

Inactivation of quaternary disinfectants by cleaning cloths containing laundry detergent residues is cause for concern.

Process Cleaning Solutions has initiated the following study to provide evidence of the efficacy of two commonly used health care disinfectants after exposure to cotton and micro fiber cleaning cloths that have been laundered. We could not find any currently published studies of disinfectant efficacy after exposure to cleaning cloths containing laundering detergent residues.

There are reports in reviewed literature that detergent residues must be effectively rinsed before application of disinfectants to prevent chemical inactivation of disinfectant. It is common knowledge that not all laundering detergents are removed in the rinse cycle. What effect the residual detergent residues left in cleaning cloths after laundering have on the efficacy of disinfectants is unknown?

To provide evidence on the efficacy of commonly used disinfectants when used with laundered cleaning cloths the following study was initiated.

New cotton cloths 16 inches x 16 inches size were purchased from local retailer – 90 cloths.

New PCS micro fiber cloths containing 80% polyester and 20% polyamide 14 inch x 14 inch size and 30 gram weight - 90 cloths.

The cotton and micro fiber cloths were washed separately with hot water wash cycle, normal rinse cycle, dried on cotton cycle and allowed to cool. A total of five washing and drying cycles for all cloths. Each wash cycle had 45 cloths and 2.25 ounces of Liquid Tide added to a top loading washing machine.

All cloths were washed with Tide Liquid laundry detergent with biodegradable anionic and non anionic surfactants and enzymes listed as ingredients on the label.

The cloths where then folded and placed into Nacecare 6 liter buckets with lids - 10 cotton cloths and 15 micro fiber cloths per bucket.

The buckets and cotton and micro fiber cloths and sealed unopened containers of PCS 2% Stabilized Bleach and a Quaternary disinfectant with claims for 30 different microbes at a 1 to 250 dilution as a one step cleaner disinfectant were delivered to Aquatox for completion of the study.

www.processcleaningsolutions.com

2060 Fisher Dr. Peterborough, ON, K9J 8N4 Toll Free: 877.745.7277 Tel: 705.745.5849 Fax: 705.745.1239



Aquatox portion of the study included.

Aquatox is accredited by CALA and a recognized GLP ecotoxicity testing laboratory.

PCS Stabilized Bleach was diluted to 1000 parts per million. Next, 1.8 liters of diluted solution was added to each bucket containing 10 cotton cloths and 15 micro fiber cloths. To saturate the cloths, the lids on the containers were closed and allowed to sit for 4 hours at which point the cloths where wrung out with Nacecare wringer/ bucket. The bleach solution from cotton and micro fiber cloths were tested separately.

AOAC Official Method 955.15. Testing Disinfectants against Staphylococcus aureus. Use – dilution method. First action 1955. Final action 1959. Revised 2006. Contact times of 5 and 10 minutes where used for Staphylococcus aureus.

AOAC Official Method 955.15. testing Disinfectants against Pseudomonas aeruginosa. Use – dilution method. First action 1955. Final action 1959. Revised 2006. Contact time of 10 minutes.

The Quaternary disinfectant was diluted to recommended disinfection dilution and 1.8 liters of diluted disinfectant solution was poured over cotton and micro fiber cloths. Lids on buckets were closed and allowed to sit for 4 hours, at which point the cloths were wrung out using a separate Nacecare wringer/bucket and disinfectant solution was used as test solution from both cotton and micro fiber cloths .

AOAC Official Method 955.15. Testing Disinfectants against Staphylococcus aureus. Use – dilution method. First action 1955. Final action 1959. Revised 2006. Contact time of 10 minutes where used for Staphylococcus aureus.

AOAC Official Method 955.15. testing Disinfectants against Pseudomonas aeruginosa. Use – dilution method. First action 1955. Final action 1959. Revised 2006. Contact time of 10 minutes

All products were diluted with hard water as per Quaternary disinfectant label claim and no organic challenge was used.



Results and discussion.

PCS 2% Stabilized Sodium Hypochlorite diluted to 1000 parts per million. 1.8 liters of diluted solution was used to saturate 10 cotton and 15 micro fiber cloths laundered with Tide Liquid Laundry, five cycles. Saturated cloths were allowed to sit in closed 6 liter bucket for 4 hours before extracting test solution.

