

# BST DETECTABLE PALM SCRAPERS

METAL DETECTABLE, X-RAY VISIBLE & ANTIBACTERIAL

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## Product Specifications

SC14PF5 | Revised August 2014



**Product Description:** The BST detectable palm scraper range is manufactured using our flagship XDETECT 2.0 plastic compound. This strong polypropylene based plastic is modified for metal and x-ray detection in the food and pharmaceutical industries. BST palm scrapers also incorporate silver ion antibacterial technology, which is effective against pathogenic germs and mould, including E-Coli, MRSA & Salmonella. Our scrapers feature extensive food contact approvals including EU & FDA compliance. BST palm scrapers are available in three thickness that offer varying degrees of flexibility; flexible, semi-flexible and rigid. This choice allows the scrapers to be suitable for a variety of applications and industry sectors from bakeries to sausage factories.

**Product Material:** BST XDETECT 2.0

**Temperature Range** - 30 + 80 °C

**Product Prefix:** SC14PF5

**Product Colour:** Blue

**Pack Size:** 50 Pack

<b>Product Variants:</b>	<u>Product Code</u>	<u>Flexibility</u>	<u>Dimensions (mm)</u>	<u>Pack Weight</u>
	SC14PF515DB	Flexible	140 x 100 x 1.5	4.00 Kg
	SC14PF525DB	Semi-Flexible	138 x 130 x 2.5	2.65 Kg
	SC14PF535DB	Rigid	138 x 130 x 3.5	1.25 Kg

**Product Advantages:**

- ✓ Detectable by in-line metal detection systems & x-ray inspection systems
- ✓ Incorporates silver ion antibacterial technology
- ✓ Bright blue colour for easy visual identification
- ✓ Strong, durable, shatter resistant & chemically resistant material
- ✓ Compliant with EU & FDA food contact legislation
- ✓ Available in three thickness to suit a variety of applications
- ✓ Can be used as part of HACCP and BRC procedures
- ✓ Displays due diligence in the prevention of foreign body contamination



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## 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.

Method	EN-1186-3 Migration into 10% v/v Ethanol (Simulant A)	EN-1186-3 Migration into 3% w/v Acetic Acid (Simulant B)	EN-1186-3 Migration into Olive Oil (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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## Palm Scraper Antibacterial Technology

BST Detectable Palm 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 Mutavs*  
*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

