1276:1997, the supplied Sagewash Sanitiser (FH/118555/1b and 118555/1c), tested neat (~250 ppm) possesses bactericidal activity in 5 minutes at 20°C under clean and dirty conditions for the bactericidal test strains:

Escherichia coli

And additional test strains:
Escherichia coli O157:H7
Salmonella Typhimurium.

When tested according to the method of BS EN 1276:1997, the supplied Sagewash Sanitiser (FH/118555/1b and FH/118555/1c), tested neat (~250 ppm) possesses bactericidal activity in 5 minutes at 20°C under clean conditions for the bactericidal test strains:

Staphylococcus aureus
Pseudomonas aeruginosa
Enterococcus *hirae*

And additional test strains:

Listeria monocytogenes
Methicillin Resistant *Staphylococcus aureus*

When tested according to the method of BS EN 1276:1997, the supplied Sagewash Sanitiser (FH/118555/1b and FH/118555/1c), tested neat (~250 ppm) does not possess bactericidal activity in 5 minutes at 20°C under dirty conditions for the bactericidal test strains:

Enterococcus hirae
Staphylococcus aureus
Pseudomonas aeruginosa

And additional test strains:

Listeria monocytogenes
Methicillin Resistant *Staphylococcus aureus*

N.B. KEY TO CODES ON RESULT SHEET...

Vc:	viable count
R:	reduction in viability
Na:	the number of cfu/ml in the test mixture
Nv:	the number of cfu/ml of the bacterial suspension for validation controls
N:	the number of cfu/ml of the bacterial test suspension
A:	the number of cfu/ml of the experimental conditions control
B:	the number of cfu/ml of the neutraliser toxicity validation or of the filtration validation
C:	the number of cfu/ml of the dilution neutralisation test validation, or of the membrane filtration test validation

TABLE 1 - RESULTS AND VALIDATIONS (Dilution Neutralisation)

Test criteria	Validation Test				Test suspension	Test procedure at concentration % (v/v)			Result
						cfu/ml in test pot	Neat (~250 ppm)	1:10 (~25 ppm)	Pass/Fail/ Invalid
Escherichia coli FH 64/g Clean	Vc: 94, 100 –2: 9, 8 Nv: 9.7×10^2	Vc: 92, 90 A: 9.1×10^1	Vc: 95, 101 B: 9.8×10^1	Vc: 98, 98 C: 9.8×10^1	Vc: 161, 182 –7: 18, 12 N: 1.7×10^8	1.7×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Escherichia coli FH 64/g Dirty	Vc: 94, 100 –2: 9, 8 Nv: 9.7×10^2	Vc: 123, 108 A: 1.2×10^2	Vc: 95, 101 B: 9.8×10^1	Vc: 99, 119 C: 1.1×10^2	Vc: 161, 182 –7: 18, 12 N: 1.7×10^8	1.7×10^7	Vc : 8, 4 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Staphylococcus aureus FH 73/e Clean	Vc: 183, 168 –2: 18, 16 Nv: 1.8×10^3	Vc: 140, 132 A: 1.4×10^2	Vc: 135, 148 B: 1.4×10^2	Vc: 130, 111 C: 1.2×10^2	Vc:>300, >300 –7: 30, 31 N: 3.0×10^8	3.0×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Staphylococcus aureus FH 73/e Dirty	Vc: 183, 168 –2: 18, 16 Nv: 1.8×10^3	Vc: 133, 131 A: 1.3×10^2	Vc: 135, 148 B: 1.4×10^2	Vc: 126, 136 C: 1.3×10^2	Vc:>300, >300 –7: 30, 31 N: 3.0×10^8	3.0×10^7	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Fail Valid
Enterococcus hirae FH 65/f Clean	Vc: 101, 109 –2: 17, 18 Nv: 1.0×10^3	Vc: 81, 79 B: 8.0×10^1	Vc: 71, 86 B: 7.8×10^1	Vc: 73, 80 C: 7.6×10^1	Vc: 151, 190 –7: 18, 16 N: 1.7×10^8	1.7×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Enterococcus hirae FH 65/f Dirty	Vc: 101, 109 –2: 17, 18 Nv: 1.0×10^3	Vc: 88, 75 A: 8.2×10^1	Vc: 71, 86 B: 7.8×10^1	Vc: 67, 84 C: 7.6×10^1	Vc: 151, 190 –7: 18, 16 N: 1.7×10^8	1.7×10^7	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Fail Valid
Pseudomonas aeruginosa FH72/h Clean	Vc: 137, 130 –2: 12, 11 Nv: 1.3×10^3	Vc: 131, 132 A: 1.3×10^2	Vc: 142, 136 B: 1.4×10^2	Vc: 129, 120 C: 1.2×10^2	Vc: 214, 211 –7: 18, 22 N: 2.1×10^8	2.1×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Pseudomonas aeruginosa FH 72/h Dirty	Vc: 137, 130 –2: 12, 11 Nv: 1.3×10^3	Vc: 134, 148 A: 1.4×10^2	Vc: 142, 136 B: 1.4×10^2	Vc: 137, 110 C: 1.2×10^2	Vc: 214, 211 –7: 18, 22 N: 2.1×10^8	2.1×10^7	Vc : 34, 30 Na: 3.2×10^2 R: $<10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Fail Valid

