

# BST DETECTABLE HAND SCRAPER

METAL DETECTABLE ¼" FLEXIBLE HAND SCRAPER

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## Product Specifications

SC1HFP717LDDDB | Revised August 2014



**Product Name:** BST Detectable Hand Scraper

**Product Description:** This hand scraper features a 2.25" wide tapered blade, made from a single mould construction and manufactured using XDETECT®. This polypropylene based compound is exclusive to BST and is metal detectable, x-ray visible, and incorporates silver ion antimicrobial technology.

This permanent antimicrobial technology is effective against pathogenic germs and mould, including e-coli, MRSA and Salmonella.

This scraper is ideal for cleaning and removing food stuffs and ingredients from conveyors, work surfaces and other equipment, as well as being used in the manual preparation of food. The scraper is flexible, yet strong and highly snap resistant. This product is manufactured in England exclusively for BST Detectable Products.

**Product Code:** SC1HFP717LDDDB

**Product Colour:** Blue

**Pack Size:** Pack of 5

**Product Dimensions:** 2¼" (5.7cm) Wide Blade x 7" (17.8 cm) Length

**Product Advantages:**

- ✓ Detectable by conventional metal detection & x-ray inspection systems
- ✓ Highly visible bright body colour for easy visual identification
- ✓ EU & FDA food contact approved material
- ✓ Incorporates permanent antimicrobial technology
- ✓ Displays all due diligence in preventing foreign body contamination
- ✓ Can be used to form part of HACCP and BRC procedures



BS Teasdale & Son Ltd. Unit 7, Delta Court, Sky Business Park, Robin Hood Airport, Doncaster, South Yorkshire, DN9 3GN  
Tel: 0845 643 0950 Email: sales@detectable-products.co.uk Web: www.detectable-products.co.uk

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## XDETECT® Properties:

| <u>Property</u>                        | <u>Value</u>           | <u>Test Methods</u> |
|--|------------------------|---------------------|
| Specific Gravity:                      | 1.11 g/cm <sup>3</sup> | ISO 11183           |
| Water Absorption (at saturation, 23°)  | 0.02 %                 | ISO 62              |
| Humidity Absorption (23°/50% r.h.)     | 0.01 %                 | ISO 62              |
| Mould Shrinkage (flow direction 3mm)   | 1.3 - 1.8 %            | ISO 2577            |
| Tensile Strength (Max)                 | 20 MPa                 | ISO 527             |
| Elongation at break                    | >300 %                 | ISO 527             |
| Flexural Strength                      | 25 MPa                 | ISO 178             |
| Flexural Modulus                       | 1.0 MPa                | ISO 178             |
| IZOD Impact Strength (Notched)         | 40.0 KJ/m <sup>2</sup> | ISO 180 / 1eA       |
| IZOD Impact Strength (Un-Notched)      | No Break               | ISO 180 / 1eA       |
| Heat Distortion Temperature (1.81 MPa) | 50°C                   | ISO 75              |
| Heat Distortion Temperature (0.45 MPa) | 80°C                   | ISO 75              |
| Burning Behaviour                      | HB @ 3.0mm             | ISO 1210            |

## Food Contact Status (EU)

Hereby we declare that the material XDETECT 2.0 in various colours is manufactured in line with the relevant requirements of 2023/2006/EC on good manufacturing practice (GMP) for materials and articles intended to come into contact with food.

The raw materials used in the manufacturing process of the above mentioned materials (XDETECT 2.0 in various colours) can be considered suitable for food contact applications in terms of compliance with European regulations. The raw materials used meet the relevant requirements of EU Framework Regulation 1935/2004 on materials and articles intended to come into contact with food.

All monomers, starting substances and additives used to manufacture these grades are listed in Commission Regulation (EU) No. 10 (2011) on plastic materials and articles intended to come into contact with food. Applicable restrictions on monomers, additives etc. (SML, QM) are available on request. The finished articles are required to meet the Overall Migration Limit (OML) of 10 mg/dm(sq) or 60 mg/kg food.

Colourants used are compliant with European Council Resolution AP(89) 1 on the use of colourants in plastic materials coming into contact with food.

