Technical Specifications

Revised July 2014

The BST Antibacterial Pen Range

Our unique range of pens contain antibacterial surface protection that uses innovative antimicrobial technology. This technology harnesses the natural sterilising properties of silver. This protection is permanently embedded into the pen and will not wear off over time.

Silver has been used for centuries for its natural sterilising properties. In recent years, this antibacterial effect has been harnessed through the development of innovative carrier mechanisms, which enable the controlled release of silver ions, allowing silver to be incorporated into most materials without losing efficiency and without affecting the physical properties of the material.

BST antibacterial pens are available in a variety of styles including standard retractable pens, stick pens, felt tip pens and luxury fine liners. Retractable pens are also available with a 'pressurised' ink cartridge, meaning the pen will work continuously at -20°C, upside down, underwater and even in space. The full range of models available is detailed in this documents.

Why use antibacterial pens?

- Actively contributes to existing infection control measures
- Protects against pathogenic germs and moulds
- Available in four ink colours (Dependant on model)
- Strong, durable, shatter resistant & chemically resistant polypropylene material
- Compliant with EU & FDA food contact regulations
- Available in a variety of body styles and ink types to suit specific requirements
- Displays due diligence in the prevention of cross contamination
- Effective against E.Coli, MRSA & Salmonella amongst many other bacterium & fungi

Silver Ion Antibacterial Technology

BST Antibacterial pens are moulded from food grade polypropylene with built in silver ion antimicrobial technology, supplied by our partners SteriTouch®. This technology offers continuous protection against cross infection, reducing the risk of spreading pathogenic germs such as MRSA, E.Coli and Salmonella. The antibacterial surface protection harnesses the natural sterilising properties of silver; this protection is permanently embedded into the pen plastic and will not wear off over time.

These antibacterial properties have been laboratory tested and proven to be effective against harmful bacteria and mould including but not limited to:

Bacterium	Fungus
Bacillus Cereus	*Aspergillus Niger*
Bacillus Subtilis	*Aureobasidium Pullulans*
Campylobacter	*Candida Albicans*
Klebsiella Pneumonia	*Cladosporium Cladosporioides*
Pseudomonas Aeruginosa	*Fusarium Solani*
Streptococcus Mutavs	*Penicillium Funiculosum*
Streptococcus Pyogenes	
Vibri Parahaemolyticus	
MRSA	
E.Coli	
Salmonella	

The antibacterial additive used in BST antibacterial pens complies with the relevant requirements of Regulation 1935/2004/EC (Framework Regulation), applicable to intermediate materials (e.g. plastic powders, plastic granules or plastic flakes) and also with the relevant requirements of Regulation 10/2011/EC (PIM), applicable to intermediate materials (e.g. plastic powders, plastic granules or plastic flakes).

The monomers and additives used to produce the antibacterial additive are listed in the Union List of Authorized Substances of Regulation 10/2011/EC. Dual use additives subject to restrictions in food as defined in Regulation 10/2011/EC are not intentionally used in the manufacture of or formulation of this product.

Antibacterial Laboratory Testing Method:

All testing is conducted by an independent laboratory using the JIS Z 2801:2000 test method. Where possible, all test materials are taken from samples of the actual product. Samples typically measure 50mm x 50mm as specified by the JIS Z 2801:2000 method, although where this is impractical it is permissible to use smaller samples with the method being modified accordingly.

Each test sample is inoculated with a suspension of the test organism (for example MRSA). The inoculum is held in contact with the test sample using a sterile polyethylene film. All test samples are inoculated in triplicate, with an additional three replicates of the control.

The bacterial population on three control replicates is evaluated immediately following inoculation. This is assumed to be the initial population on all test samples. The remaining samples are incubated for the test period (typically 24 hours) at 35°C, at which time the bacterial population is evaluated.

