Endurocide®

AntiBak Residual

Round-the-clock disinfection and contamination control.

RESIDUAL TESTING CONDUCTED AT THE ROWETT RESEARCH INSTITUTE, ABERDEEN

AntiBak Residual differs from other anti-microbial agents in its ability to remain active after drying onto a surface.

This is termed **Residual Biocidal** activity.

A series of experiments was conducted, at the UKAS accredited Rowett Institute in Aberdeen (www.rowett.co.uk), to verify that AntiBak Residual is a 7 day Residual Antimicrobial.

The control(s) for this trial were:

- A surface cleaned with water.
- A surface cleaned with a traditional (Control) Biocide i.e. Non-Residual.

Either AntiBak Residual, the Control Biocide or water was sprayed onto a culture well and allowed to dry.

After 24 hours, 48 hours and 7 days, these surfaces were challenged with 10^8 cfu (colony forming units) of either: *Staphylococcus aureus* (MRSA), *Salmonella enteritidis, Escherichia coli* (0157), *Klebsiella pneumoniae* or *Candida albicans*.

Details of the Rowett methodology used above are available on request.

RESULTS

See enclosed graphs overleaf. (For clarity, only the control biocide results for MRSA and *Klebsiella pneumoniae*, are shown.)

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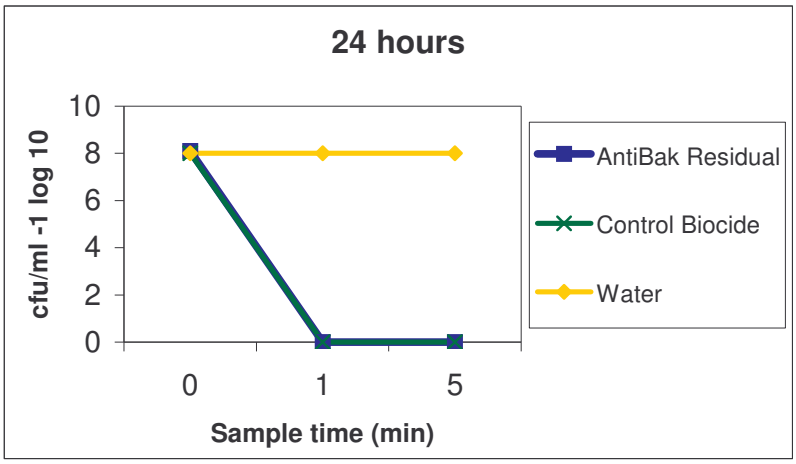
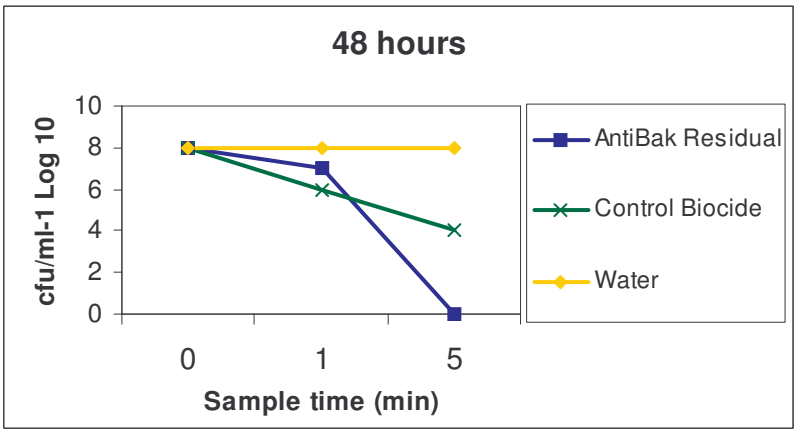
***Staphylococcus aureus* (MRSA)**