XDETECT 2.0 (various colours) is compliant with Directive 1895/2005/EC on the restriction of use of certain epoxy derivatives (BADGE, BFDGE, NOGE), since the latter substances are not intentionally used in the manufacturing process of XDETECT 2.0.

The following overall migration results for XDETECT 2.0 were obtained using a UKAS accredited laboratory, with overall migration simulants and conditions as detailed in EU Regulation No 10/2011.



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| Method             | EN-1186-3<br>Migration into 10% v/v<br>Ethanol<br>(Simulant A) | EN-1186-3<br>Migration into 3% w/v<br>Acetic Acid<br>(Simulant B) | EN-1186-3<br>Migration into Olive Oil<br>(Simulant C) |
|--------------------|--|---|---|
| Replicate #1       | 0.5 mg/dm <sup>2</sup>   | 0.1 mg/dm <sup>2</sup>  | 2.6 mg/dm <sup>2</sup>                                |
| Replicate #2       | 0.7 mg/dm <sup>2</sup>   | 0.0 mg/dm <sup>2</sup>  | 2.9 mg/dm <sup>2</sup>                                |
| Replicate #3       | 0.8 mg/dm <sup>2</sup>   | 0.2 mg/dm <sup>2</sup>  | 3.3 mg/dm <sup>2</sup>                                |
| Replicate #4       | -  | -   | 2.7 mg/dm <sup>2</sup>                                |
| <b>Mean Result</b> | <b>0.7 mg/dm<sup>2</sup></b>                                   | <b>0.1 mg/dm<sup>2</sup></b>                                      | <b>2.9 mg/dm<sup>2</sup></b>                          |
| <b>EU Limit</b>    | <b>10.0 mg/dm<sup>2</sup></b>                                  | <b>10.0 mg/dm<sup>2</sup></b>                                     | <b>10.0 mg/dm<sup>2</sup></b>                         |

## Specific Migration of Barium:

XDETECT 2.0 samples were exposed in Simulant B (3% Acetic Acid) for 1 Hour at 40°C and the level of Barium in the extracts was determined using inductively coupled plasma mass spectrometry.

The mean result of the test was 146 µg/kg, the limit specified in EU Regulation No 10/2011 for the migration of Barium is 1.00 mg/kg (1000 µg/kg). These results were obtained by an expert independent contractor.

## Food Contact Status (FDA)

The polypropylene base resin used in XDETECT 2.0 meets the FDA (Food and Drug Administration) requirements contained in the Code of Federal Regulations – latest revision (1/4-2011) - in 21 CFR 177.1520 (a) (3) (i) , (b) and (c) (3.1a).

At the same time this base resin grade meets the FDA criteria in 21 CFR 177.1520 for food contact applications, excluding cooking, listed under conditions of use C through H in 21 CFR 176.170 (c), Table 2., and can be used in contact with all food types as listed in 21 CFR 176.170 (c), Table 1. Also the mineral additives and the pigments used are GRAS (Generally Recognized As Safe) or are FDA cleared under specific FDA citations.



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## Hand Scraper Antibacterial Technology

BST Detectable Hand Scrapers are manufactured from XDETECT 2.0 with built in silver ion antibacterial 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 XDETECT 2.0 compound 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

*Bacillus Cereus*  
*Bacillus Subtilis*  
*Campylobacter*  
*Klebsiella Pneumonia*  
*Pseudomonas Aeruginosa*  
*Streptococcus Mutans*  
*Streptococcus Pyogenes*  
*Vibri Parahaemolyticus*  
MRSA  
E.Coli  
Salmonella

### Fungus

*Aspergillus Niger*  
*Aureobasidium Pullulans*  
*Candida Albicans*  
*Cladosporium Cladosporioides*  
*Fusarium Solani*  
*Penicillium Funiculosum*

The antibacterial additive used in XDETECT 2.0 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*



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## 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 XDETECT     | Salmonella. enteritidis | 150000         | <10             | 99.999% reduction |