TABLE 1 (cont'd) - RESULTS AND VALIDATIONS (Dilution Neutralisation)

Test criteria	Validation Test				Test suspension	Test procedure at concentration % (v/v)			Result
						cfu/ml in test pot	Neat (~250 ppm)	1:10 (~25 ppm)	Pass/Fail/ Invalid
Listeria monocytogenes FH 66/d Clean	Vc: 163, 179 –2: 16, 17 Nv: 1.7×10^3	Vc: 163, 158 A: 1.6×10^2	Vc: 170, 169 B: 1.7×10^2	Vc: 161, 171 C: 1.7×10^2	Vc:>300,>300 –7: 30, 37 N: 3.4×10^8	3.4×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Listeria monocytogenes FH 66/d Dirty	Vc: 163, 179 –2: 16, 17 Nv: 1.7×10^3	Vc: 142, 178 A: 1.6×10^2	Vc: 170, 169 B: 1.7×10^2	Vc: 174, 170 C: 1.7×10^2	Vc:>300,>300 –7: 30, 37 N: 3.4×10^8	3.4×10^7	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Fail Valid
Escherichia coli O157: H7 FH 45/a Clean	Vc: 95, 96 –2: 9, 8 Nv: 9.6×10^2	Vc: 71, 78 A: 7.4×10^1	Vc: 78, 91 B: 8.4×10^1	Vc: 85, 89 C: 8.7×10^1	Vc: 171, 163 –7: 16, 16 N: 1.6×10^8	1.6×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300,>300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Escherichia coli O157: H7 FH 45/a Dirty	Vc: 95, 96 –2: 9, 8 Nv: 9.6×10^2	Vc: 94, 102 A: 9.8×10^1	Vc: 78, 91 B: 8.4×10^1	Vc: 85, 89 C: 8.7×10^1	Vc: 171, 163 –7: 16, 16 N: 1.6×10^8	1.6×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
MRSA FH 80/b Clean	Vc: 96, 97 –2: 8, 10 Nv: 9.6×10^2	Vc: 96, 97 B: 9.6×10^1	Vc: 85, 85 B: 8.5×10^1	Vc: 89, 80 C: 8.4×10^1	Vc: 172, 168 –7: 17, 19 N: 1.7×10^8	1.7×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
MRSA FH 80/b Dirty	Vc: 96, 97 –2: 8, 10 Nv: 1.2×10^3	Vc: 98, 118 A: 1.0×10^2	Vc: 85, 85 B: 8.5×10^1	Vc: 106, 95 C: 1.0×10^2	Vc: 172, 168 –7: 17, 19 N: 1.7×10^8	1.7×10^7	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Fail Valid
Salmonella Typhimurium FH 68/d Clean	Vc: 138, 102 –2: 10, 9 Nv: 1.2×10^3	Vc: 114, 115 A: 1.1×10^2	Vc: 110, 112 B: 1.1×10^2	Vc: 117, 106 C: 1.1×10^2	Vc: 203, 200 –7: 24, 24 N: 2.0×10^8	2.0×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid
Salmonella Typhimurium FH 68/d Dirty	Vc: 138, 102 –2: 10, 9 Nv: 1.2×10^3	Vc: 158, 138 A: 1.4×10^2	Vc: 110, 112 B: 1.1×10^2	Vc: 134, 135 C: 1.3×10^2	Vc: 203, 200 –7: 24, 24 N: 2.0×10^8	2.0×10^7	Vc : 0, 0 Na: $<1.5 \times 10^2$ R: $>10^5$	Vc : >300, >300 Na: $> 3.0 \times 10^3$ R: $<10^5$	Pass Neat Valid