24 Hour Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	8.1	0	0
Control Biocide	8.0	0	0
Water	8.0	8.0	8.0



48 Hour Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	8.0	7.0	0
Control Biocide	8.0	6.0	4.0
Water	8.0	8.0	8.0



7 Day Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	8.0	6.9	0
Control Biocide	8.0	8.0	6.0
Water	8.0	8.0	8.0

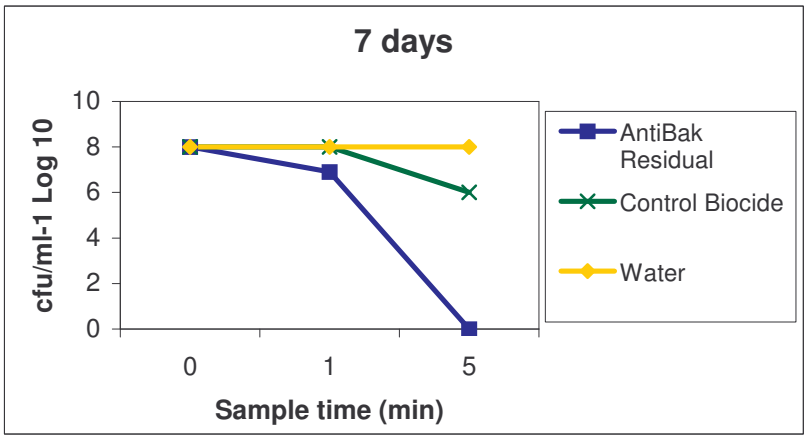
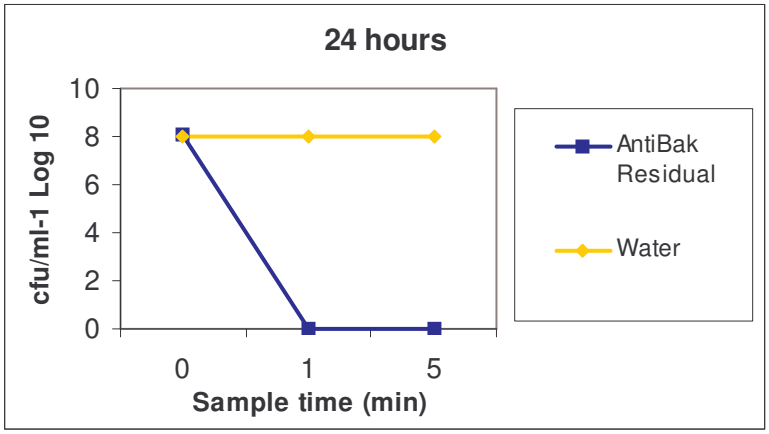


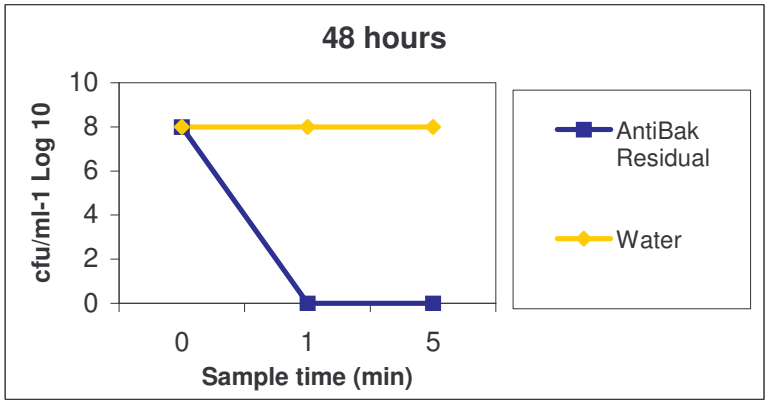
Figure 1: The number of cfu/ml^{-1} Log10 of *Staphylococcus aureus* (MRSA) after 24, 48 hours and 7 days. (For full methodology see Rowett Research Institute Report.)