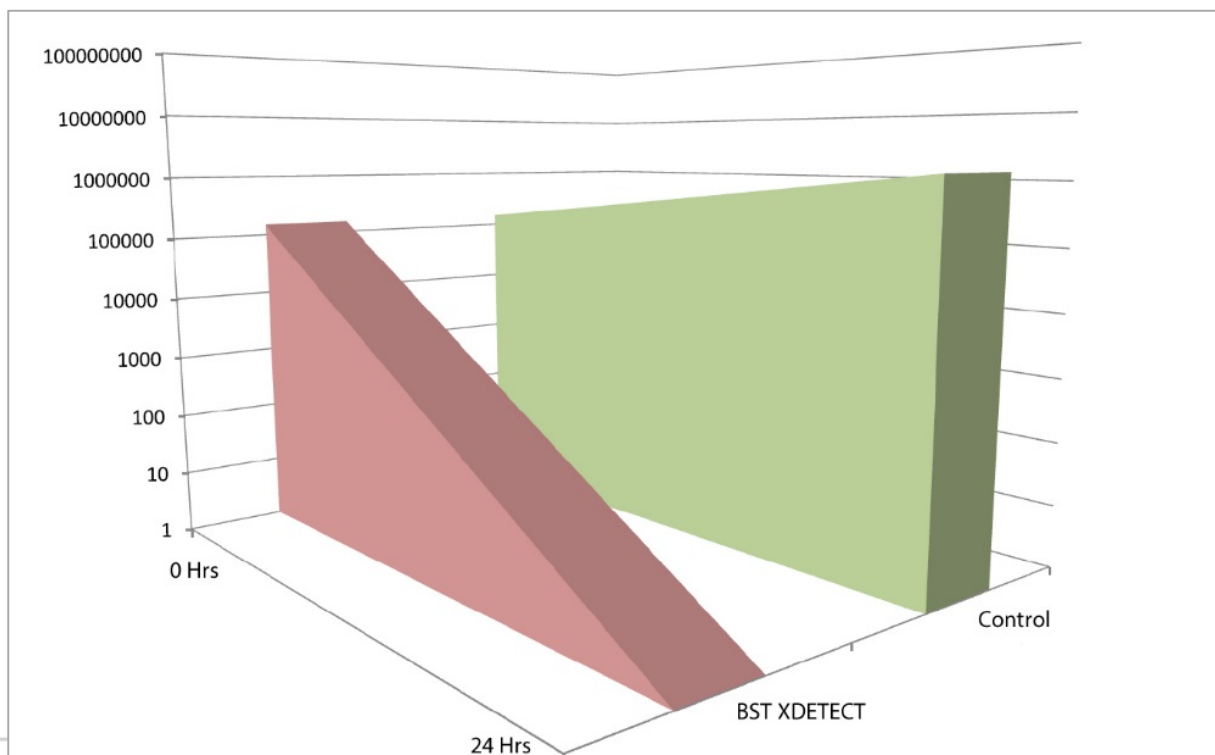
MRSA Results Table

| Sample Material | Bacterium | CFU at 0 Hours | CFU at 24 Hours | Comparison        |
|-----------------|-----------|----------------|-----------------|-------------------|
| Control         | MRSA      | 100000         | 470000          | N/A               |
| BST XDETECT A   | MRSA      | 100000         | <10             | 99.998% reduction |
| BST XDETECT B   | MRSA      | 110000         | <10             | 99.998% reduction |
| BST XDETECT 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 XDETECT A   | E. Coli   | 140000         | <10             | 99.999% reduction |
| BST XDETECT B   | E. Coli   | 140000         | <10             | 99.999% reduction |
| BST XDETECT C   | E. Coli   | 140000         | <10             | 99.999% reduction |

