



Our **commitment** is to **quality**

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## VacSax BactiClear® Antimicrobial Suction Liner System

The BactiClear® Antimicrobial Suction Liner System incorporates advanced antimicrobial technology, protection all external surfaces.

The BactiClear® system has been developed over a number of years in the laboratories of VacSax Ltd. The system is the first of its kind and is protected by UK and European patent applications. The BactiClear® liner system provides immediate and permanent bacteriological protection against a range of common organisms such as MRSA, E.coli, Salmonella, Listeria, Pseudomonas and Campylobacter, minimising the risk of cross infection to the user and patient. During the design, development and manufacturing stage of the BactiClear system, external internationally registered Microbiological laboratories were used to perform the verification testing under the terms of ISO 22196:2011 (Measurement of antibacterial activity on plastics and other non-porous surfaces)

### Brief summary of Testing and reporting protocol

Determination of the Antibacterial activity on the BactiClear® Suction Liner system against Escherichia coli and Methicillin Resistant Staphylococcus aureus after 6 and 24 hours using ISO 22196:2011

Determination of Antibacterial Activity

An aliquot (100µl) of a log phase cell suspension of either E coli (5.1 x cells:ATCC8739) or Methicillin Resistant Staphylococcus aureus (5.0 x cells:NTCC 13142) prepared using the method described in ISO 22196 was held in intimate contact with each of replicates of the test surfaces of the BactiClear® Liner System and a controlled surface of a standard Advance Liner system using a 20 x 20 polyethylene film (cut from a sterile Stomacher bag) for 6 and 24 hours at C. The size of the surviving population was determined using the method described in ISO 22196. The viable cells in the suspension were enumerated by spiral dilution on to Trypcase Soya Agar and by the pour plate method described in ISO 22196. These plates were incubated at C for 24 hours and then counted. An additional 3 replicate unfortified surfaces were also inoculated in the manner described above but were then analysed immediately for the size of microbial population present to provide 0-time control data. All data were converted to colony forming units (CFU) and then transformed ( $\log_{10}$  to provide a data set that conformed to a Gaussian distribution.

### Brief Summary of Results

#### Controlled samples and standard advance liners.

A summary of extensive testing using the method above showed that the population of Escherichia coli and Methicillin Resistant Staphylococcus aureus held in contact with the standard liner system increased by ca 1.5 orders of magnitude over the 24 hour period. This confirms that not only does bacteria survive on the standard liner plastic systems they grow and colonise over this period.

**In contrast the extended tests on the BactiClear® Liner system showed the population held in contact with external surfaces declined by 3.4 orders of magnitude after 6 hours and by  $\geq 4.3$  orders of magnitude after 24 hours to below the limit of detection compared to the initial population, confirming the BactiClear® Suction Liner System is an effective antimicrobial device.**



ISO 9001 and ISO 13485



Registered in England number 3263925

## **How Does Bacticlear® Work?**

The active ingredient in BactiClear® Antimicrobial Technology is Silver.

Silver has been used in its pure form for many centuries to prevent the growth of bacteria. At VacSax we have developed the technology to safely and effectively incorporate Silver into the BactiClear® Antimicrobial Suction Liner System including Liners and Canisters.

The active ingredients are durable, long lasting and highly active. The active ingredients are dispersed evenly throughout the entire exposed surfaces of the BactiClear® Liner and Canister. It will not wash off and last is entire active lifetime. Silver is inorganic and non-leaching, which means unlike organic antimicrobial technologies it stays within the BactiClear® Liner System.

**Silver provides antimicrobial protection without allowing bacteria to develop resistance.**

1. Silver ions bind to the Cell surface; **this disrupts the cell wall and prevents cell growth**
2. Silver ions are attracted to the Thiol groups in the cell enzymes; **this prevents the bacterium producing energy.**
3. Silver ions interrupt the cell DNA; **this prevents DNA replication and new cell formation.**