Salmonella enteritidis

24 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	8.1	0	0
Water	8.0	8.0	8.0



48 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	8.0	0	0
Water	8.0	8.0	8.0



7 Day Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	8.0	0	0
Water	8.0	8.0	8.0

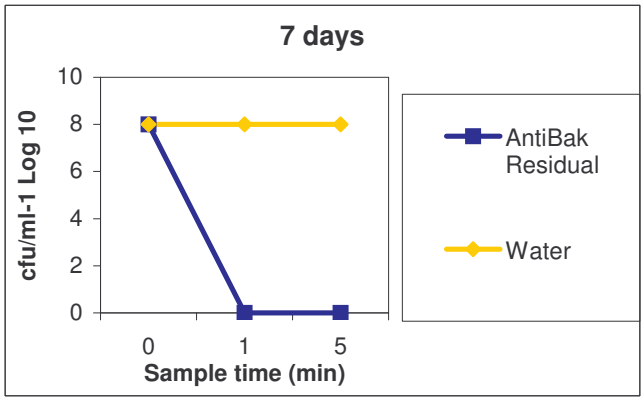
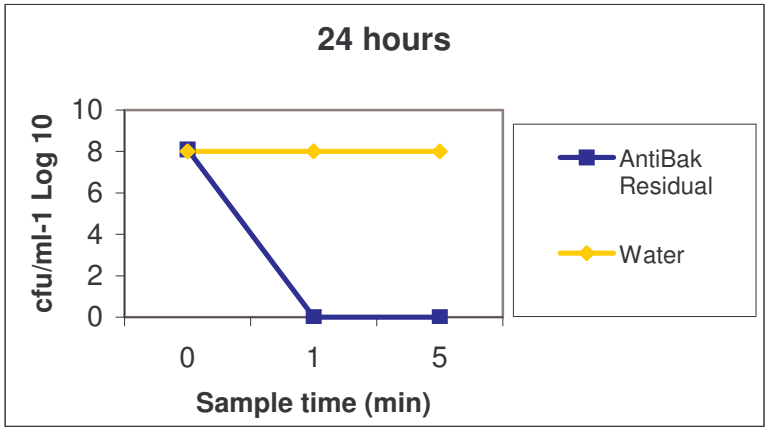


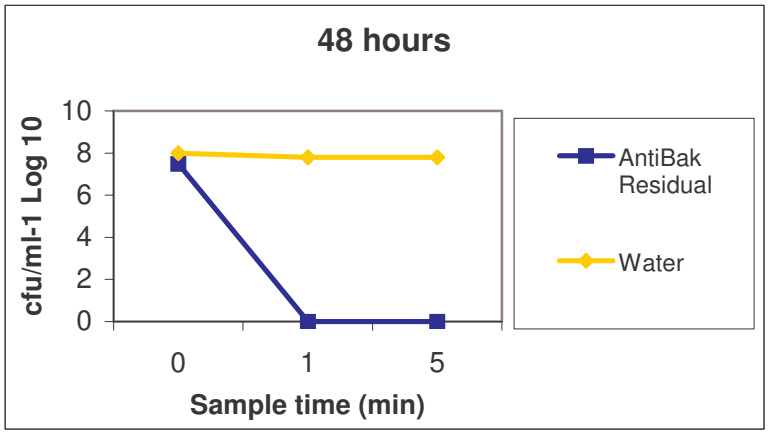
Figure 2: The number of cfu/ml $^{-1}$ Log10 of *Salmonella enteritidis* after 24, 48 hours and 7 days. (For full methodology see Rowett Research Institute Report.)

Escherichia coli (0157)