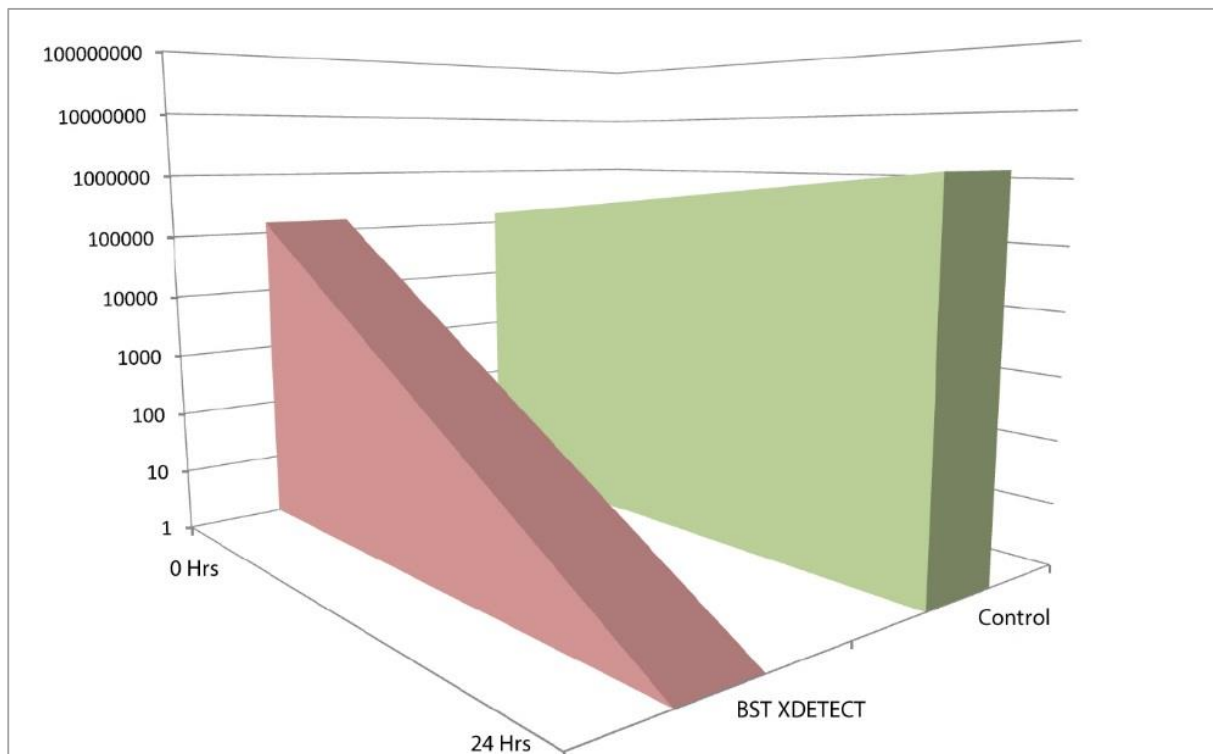
MRSA Results Table

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

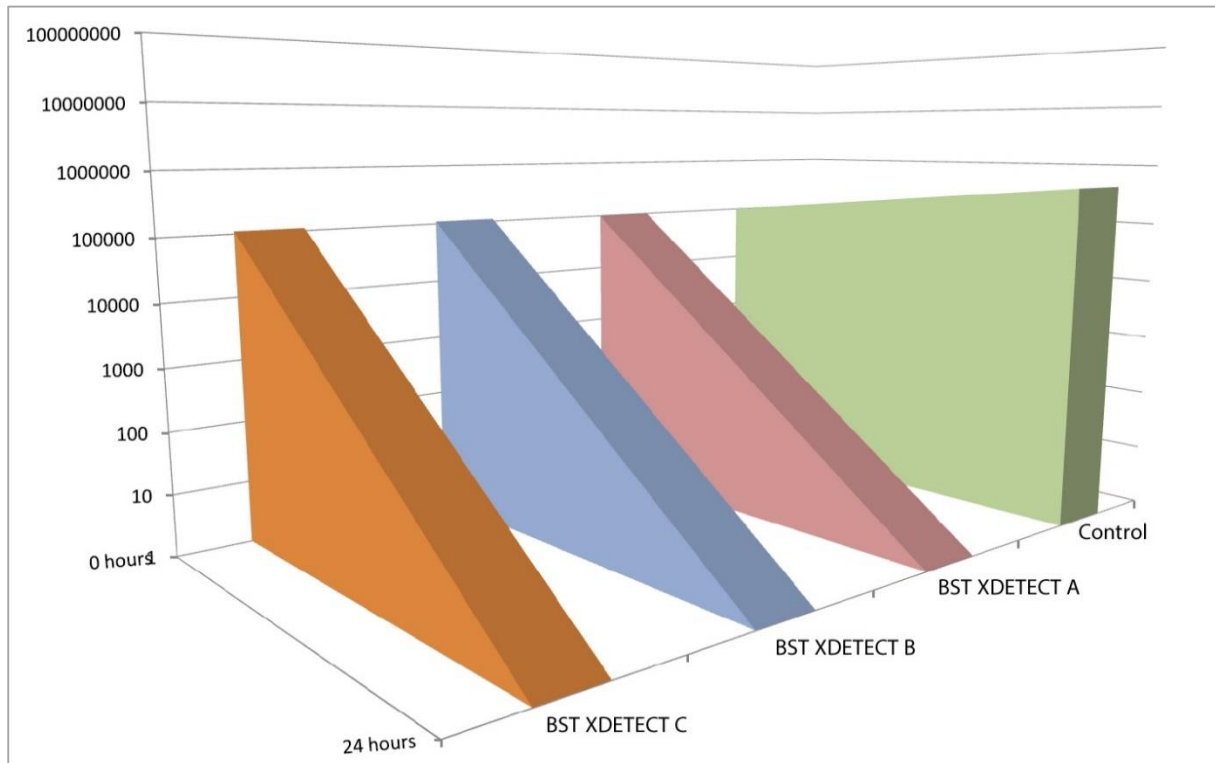
Salmonella Results Graph



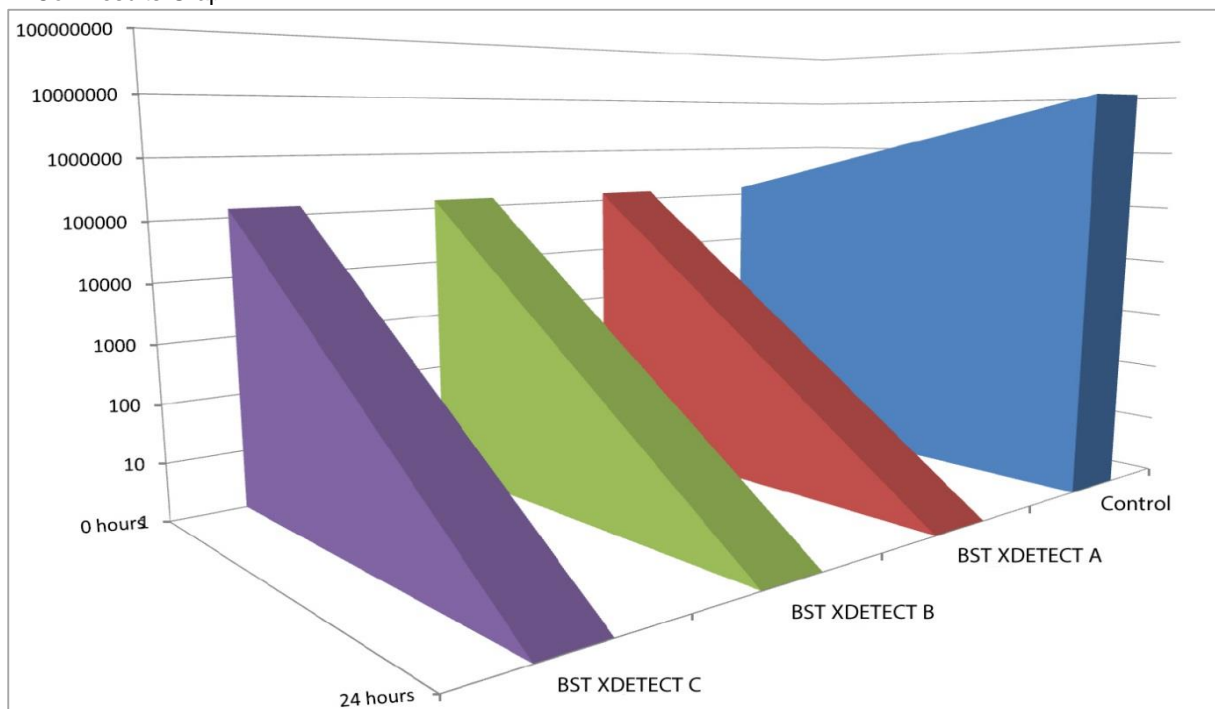
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MRSA Results Graph



E. Coli Results Graph



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## Metal Detectability

BST Detectable Palm 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.

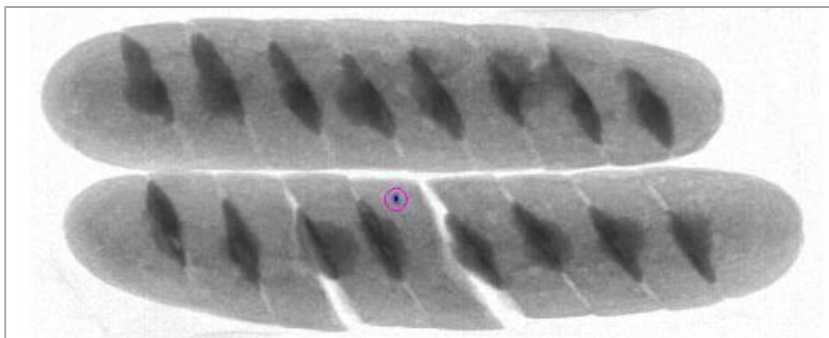


Figure 1

## 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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