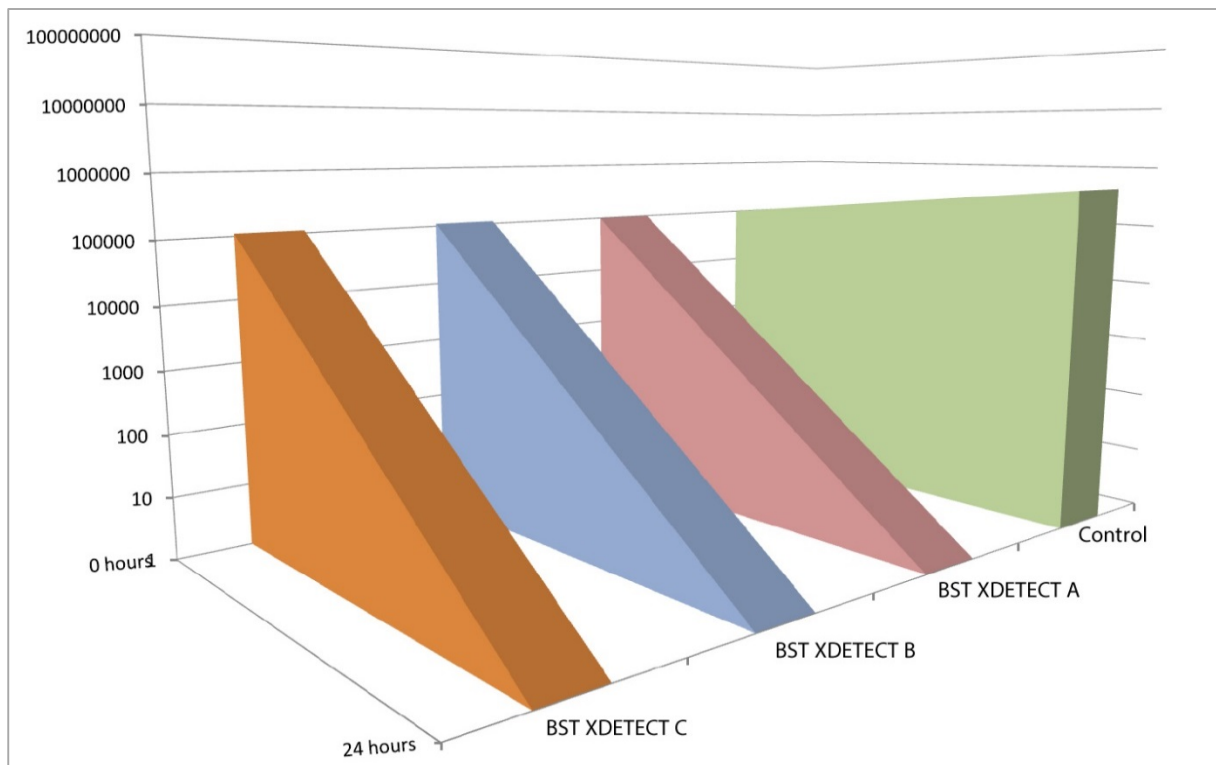
Salmonella Results Graph



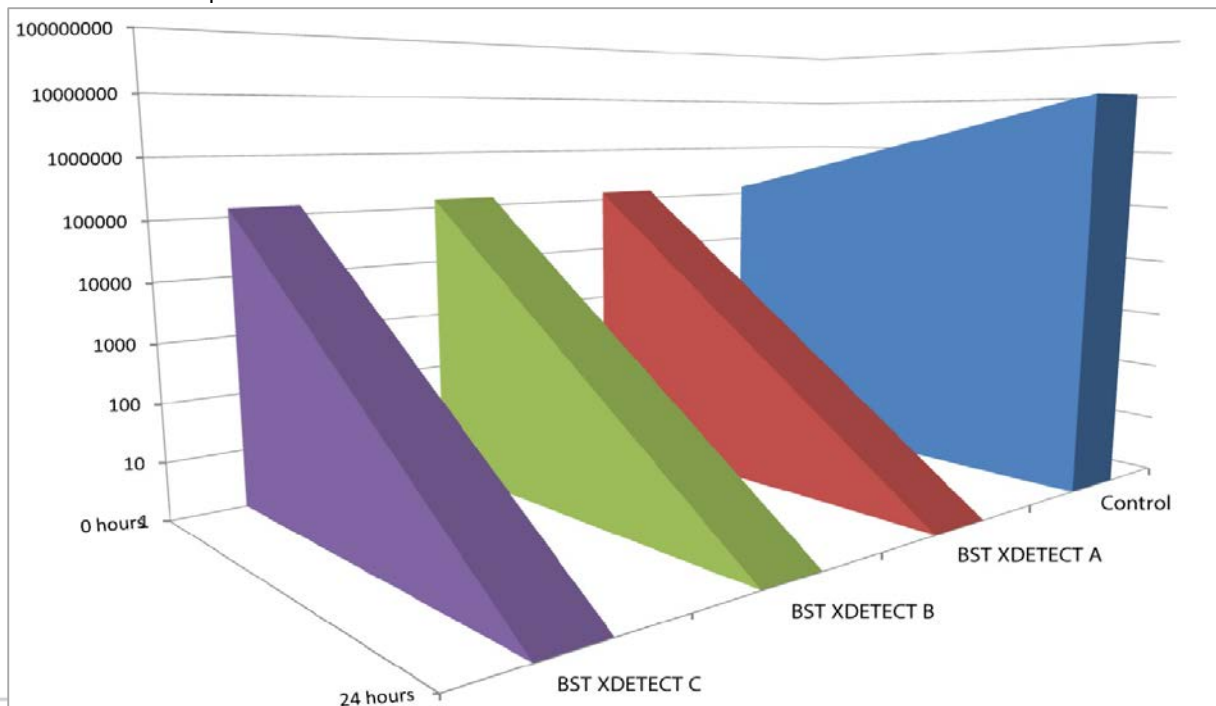
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MRSA Results Graph



E. Coli Results Graph



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## Metal Detectability

BST Detectable Hand Scrapers are made using XDETECT 2.0, an electromagnetically detectable and x-ray visible plastic compound. The metal detectability of this product will vary based on, but not limited to:

- Calibration Levels
- Product Type (E.g. Wet, Dry, Frozen, Liquid)
- Aperture Dimensions
- Orientation

For this reason BST recommend that all our products be thoroughly tested on your metal detection systems by a trained and certified professional. It may be the case that your equipment needs to be recalibrated in order to reliably detect this product. Such a professional should be available by contacting the manufacturer of your metal detection system.

## X-Ray Visibility

In contrast to metal detection, x-ray visibility is determined by material density. For this reason, XDETECT 2.0 contains an additional, evenly dispersed, food safe, high density additive.