24 Hour Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	8.1	0	0
Water	8.0	8.0	8.0



48 Hour Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	7.5	0	0
Water	8.0	7.8	7.8



7 Day Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	7.9	0	0
Water	7.9	7.8	7.0

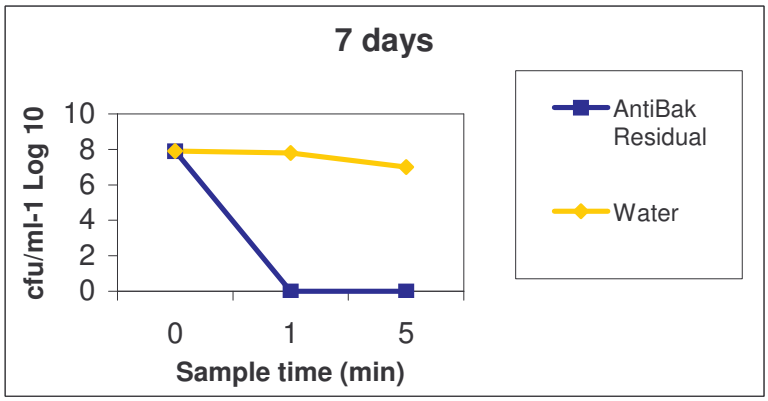
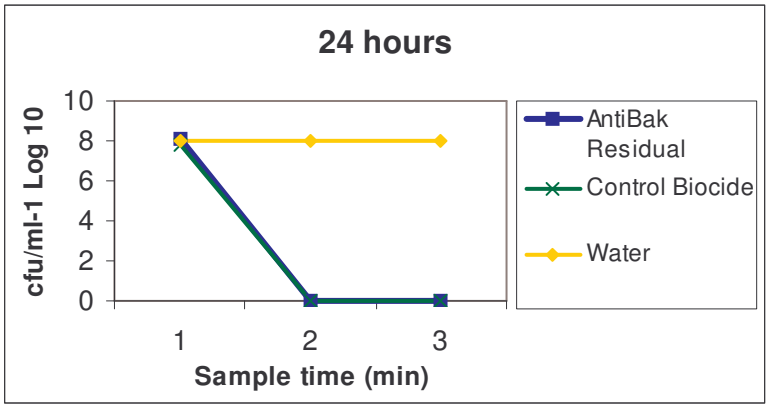


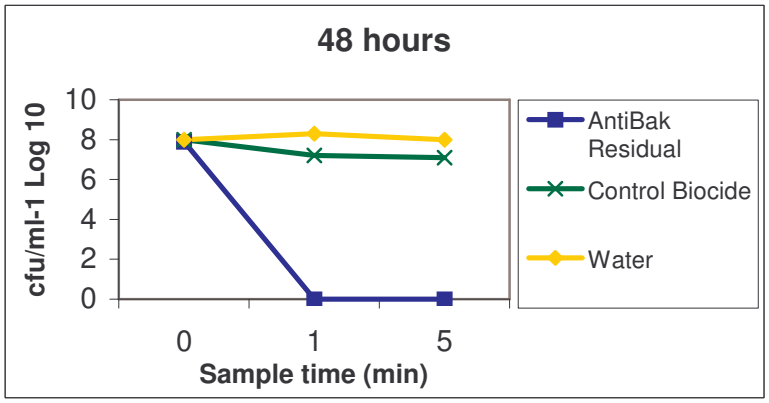
Figure 3: The number of cfu/ml^{-1} Log10 of *Escherichia coli* (0157) after 24, 48 hours and 7 days. (For full methodology see Rowett Research Institute Report.)

Klebsiella pneumoniae

24 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	8.1	0	0
Control Biocide	7.8	0	0
Water	8.0	8.0	8.0



48 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	7.9	0	0
Control Biocide	8.0	7.2	7.1
Water	8.0	8.3	8.0



7 Day Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	8.1	0	0
Control Biocide	7.9	6.4	6.1
Water	7.8	8.0	8.0

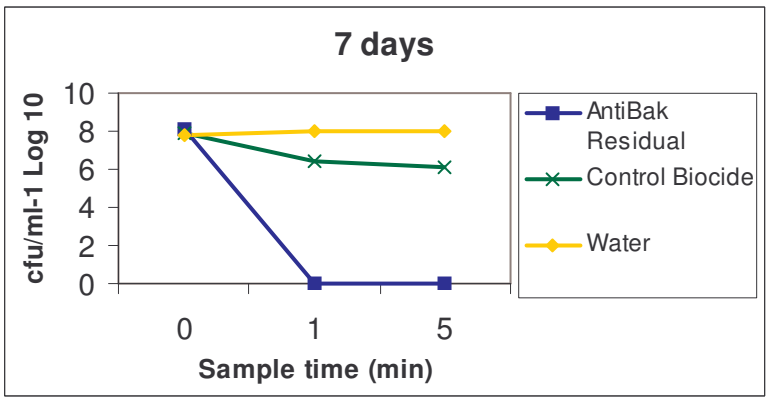
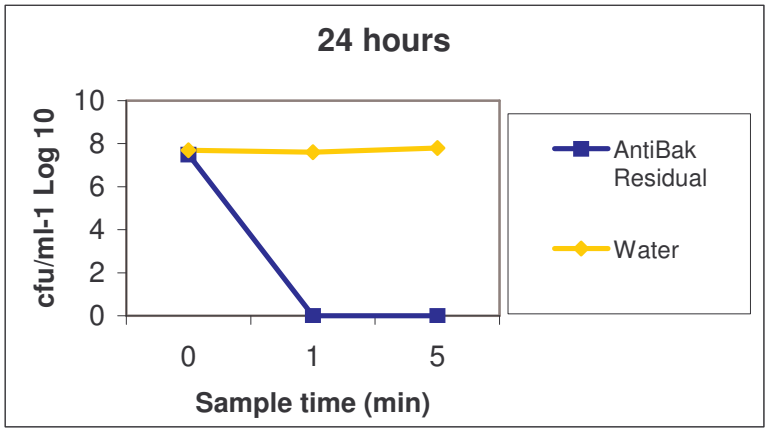