Test Results are presented on the pages overleaf

Antibacterial Laboratory Testing Results:

Salmonella Results Table

Sample Material	Bacterium	CFU at 0 Hours	CFU at 24 Hours	Comparison
Control	Salmonella. enteritidis	150000	140000	N/A
BST ANTIBAC	Salmonella. enteritidis	150000	<10	99.999% reduction

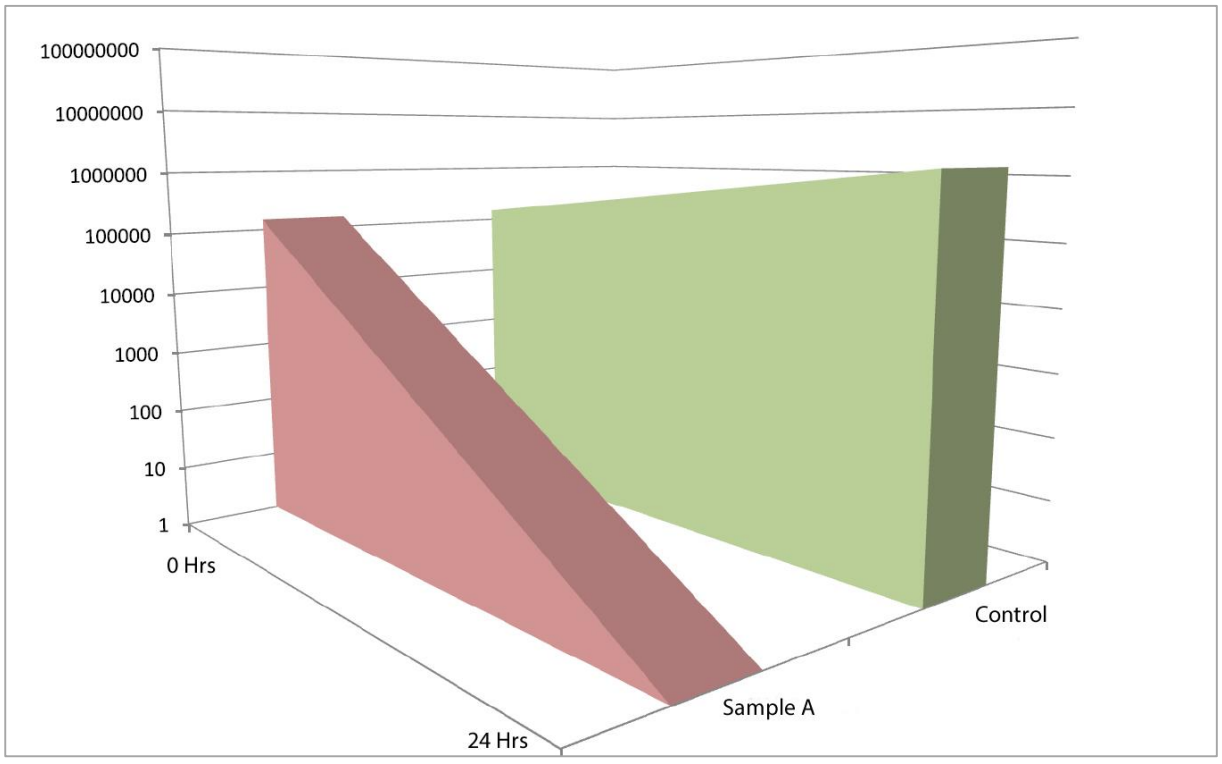
MRSA Results Table

Sample Material	Bacterium	CFU at 0 Hours	CFU at 24 Hours	Comparison
Control	MRSA	100000	470000	N/A
BST ANTIBAC A	MRSA	100000	<10	99.998% reduction
BST ANTIBAC B	MRSA	110000	<10	99.998% reduction
BST ANTIBAC C	MRSA	110000	<10	99.998% reduction