Based on our experience and testing, positive readings should be consistent for XDETECT 2.0 fragments as small as 5mm. X-ray detection performance will be reduced when small fragments are buried in deeper, denser products.

**Detection will depend on product type and density.**

Figure 1 shows a 5mm XDETECT 2.0 fragment through a popular x-ray inspection system, inside a packaged garlic bread product.

We highly recommend that all our products be thoroughly tested on your x-ray inspection systems by a trained and certified professional. It may be the case that your equipment needs to be recalibrated in order to reliably detect this product. Such a professional should be available by contacting the manufacturer of your x-ray inspection system.

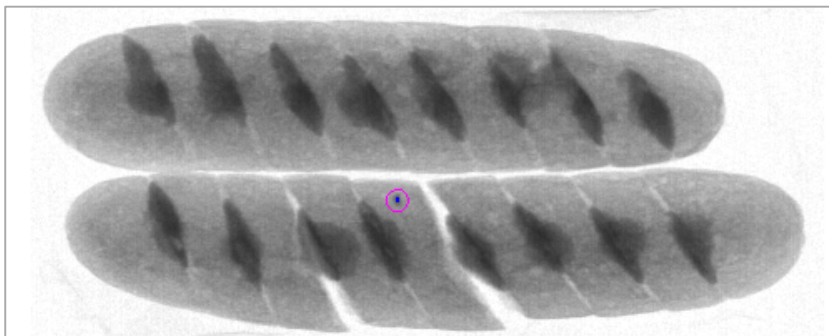


Figure 1

## 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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BS Teasdale & Son Ltd. Unit 7, Delta Court, Sky Business Park, Robin Hood Airport, Doncaster, South Yorkshire, DN9 3GN  
Tel: 0845 643 0950 Email: sales@detectable-products.co.uk Web: www.detectable-products.co.uk