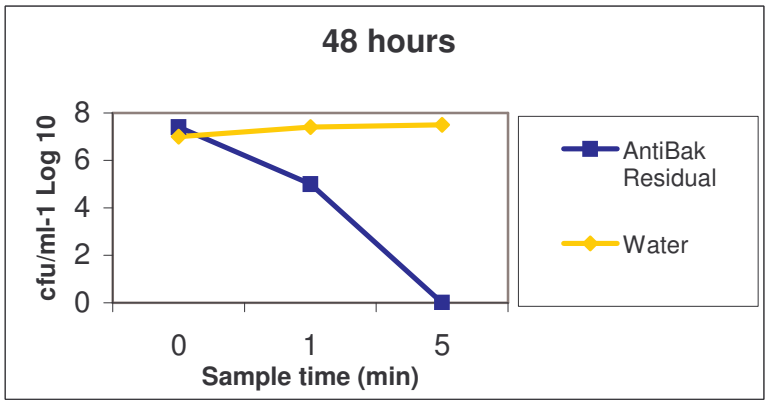
Figure 4: The number of cfu/ml^{-1} Log10 of *Klebsiella pneumoniae* after 24,48 hours and 7 days. (For full methodology see Rowett Research Institute Report.)

Candida albicans

24 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	7.5	0	0
Water	7.7	7.6	7.8



48 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	7.4	5.0	0
Water	7.0	7.4	7.5



7 Day Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	7.5	5.0	0
Water	7.5	8.0	8.0

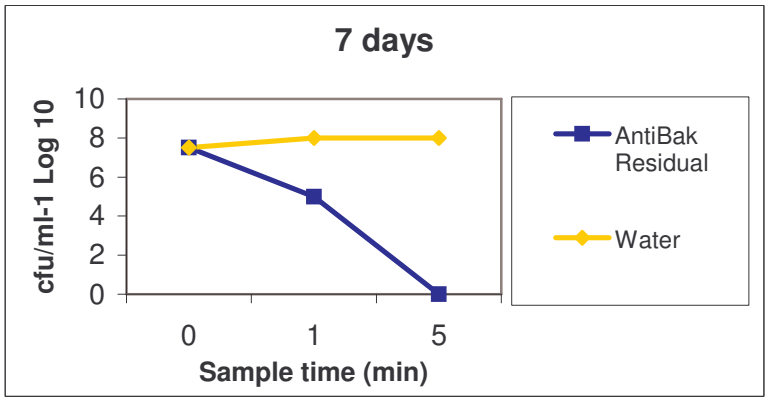
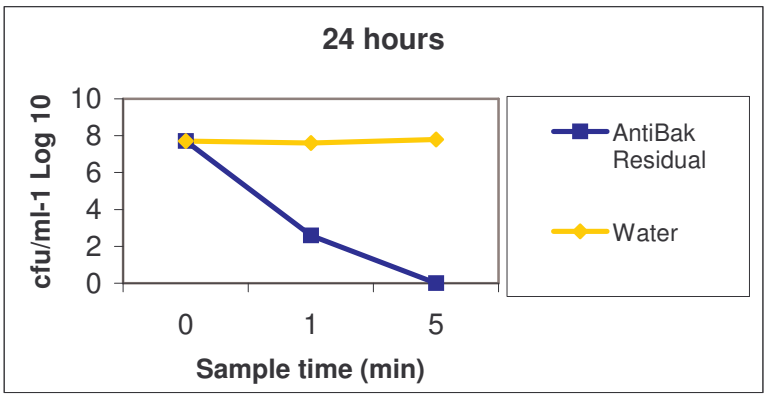


