 Microbiological Services and Consultancy					
		Doc No.	TRA-2010-051-02		
Title	<b>EN 1276 (1997)</b> <b>Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics (Phase 2 / Step 1)</b>				
Product	RTU Evaporator Cleaner and Disinfectant	MGS No	18911	SO No	2206

**a) Identification of test laboratory:**

Test laboratory	MGS Laboratories Ltd Unit 14, Newlands Drive Poyle 14 Horton Road Poyle Berkshire SL3 0DX
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**b) Identification of the Customer:**

Customer Name	Advanced Engineering Ltd
Customer Address	Guardian House Stroudley Road Basingstoke Hampshire RG24 8NL

**c) Identification of the sample:**


Name of product	RTU Evaporator Cleaner and Disinfectant
Batch number	Not stated
Manufacturer	Advanced Engineering Ltd
Date of delivery	12 Mar 10
Storage conditions	Room temperature and darkness
Product diluent recommended by the manufacturer for use	Not stated
Active substance(s) and their concentration(s) (optional)	Not stated

**d) Test method and its validation:**

MGS procedure reference	WIN-1000.050-02
Method	Dilution Neutralisation Membrane filtration – <i>E. hirae</i> , MRSA and <i>L. pneumophila</i> only
Neutraliser	Lecithin 3g/l, polysorbate 80 30g/l, sodium thiosulphate 5g/l, L-histidine 1g/l, saponin 30g/l, phosphate buffer powder 0.35g/l
Rinsing Liquid	Distilled water

NOTE 1: The results relate only to the sample which was tested and cannot be guaranteed to represent the batch from which it was taken.

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Details of validation of the neutraliser Neutraliser validation performed according to 5.5.2  
 A valid neutraliser could not be determined for *E. hirae*, MRSA and *L. pneumophila* therefore membrane filtration was performed

**e) Experimental conditions:**

Period of analysis 15 Mar 10 – 17 May 10  
 Product diluent used during the test Standard hardness water 300mg/kg CaCO<sub>3</sub>  
 Product test concentrations 20% (v/v)  
 Appearance of product dilutions Clear blue solution  
 Contact time 60 seconds ± 5s  
 Test temperature 20°C ± 2°C  
 Interfering substance 3g/l Bovine albumin  
 Stability of the mixture Precipitate absent throughout test  
 Temperature of incubation 37°C ± 2°C

Identification of the bacterial strains used	<i>Escherichia coli</i>	NCTC 10418
	<i>Enterococcus hirae</i>	NCIMB 8192
	<i>Staphylococcus aureus</i>	ATCC 6538
	<i>Pseudomonas aeruginosa</i>	ATCC 15442
	MRSA	NCTC 12493
	<i>Salmonella typhimurium</i>	ATCC 14028
	<i>Legionella pneumophila</i>	ATCC 33152

**f) Results:**

Test results See tables: 1-2

**g) Conclusion:**

Based on EN 1276 (1997), the batch of the product RTU Evaporator Cleaner and Disinfectant, supplied by Advanced Engineering Ltd, when diluted at 20% (v/v) in hard water, possesses bactericidal activity in 60 seconds at 20 °C under dirty conditions for the referenced strains of *E. coli*, *S. aureus*, *E. hirae*, *P. aeruginosa*, *S. typhimurium*, MRSA and *L. pneumophila*.

**h) Deviations:**

None

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<b>mgs</b> LABORATORIES Microbiological Services and Consultancy		Doc No.		TRA-2010-051-02	
		<b>Title</b> EN 1276 (1997) Quantitative suspension test for the evaluation of bactericidal activity of chemical disinfectants and antiseptics (Phase 2 / Step 1)			
<b>Product</b> RTU Evaporator Cleaner and Disinfectant		<b>MGS No</b> 18911	<b>SO No</b> 2206		

**Prepared By:** Emilia Brzosko

**Approved by:** 

**Name:** Miss Emilia Brzosko MSc

**Name:** Mrs Kim Morwood BSc (Hons) CBiol MiBiol

**Position:** Microbiologist

**Position:** Technical Director

**Date:** 17 MAY 10

**Date:** 17 MAY 10

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Product	<b>RTU Evaporator Cleaner and Disinfectant</b>	MGS No	18911	SO No	<b>2206</b>