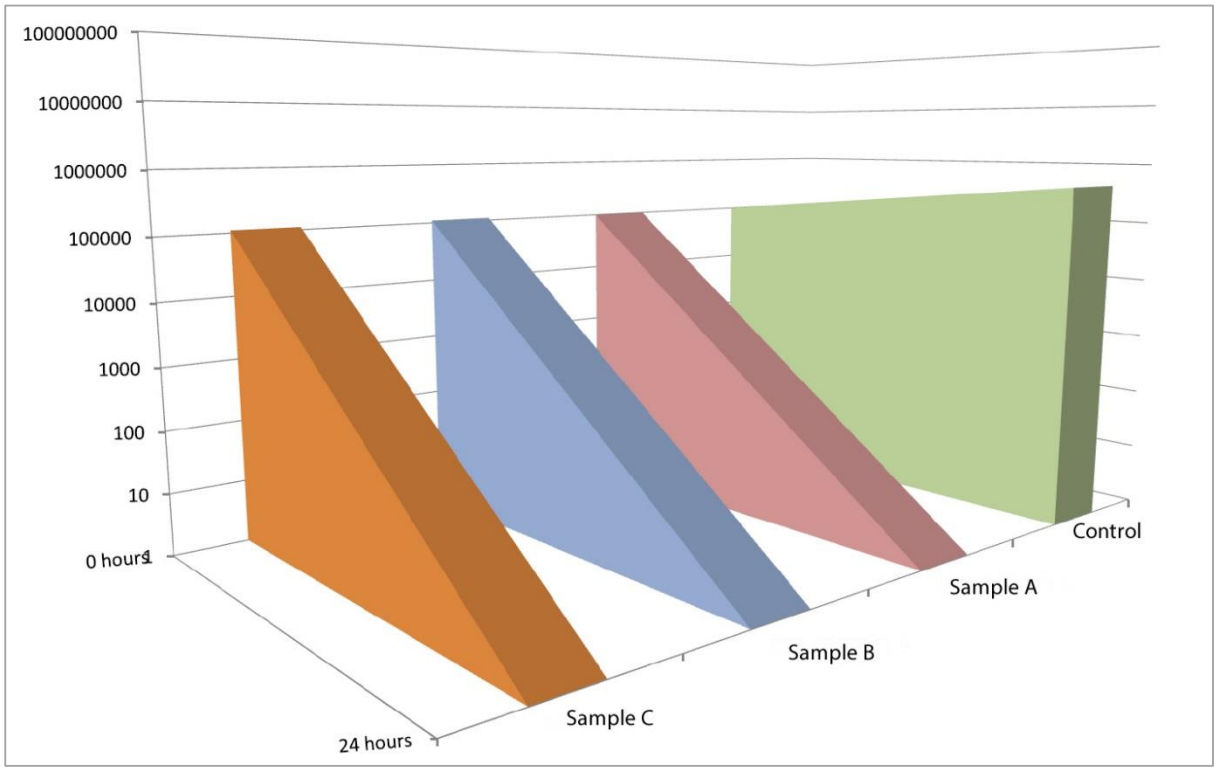
E. Coli Results Table

Sample Material	Bacterium	CFU at 0 Hours	CFU at 24 Hours	Comparison
Control	E. Coli	140000	11000000	N/A
BST ANTIBAC A	E. Coli	140000	<10	99.999% reduction
BST ANTIBAC B	E. Coli	140000	<10	99.999% reduction
BST ANTIBAC C	E. Coli	140000	<10	99.999% reduction