AOAC Staphylococcus aureus 10 replicates, 5 minute contact time

CottonNo GrowthPassMicro fiberNo GrowthPass

AOAC Staphylococcus aureus 10 replicates, 10 minute contact time

Cotton No Growth Pass Micro fiber No Growth Pass

AOAC Pseudomonas aeruginosa 10 replicates, 10 minute contact time

Cotton	No Growth	Pass
Micro fiber	No Growth	Pass

Quaternary disinfectant diluted as per label instruction for disinfecting environmental surfaces. 1 to 250 parts water. 1.8 liters of diluted solution was used to saturate 10 cotton and 15 micro fiber cloths laundered with Tide Liquid Laundry, five cycles. Saturated cloths were allowed to sit in closed 6 liter bucket for 4 hours before extracting test solution.

AOAC Staphylococcus aureus 10 replicates, 10 minute contact time Cotton Growth on all test cylinders Failed Micro fiber Growth on all test cylinders Failed AOAC Pseudomonas aeruginosa 10 replicates, 10 minute contact time Cotton Growth on all test cylinders Failed Micro fiber Growth on all test cylinders Failed



Discussion.

Laundered cotton and micro fiber cloths containing residual detergents can inactivate quaternary disinfectants.

Tide Liquid laundry detergent list anionic and non ionic surfactants and enzymes as ingredients. Previous studies have demonstrated anionic surfactants incompatibility with cationic surfactants (Quaternary Disinfectants)

This study provides a link between the numerous studies in recent years that demonstrate low level exposure to quaternary disinfectants promotes bacterial resistance and cross resistance to antibiotics but not at disinfection concentrations.

Public Health Officials and Infection Control Practitioners need to review how disinfectants are applied to surfaces. This study clearly indicates applying quaternary disinfectants following manufactures label instructions for disinfection with laundered cleaning cloths may not be effectively decontaminating surfaces and may lead to the further expansion of resistant pathogens.

Quaternary disinfectants may not be effective even if indicator test strips indicate disinfectant is present as the chemical formulation of disinfectant is changed with the introduction of additional chemicals from cleaning cloths.

This study highlights the importance of converting to evidence based cleaning practices.

Inactivation of quaternary disinfectants by cleaning cloths containing laundry detergent residues is cause for concern.

This study confirms the efficacy of PCS Stabilized Bleach diluted to 1000 ppm when stored in closed container with laundered micro fiber or cotton cloths for four hours and no organic soils are present.



Chemical Lot Number: 080083 Date Tested : 2010-12-22 Reference(s) : AOAC Official Method 955.15. Testing Disinfectants against Staphylococcus aureus. Use Method. Journal of AOAC Internations. Vol 89, No 5, 2006. TEST RESULTS Date Recorded : 2010-12-24 Analyst(s) : SSH Primary Subculture / Secondary Subculture 6 7 8 9 10 - - - - - - 6 7 8 9 10 - - - - - - Number of carrier sets with growth : 0 Number of carrier sets without growth : 10 2 Data Reviewed By : 9 TEST CONDITIONS TEST CONDITIONS Test Organism : Staphylococcus aureus Use Dilution : 20:1 Control Results Tube : 1 2 Number of carrier sets with growth : 0 Data Reviewed By :	'ork Order : ample Number :	218308 29360						
Jocation : Peterborough ON Submitted By : M. Rochon Substance : 2% Stabilized Bleach Date Received : 2010-12-16 Date Tested : 2010-12-22 Reference(s) : AOAC Official Method 955.15. Testing Disinfectants against Staphylococcus aureus. Use Method. Journal of AOAC Internations. Vol 89, No 5, 2006. TEST RESULTS Date Recorded : 2010-12-24 Analyst(s) : SSH Primary Subculture / Secondary Subculture 6 7 8 9 10 - - - - - - 6 7 8 9 10 - - - - - - Results Summary 0 0 Viability Controls : + + + Number of carrier sets with growth : 0 0 Date Reviewed By : 0 "-" = no growth observed Data Reviewed By : 0 Date : _201/1 of C "-" = no growth observed Staphylococcus aureus Use Dilution : 20:1 "-" = no growth observed Date : _20±1 °C C <		S	SAMPLE IDENTIFI	CATION				
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Date Recorded : 2010-12-24 Analyst(s) : SSH Primary Subculture / Secondary Subculture 1 2 3 4 5 - - - - - - 6 7 8 9 10 - - - - - - 6 7 8 9 10 - - - - - - Number of carrier sets with growth : 0 Number of carrier sets without growth : 0 Date Reviewed By : 7 Number of carrier sets without growth : 10 Data Reviewed By : 7 7 "-" = no growth observed Data Reviewed By : 7 7 7 TEST CONDITIONS TEST CONDITIONS Test Organism : Staphylococccus aureus Use Dilution :: 20:1 Carrier Titre : 3.0 x 10 ⁶ Dilution Water :: 40 ± 1 °C Primary Medium : Letheen Broth + 0.1% Sodium thiosulfate <td>eference(s) :</td> <td>AOAC Official Metho Method. Journal of AC</td> <td>d 955.15. Testing Dis DAC Internations. Vol</td> <td>infectants a 89, No 5, 2</td> <td>igainst <i>Staph</i>y 006.</td> <td>lococcus</td> <td><i>aureus</i>. Use</td> <td>Dilu</td>	eference(s) :	AOAC Official Metho Method. Journal of AC	d 955.15. Testing Dis DAC Internations. Vol	infectants a 89, No 5, 2	igainst <i>Staph</i> y 006.	lococcus	<i>aureus</i> . Use	Dilu
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Secondary Medium : Fluid Thioglycollate Medium Neutralization : Confirmed	-			niosulfate	-			
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COMMENTS			COMMENTS	3				