Table 1: Dilution neutralisation test results

Interfering substance	Test organism	Validation tests				Bacterial test suspension	Test procedure
		Bacterial suspension	Experimental conditions control	Neutralisation toxicity control	Dilution-neutralisation control		
3g/l Bovine albumin (dirty conditions)	<i>Escherichia coli</i> NCTC 10418	Vc: 61; 60 Nv: $6.1 \times 10^1$	Vc: 56; 69 A: $6.3 \times 10^1$	Vc: 71; 62 B: $6.7 \times 10^1$	Vc: 37; 67 C: $5.2 \times 10^1$	$10^{-6}$ : 194; 185 $10^{-7}$ : 25; 19 N: $1.92 \times 10^8$	Vc: <1; <1 Na: $<1.5 \times 10^2$ R: $>1.28 \times 10^5$
3g/l Bovine albumin (dirty conditions)	<i>Pseudomonas aeruginosa</i> ATCC 15442	Vc: 65; 60 Nv: $6.3 \times 10^2$	Vc: 60; 61 A: $6.2 \times 10^1$	Vc: 65; 59 B: $6.2 \times 10^1$	Vc: 63; 40 C: $5.2 \times 10^1$	$10^{-6}$ : 220; 237 $10^{-7}$ : 26; 27 N: $2.32 \times 10^8$	Vc: <1; <1 Na: $<1.5 \times 10^2$ R: $>1.55 \times 10^5$
3g/l Bovine albumin (dirty conditions)	<i>Staphylococcus aureus</i> ATCC 6538	Vc: 64; 67 Nv: $6.6 \times 10^2$	Vc: 45; 42 A: $4.4 \times 10^1$	Vc: 43; 43 B: $4.3 \times 10^1$	Vc: 39; 48 C: $4.4 \times 10^1$	$10^{-6}$ : 168; 167 $10^{-7}$ : 18; 15 N: $1.67 \times 10^8$	Vc: <1; <1 Na: $<1.50 \times 10^2$ R: $>1.11 \times 10^5$
3g/l Bovine albumin (dirty conditions)	<i>Salmonella typhimurium</i> ATCC 14028	Vc: 89; 96 Nv: $9.3 \times 10^2$	Vc: 104; 97 A: $1.0 \times 10^2$	Vc: 113; 100 B: $1.1 \times 10^2$	Vc: 119; 106 C: $1.1 \times 10^2$	$10^{-6}$ : >300; >300 $10^{-7}$ : 43; 49 N: $4.60 \times 10^8$	Vc: <1; <1 Na: $<1.5 \times 10^2$ R: $>3.07 \times 10^5$

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Product	<b>RTU Evaporator Cleaner and Disinfectant</b>	MGS No	18911	SO No	<b>2206</b>

Table 2: Membrane filtration test results

Interfering substance	Test organism	Validation tests				Bacterial test suspension	Test procedure
		Bacterial suspension	Experimental conditions control	Filtration Control	Filtration Test Control		
3g/l Bovine albumin (dirty conditions)	<i>Enterococcus hirae</i> NCIMB 8192	Vc: 179; 139 Nv: $1.6 \times 10^3$	Vc: 134; 154 A: $1.4 \times 10^2$	Vc: 139; 145 B: $1.4 \times 10^2$	Vc: 127; 120 C: $1.2 \times 10^2$	10-6: >300; >300 10-7: 49; 49 N: $4.90 \times 10^8$	Vc: 4; 4 Na: $<1.5 \times 10^2$ R: $>3.27 \times 10^5$
3g/l Bovine albumin (dirty conditions)	MRSA NCTC 12493	Vc: 82; 71 Nv: $7.7 \times 10^2$	Vc: 74; 87 A: $8.1 \times 10^1$	Vc: 76; 82 B: $7.9 \times 10^1$	Vc: 67; 68 C: $68 \times 10^1$	10-6: 270; 257 10-7: 23; 28 N: $2.63 \times 10^8$	Vc: <1; <1 Na: $<1.5 \times 10^2$ R: $>1.75 \times 10^5$
3g/l Bovine albumin (dirty conditions)	<i>Legionella pneumophila</i> ATCC 33152	Vc: 149; 157 Nv: $1.5 \times 10^3$	Vc: 183; 170 A: $1.8 \times 10^2$	Vc: 160; 160 B: $1.6 \times 10^2$	Vc: 148; 159 C: $1.5 \times 10^2$	10-6: >300; >300 10-7: 47; 51 N: $4.90 \times 10^8$	Vc: <1; <1 Na: $<1.5 \times 10^2$ R: $3.27 \times 10^5$

Vc = Viable count

N = Number of cfu/ml of the bacterial test suspension

Nv = Number of cfu/ml of the bacterial suspension

R = Reduction of viability

Na = Number of cfu/ml in the test mixture

A = Number of cfu/ml of the experimental conditions validation

B = Number of cfu/ml of the neutraliser toxicity validation or Number of cfu/ml of the filtration control

C = Number of cfu/ml of the dilution-neutralisation validation or Number of cfu/ml of the filtration test control

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