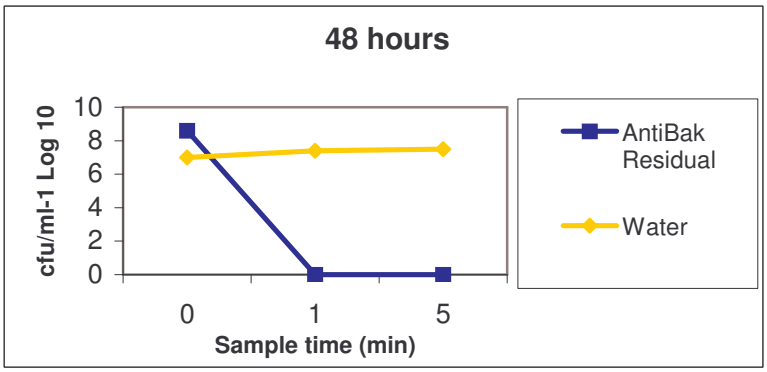
Figure 5: The number of cfu/ml^{-1} Log10 of *Candida albicans* after 24, 48 hours and 7 days. (For full methodology see Rowett Institute Report.)

Listeria monocytogenes

24 Hour Test	Sampling Time (minutes)		
	0	1	5
AntiBak Residual	7.7	2.6	0
Water	7.7	7.6	7.8



48 Hour Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	8.6	0	0
Water	7.0	7.4	7.5



7 Day Test	Sampling Time (minutes)		
	0	**1**	**5**
AntiBak Residual	9	0	3.3
Water	7.5	8.0	8.0

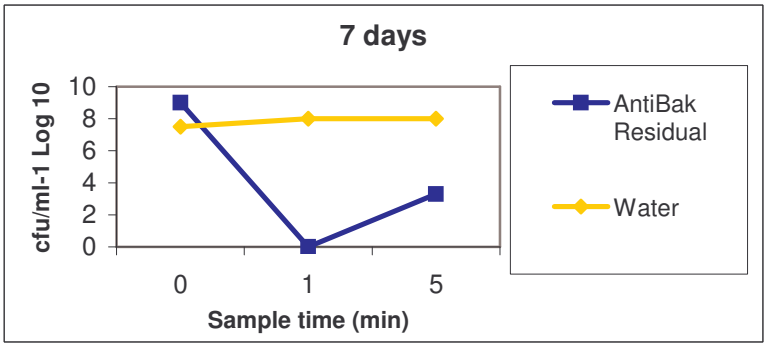


Figure 6: The number of cfu/ml^{-1} Log10 of *Listeria monocytogenes* after 24, 48 hours and 7 days. (For full methodology see Commercial Microbiology Report.)

Conclusion

AntiBak Residual is effective due to its combination of biocidal performance and residuality.

When tested as a residual biocide it was found to achieve 100% kill rates 7 days after application.

Table 1 below shows a comparison of kill rate performance achieved by AntiBak Residual and a non-residual biocide (see enclosed graphs for full details).

Table 1	**Water 7 days**	**Control Biocide 7 days**		**AntiBak Residual 7 days**	
Contact Time	**1 min**	**1 min**	**5 min**	**1 min**	**5 min**
MRSA	**8.0 ***	**8.0**	**6.0**	**6.9**	**0.0**
K. pneumoniae	**8.0 ***	**6.4**	**6.1**	**0.0**	**0.0**

* The number of cfu ml^{-1} Log 10 viable after a 1 minute and 5 minute contact time with a treated surface sprayed with either Water, Control Biocide or AntiBak Residual. Each surface was sprayed and allowed to dry for 7 days prior to testing.

In conclusion, the use of an effective residual biocide, such as AntiBak Residual, will significantly increase both the reliability and efficiency of disinfection process.