•This product passed the screening test. •Control results are acceptable.

Date :

2011-01-06

yyyy-mm-dd

Tha La desi Project Manager



Work Order :	218308
Sample Number	: 29360

SAMPLE IDENTIFICATION

Company :	Process Cleaning Solutions Ltd.	Sample Type :	Chemical
Location :	Peterborough ON	Submitted By :	M. Rochon
Substance :	2% Stabilized Bleach	Date Received :	2010-12-16
Chemical Lot Number:	080083	Date Tested :	2010-12-22
Reference(s) :	AOAC Official Method 955.15. Testing Disinfectants a	gainst Staphylococcus	s aureus. Use Dilution

Method. Journal of AOAC Internations. Vol 89, No 5, 2006.

TEST RESULTS

Date Recorded : Analyst(s):

Primary Subculture / Secondary Subculture

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	-	-	-	-	-	-	_	-	-

Results Summary	
Number of carrier sets with growth :	0
Number of carrier sets without growth :	10

Control Results						
Tube :	1	2				
Viability Controls : Negative Controls :	+	+				
Negative Controls :		-				

"-" = no growth observed

"+" = growth observed

Data Reviewed By: 184Date: 2011.01.05.

TEST CONDITIONS

Test Organism :	Staphylococcus aureus	Use Dilution :	20:1
Carrier Titre :	3.0 x 10 ⁻⁶	Dilution Water :	Hard (400 ppm)
Carrier Drop Time Interval :	1 min \pm 5 sec	Exposure Temp. :	20 ± 1 °C
Primary Medium :	Letheen Broth + 0.1% Sodium thiosulfate	Exposure Period :	10 min
Secondary Medium :	Fluid Thioglycollate Medium	Neutralization :	Confirmed

COMMENTS

Tested a use dilution of 20:1 made up at 1.8 L in 400 ppm hard water and held for 4 hours on laundered cotton cloths at 20°C.

•This product passed the screening test.

•Control results are acceptable.

Date :