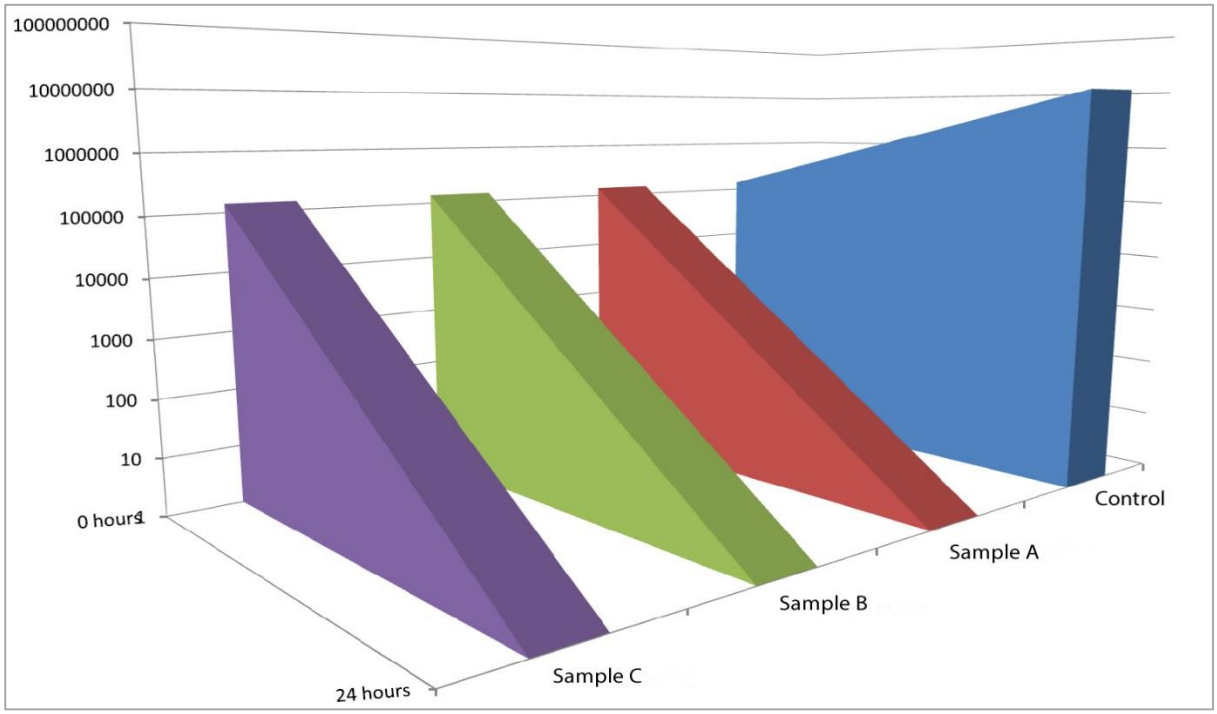
Salmonella Results Graph



MRSA Results Graph



E. Coli Results Graph



Pen Models Available

	Standard Retractable Pen The standard retractable antibacterial pen is ideal for any hygiene critical environment. The pen contains a high quality stainless steel refill with a 10,000m estimated write out length. The simple retractable mechanism contains no spring, has no easily detachable parts and is designed to have as few crevasses germ traps as possible.	Ink Colours ✔ Black ✔ Blue ✔ Red ✔ Green
	Pressurised Retractable Pen The pressurised retractable antibacterial pen is an upgraded version of our standard retractable. The difference is all in the ink cartridge, which contains pressurized ink. This cartridge is tested to perform all the way down to -20°C and will work in greasy, damp, wet and zero gravity environments. Write out length is 8000 m.	Ink Colours ✔ Black ✔ Blue
	One Piece 'Stick' Pen The one piece antibacterial pen is designed for economical conscious users. It is less expensive and uses less material, making it more environmentally friendly. The pen features a hexagonal body profile, making it less likely to roll off work surfaces. Write out length is reduced to 4000m due to a smaller cartridge.	Ink Colours ✔ Black ✔ Blue
	Luxury Fine Liner Pen For a high quality finish, the antibacterial fine liner is the choice to make. The nib is spring loaded, the ink cartridge features a nickel plated body and a stainless steel ink feeder. This pen comes complete with an antibacterial cap to prevent the pen drying out, and is designed to produce, bold, and clear text on most non laminate papers / documents.	Ink Colours ✔ Black ✔ Blue
	Felt Tip Pen The BST antibacterial felt tip pen is designed for bold writing and the marking of items, files, boxes etc. The ink cartridge is made from nickel plated brass with a polyester ink feeder and soft nylon nib. This pen is also supplied with an antibacterial cap to prevent the pen drying out.	Ink Colours ✔ Black ✔ Blue

DISCLAIMER

The information provided in this product specification sheet is based on our experience and knowledge to date and we believe it to be true and reliable. This information is intended as a guide for your use of our products, the use of which is entirely at your own discretion and risk. We, BS Teasdale & Son Ltd, cannot guarantee favourable results and assume no liability in connection with the use of our products.

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