2011.01.06 yyyy-mm-dd

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Project Manager



218308 29360							
		SAMPLE	IDENTIF	ICATION			
Location :PeterbonSubstance :2% StabChemical Lot Number:080083				sinfectants	Submitte Date Rec Date Tes	d By : eived : ted :	Chemical M. Rochon 2010-12-16 2010-12-23 s aureus. Use Di
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	Process C Peterborc 2% Stabil 080083 AOAC O Method 2010-12-2 SSH 	Process Cleaning So Peterborough ON 2% Stabilized Bleach 080083 AOAC Official Meth Method. Journal of A 2010-12-25 SSH Priman 2 7 1 1 Staphyloc 4.2 x 10 ⁻⁵	SAMPLE Process Cleaning Solutions Ltd Peterborough ON 2% Stabilized Bleach 080083 AOAC Official Method 955.15. Method. Journal of AOAC Inter TE 2010-12-25 SSH Primary Subcult 2	SAMPLE IDENTIFI Process Cleaning Solutions Ltd. Peterborough ON 2% Stabilized Bleach 080083 AOAC Official Method 955.15. Testing Di Method. Journal of AOAC Internations. Vo TEST RESUL 2010-12-25 SSH Primary Subculture / Secon 2 3 - - 7 8 - - 7 8 - - 7 8 - - 10 -	SAMPLE IDENTIFICATION Process Cleaning Solutions Ltd. Peterborough ON 2% Stabilized Bleach 080083 AOAC Official Method 955.15. Testing Disinfectants Method. Journal of AOAC Internations. Vol 89, No 5, 1 TEST RESULTS 2010-12-25 SSH Primary Subculture / Secondary Subc 2 3 - - 7 8 - - 7 8 - - 10 Tube : Viability Negative Viability Negative	SAMPLE IDENTIFICATION Process Cleaning Solutions Ltd. Sample T Peterborough ON Submitte 2% Stabilized Bleach Date Rec 080083 Date Tes AOAC Official Method 955.15. Testing Disinfectants against <i>Staph</i> Method. Journal of AOAC Internations. Vol 89, No 5, 2006. TEST RESULTS 2010-12-25 SSH Primary Subculture / Secondary Subculture 2 3 4 - - - - 7 8 9 - - - - - - With growth : 0 Viability Controls : Negative Controls : Without growth : 10 Yiability Controls : Negative Controls : TEST CONDITIONS Staphylococcus aureus Use Dilution V 4.2 x 10 ⁻⁵ Dilution V	SAMPLE IDENTIFICATION Process Cleaning Solutions Ltd. Sample Type : Peterborough ON Submitted By : 2% Stabilized Bleach Date Received : 080083 Date Tested : AOAC Official Method 955.15. Testing Disinfectants against <i>Staphylococcut</i> . Method. Journal of AOAC Internations. Vol 89, No 5, 2006. TEST RESULTS 2010-12-25 SSH Primary Subculture / Secondary Subculture 2 3 4 - - - - 7 8 9 - - - - - - With growth : 0 with growth : 0 Viability Controls : - Data Revi Data Revi Data Revi Data Revi Data Revi Data Revi Staphylococcus aureus Use Dilution : OIL Data Revi Data Revi D

•This product passed the screening test.

•Control results are acceptable.

Date :

cloths at 20°C.

2011-01-06 yyyy-mm-dd

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Project Manager



Vork Order : ample Number :	218308 29360							
		5	SAMPLE I	DENTIFI	CATION			
Company : Location : ubstance : Chemical Lot Number:	Peterboro	leaning Solu ugh ON ized Bleach	utions Ltd.			Sample T Submitted Date Rece Date Test	l By : eived :	Chemical M. Rochon 2010-12-16 2010-12-23
leference(s) :		fficial Metho ournal of A					ylococcus	<i>aureus</i> . Use I
			TES	T RESUL	ГS			
	2010-12-2 SSH	5						
			y Subcultu	re / Secon	dary Subc	ulture		
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	_	_	_	_	_	_		-
Res	ults Sumn	narv		1	[Contro	Results	
Number of carrier sets		-	0		Tube :		1	2
Number of carrier sets	-		10		Viability	Controls :	+	+
				_	Negative	Controls :		_
"-" = no growth observed "+" = growth observed								ewed By:
Test Organism :		Stanhylog	TEST o occus aureu		UNS	Use Diluti	on :	20:1
Carrier Titre :		4.2×10^{-5}	iccus uureu	3		Dilution W		Hard (400 p
Carrier Drop Time Inte	erval :	$1 \min \pm 5$	sec			Exposure 7		$20 \pm 1 ^{\circ}\text{C}$
Primary Medium :			roth + 0.1%	Sodium th	niosulfate	Exposure I	-	10 min
Secondary Medium :			glycollate N			Neutraliza		Confirmed
Secondary Medium .								

•This product passed the screening test.

•Control results are acceptable.

2011.01.06. Date :

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Project Manager



	218308 29360							
		S	SAMPLE I	DENTIFIC	CATION			
Location : Substance : Chemical Lot Number: Reference(s) :		gh ON ed Bleach cial Metho	od 964.02.			Sample Ty Submitted Date Rece Date Teste against <i>Pseud</i> 9, No 5, 2006	By : ived : ed :	Chemical M. Rochon 2010-12-16 2010-12-29 <i>neruginosa</i> . Use
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	2010-12-31							
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"-" = no growth observed "+" = growth observed							Data Revie Date :	ewed By: <u>184</u> 2011-01-06.
			TEST (CONDITIC	ONS			
		Daudomo	ıas aerugin	osa		Use Dilutio	on :	20:1
Test Organism :	ŀ	seudomor						
Test Organism : Carrier Titre :		⁻ seudomor 7.0 x 10 ⁻⁵	0			Dilution W	ater :	Hard (400 ppn
	7					Dilution W Exposure T		Hard (400 ppn $20 \pm 1 ^{\circ}\text{C}$
Carrier Titre :	7 rval : 1	7.0 x 10 ⁻⁵ 1 min ± 5 s		Sodium th	iosulfate	Exposure T Exposure F	Cemp. : Period :	
Carrier Titre : Carrier Drop Time Inter	7 rval : 1 I	7.0 x 10 ⁻⁵ 1 min ± 5 s Letheen Br	sec		iosulfate	Exposure T	Cemp. : Period :	20 ± 1 °C

•This product passed the screening test.

•Control results are acceptable.

Date :

<u>2011.01.06</u> yyyy-mm-dd

Approved By: Project Manager



Work Order : Sample Number :	218308 29360							
			SAMPLE	IDENTIFI	CATION			
Location : Peter		Cleaning So ough ON lized Bleach		Sample Type : Submitted By : Date Received : Date Tested :		Chemical M. Rochon 2010-12-16 2010-12-29		
eference(s) :						against <i>Pseud</i> 9, No 5, 2006		aeruginosa. Use
			TES	ST RESUL	TS		n-1149-n 12-13-14-14-14-14-14-14-14-14-14-14-14-14-14-	
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Res	ults Sumn	nary		7		Control	Results	
Number of carrier sets Number of carrier sets			0 10			Controls : Controls :	1 + _	2 + -
"-" = no growth observed "+" = growth observed								ewed By :
			TEST	CONDITI	ONS			
Test Organism :		Pseudomo	onas aerugi	inosa		Use Dilutio	on :	20:1
Carrier Titre :		7.0 x 10 ⁻⁵				Dilution W	Hard (400 ppm	
Carrier Drop Time Inte	erval :	$1 \min \pm 5$				Exposure 7	-	$20 \pm 1 \ ^{\circ}\text{C}$
Primary Medium : Secondary Medium :			broth + 0.19 oglycollate	% Sodium t Medium	hiosulfate	Exposure I Neutralizat	10 min Confirmed	

Tested a use dilution of 20:1 made up at 1.8 L in 400 ppm hard water and held for 4 hours on launder cloths at 20°C.

•This product passed the screening test.

•Control results are acceptable.

Date :

2011.01.06 yyyy-mm-dd

Project Manager



Work Order : Sample Number :	218308 29362								
•······			SAMPLE II	DENTIFI	CATION				
Company : Location : Substance : Chemical Lot Number: Reference(s) :	Ammonium fficial Meth	Concentrate (n Chloride)	Festing Di		By : fived : ed :	Chemical M. Rochon 2010-12-16 2010-12-21 s aureus. Use Dil			
			TEST	r resul	TS		<u>.</u>		
Date Recorded : Analyst(s) :	2010-12-2 SSH								
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Re	sults Sumr	nary				Control	Results	· · · · · · · · · · · · · · · · · · ·	ך
Number of carrier set	s with grow	/th :	10		Tube :		1	2	
Number of carrier set	s without g	rowth :	0			Controls :	+	+	
					Negative	Controls :	_		
"-" = no growth observed "+" = growth observed							Data Revie	ewed By : 2 <u>011 - 017 (</u>	<u>R11</u>
			TEST (CONDIT	ONS				
Test Organism :			occus aureus	5		Use Dilutio		5 mL/L	
Carrier Titre :		6.5 x 10 ⁻⁶				Dilution W	Hard (400		
Carrier Drop Time In	terval :	$1 \min \pm 5$		G 11	12 10 .	Exposure 7	-	20 ± 1 °C	
Primary Medium :			roth + 5 g/L			Exposure I		10 min	ч
Secondary Medium :		Letneen B	roth + 5 g/L	Soaium t	mosuffate	Neutralizat	lion :	Confirmed	u
			CO	MMENT	S	· · · · · · · · · · · · · · · · · · ·			
Tested a use dilution cloths at 20°C.	of 5 mL/L i	made up at 1				held for 4 ho	iurs on la	undered mich	rofib

•This product did not pass the screening test. •Control results are acceptable.

Date :

yyyy-mm-dd

Approved By: ______ Project Manager



Work Order : Sample Number :	218308 29362									
			SAMPLE ID	ENTIF	ICATION			1991 - EV 104 10/2012/10/10		
Location :PeterboSubstance :NeutralDimethChemical Lot Number:100099Reference(s) :AOAC		Ammoniun fficial Meth	Concentrate (n Chloride) od 955.15. T	esting D	Sample Type : Submitted By :			2010-12-23		
			TEST	RESUI	TS					
Date Recorded : Analyst(s) :	2011-12-2 SSH									
1		Primar 2	y Subculture			lture		5		
	+	<u>2</u> +		+	+	• +	+			
i	L									
6		7	8		9			10		
+ +	+	+	+	+	+	+	+	+		
[]	Results Sumr	narv				Contro	Results]	
Number of carrier s		-	10		Tube :	control	1	2		
Number of carrier s			0		Viability C	Controls :	+	+		
	U				Negative (Controls :		_		
"-" = no growth observ "+" = growth observed	ed						Data Revi Date :	ewed By : 2011 ·	J)	
			TEST C	ONDIT	IONS					
Test Organism :	0						Use Dilution : Dilution Water :			
Carrier Titre :	_	4.2 x 10 ⁻⁵				Hard (
Carrier Drop Time	Interval :	$1 \min \pm 5$			Exposure Temp. :			20 ± 1		
Primary Medium :		Letheen B				Exposure I		10 mir		
Secondary Medium	1:	Letheen B	broth			Neutraliza	tion :	Confir	med	
			COM	MMENT	S					
Tested a use dilution cloths at 20°C.	n of 5 mL/L i	made up at				eld for 4 ho	ours on la	undered c	otton	

•This product did not pass the screening test. •Control results are acceptable.

Date :

2011.01.06 yyyy-mm-dd

Approved By: Yess

Project Manager



AquaTox Testing & Consulting Inc. 11B Nicholas Beaver Rd. RR 3 Guelph ON N1H 6H9 Tel: (519) 763-4412 Fax: (519) 763-441§

Work Order : Sample Number :	218308 29362								
			SAMPLE I	DENTIF	ICATION			<u></u>	
Company : Location : Substance : Chemical Lot Number: Reference(s) :	Peterborou Neutral Di Dimethyl 100099 AOAC Of	isinfectant (Ammoniun ficial Meth	Concentrate n Chloride)		Chemical M. Rochon 2010-12-16 2010-12-30 aeruginosa. Use				
			TES	T RESUI	LTS				
Date Recorded : Analyst(s) :	2010-12-3 SSH	1							
		Primai	ry Subcultu	re / Secor	ıdary Subcu	ılture			
1	2			3		4		5	
+ +	+	+	+	+	+	+	+	+	
	1	7	Т	8	T	9	1	10	
6		/		0		9			
6 + + +	+	/ +	+	o +	+	y +	+	+	
+ +	+	+		1	+	+			
+ + Res	+ sults Summ	+ hary	+	1		+	l Results	+	
+ + Res Number of carrier sets	+ sults Sumn s with grow	+ hary th:	+ 10	1	Tube :	+ Contro	l Results 1	+ 2	
+ + Res	+ sults Sumn s with grow	+ hary th:	+	1		+ Contro Controls :	l Results	+	
+ + Res Number of carrier sets Number of carrier sets "-" = no growth observed	+ sults Sumn s with grow	+ hary th:	+ 10	1	Tube : Viability (+ Contro Controls :	I Results 1 + – Data Revio	+ 2 + -	
+ + Res Number of carrier sets Number of carrier sets	+ sults Sumn s with grow	+ hary th:	+ 10	1	Tube : Viability (+ Contro Controls :	l Results 1 + -	+ 2 + -	
+ + Res Number of carrier sets Number of carrier sets "-" = no growth observed	+ sults Sumn s with grow	+ hary th:	+ 10 0	1	Tube : Viability (Negative (+ Contro Controls :	I Results 1 + – Data Revio	+ 2 + -	
+ + Res Number of carrier sets Number of carrier sets "-" = no growth observed	+ sults Sumn s with grow	+ nary th : owth : Pseudomo	+ 10 0	+	Tube : Viability (Negative (+ Contro Controls :	I Results 1 + - Data Revio Date :	+ 2 + -	
+ + Res Number of carrier sets Number of carrier sets "-" = no growth observed "+" = growth observed Test Organism :	+ sults Sumn s with grow	+ hary th : owth :	+ 10 0 TEST (+	Tube : Viability (Negative (+ Controls : Controls :	I Results 1 + - Data Revie Date :	+ 2 + - 2 011 01.	
+ + Res Number of carrier sets Number of carrier sets Number of carrier sets "-" = no growth observed "+" = growth observed Test Organism : Carrier Titre : Carrier Drop Time Inte	+ sults Summ s with grow s without gr	+ hary th : owth : Pseudomo 7.7 x 10 ⁻⁵ 1 min ± 5	+ 10 0 TEST (onas aerugin sec	+	Tube : Viability (Negative (+ Controls : Controls : Use Dilutio	Data Revie Data Revie Date :	+ 2 + - wed By: \int_{a}^{b} $2 \circ l l \cdot \circ l \cdot$ 5 mL/L	
+ + Res Number of carrier sets Number of carrier sets "-" = no growth observed "+" = growth observed Test Organism : Carrier Titre :	+ sults Summ s with grow s without gr	+ hary th : owth : Pseudomo 7.7 x 10 ⁻⁵	+ 10 0 TEST (onas aerugin sec roth	+	Tube : Viability (Negative (+ Controls : Controls : Use Dilution W	Data Revie Data Revie Date :	+ 2 + - 2 011 01 0 5 mL/L Hard (400 p	

Tested a use dilution of 5 mL/L made up at 1.8 L in 400 ppm hard water and held for 4 hours on laundered microfibre cloths at 20°C.

•This product did not pass the screening test. •Control results are acceptable.

Date :

2011.01.06 yyyy-mm-dd

lest

Project Manager



	218308 29362							
			SAMPLE I	DENTIFI	CATION			
Location : Substance : Chemical Lot Number: Reference(s) :	Dimethyl A 100099 AOAC Offi	th ON infectant (mmonium cial Meth	Concentrate n Chloride) od 964.02.	Testing Di	Sample Type : Chemica Submitted By : M. Roch Didecyl Date Received : 2010-12 Date Tested : 2010-12 visinfectants against <i>Pseudomonas aeruginosa</i> attions. Vol 89, No 5, 2006.			
			TFS	Γ RESUL	тс			
	2010-12-31 SSH	Duimou				4		
1	2	r mar,		3	dary Subcul	<u>ture</u>	1	5
+ +	+	+	+	+	+	+	+	+
6	7			8		9		10
+ +	+	+	+	+	+	+	+	+
Resu	lts Summa	ry				Control	Results	
Number of carrier sets v	with growth	:	10		Tube :		1	2
Number of carrier sets v	without grow	vth :	0		Viability C		+	+
					Negative C	Controls :	_	_
"–" = no growth observed "+" = growth observed							Data Revie Date :	
	-		TEST (CONDITI	ONS			
Test Organism :			nas aerugin	osa		Use Dilutio		5 mL/L
Carrier Titre :		.7 x 10 ⁻⁵			Dilution Water :Hard (4Exposure Temp. : $20 \pm 1^{\circ}$			
Carrier Drop Time Inter		$\min \pm 5$				20 ± 1 °C		
Primary Medium :		etheen B				Exposure F		10 min
Secondary Medium :	L	etheen B	roth			Neutralizat	ion :	Confirmed
			CO	MMENTS	5			
			.8 L in 400					

•This product did not pass the screening test.

•Control results are acceptable.

Date :

<u>2011.01.06</u> yyyy-mm-dd

Bess Approved By: Project Manager