

Product Specifications

Revised July 2015



Introducing the BST DetectaBox®

The BST DetectaBox is designed to address the problem of box fragments contaminating food products. This problem can occur whenever a food storage or handing box is subject to more wear and tear than usual and is at risk of breaking or chipping.

The DetectaBox is manufactured using XDETECT, BST's flagship and industry renowned metal detectable and x-ray visible plastic. This plastic is designed entirely with food safety in mind. As well as being highly detectable it is also strong, hardwearing, brightly coloured, chemical resistant, shatter resistant, FDA approved and EU compliant.

The first in the DetectaBox® range is a standard EURO size of 600x400x220. Also available are matching heavy duty caster dollies (non-detectable) for the easy transportation of stacked boxes on the factory floor. The detectability performance of BST XDETECT has been extensively tested by metal detector manufacturer Anritsu Industrial Solutions - with outstanding and well documented results.

DetectaBox® Advantages

- ✓ Standard EURO Sized
- ✓ Food Grade
- ✓ Shatter Resistant
- ✓ Caster Dolly Compatible
- ✓ Metal Detectable
- ✓ FDA Approved
- ✓ Chemical Resistant
- ✓ Displays due diligence
- ✓ X-Ray Visible
- ✓ EU Compliant
- ✓ Stackable up to 10
- ✓ Heavy Duty



BST DETECTABOX®

METAL DETECTABLE & X-RAY VISIBLE STACKABLE BOXES

PAGE 2 of 4

Order Code:	BX1M201ADB
Product Material:	BST XDETECT [<i>Polypropylene Co-Polymer</i>]
Product Weight:	2.2Kg
Outside Dimensions:	600 x 400 x 220 mm
Inside Dimensions:	545 x 345 x 205 mm
Product Colours:	Blue - [<i>Others available upon special request</i>]
Capacity:	43.8 L / 1 ½ Cubic Feet
Stacking Height:	10 Units
Box Walls:	Solid
Box Base:	Solid

XDETECT Physical Properties:

<u>Property</u>	<u>Value</u>	<u>Test Methods</u>
Specific gravity	1.10 g/cm ³	ISO 11183
Water absorption (at saturation, 23°)	0.02 %	ISO 62
Humidity absorption (23°/50% r.h.)	0.01 %	ISO 62

XDETECT Mechanical Properties:

<u>Property</u>	<u>Value</u>	<u>Test Methods</u>
Tensile strength (Max)	30 MPa	ISO 527
Elongation at break	>30 %	ISO 527
Flexural strength	35 MPa	ISO 178
Flexural modulus	1.5 GPa	ISO 178
IZOD impact strength, notched	10 kJ/m ²	ISO 180 / 1eA
IZOD impact strength, unnotched	40 kJ/m ²	ISO 180 / 1eU



Food Contact Status

Hereby we declare that the material XDETECT 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 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 as amended up to 202/2014/EC 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/dm² 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 (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.

The following overall migration results for XDETECT sample plaques were obtained using a UKAS accredited laboratory, with the full report available upon request.

Overall migration according to EU Commission Regulation (EU) No. 10 (2011) on plastic materials and articles intended to come into contact with food:

Method	Simulant A (10% v/v Ethanol) (2 Hours @ 70°C)	Simulant B (3% w/v Acetic Acid) (2 Hours @ 70°C)	Simulant C (Olive Oil) (2 Hours @ 70°C)
Replicate #1	0.5 mg/dm ²	0.1 mg/dm ²	2.6 mg/dm ²
Replicate #2	0.7 mg/dm ²	0.0 mg/dm ²	2.9 mg/dm ²
Replicate #3	0.8 mg/dm ²	0.2 mg/dm ²	3.3 mg/dm ²
Replicate #4	-	-	2.7 mg/dm ²
Mean Result	0.7 mg/dm²	0.1 mg/dm²	2.9 mg/dm²
EU Limit	10.0 mg/dm²	10.0 mg/dm²	10.0 mg/dm²
EU Compliance	COMPLIANT	COMPLIANT	COMPLIANT

Specific Migrations according to EU Commission Regulation (EU) No. 10 (2011) on plastic materials and articles intended to come into contact with food:

Substance	Test Simulant	Test Temperature	Time	EU Limit	Result	EU Compliance
Barium	3% Acetic Acid	40°C	1 Hour	1000 µg/kg	146 µg/kg	COMPLIANT
Bis(2-ethylhexyl)phthalate DEHP	Olive Oil	40°C	1 Hour	1500 µg/kg	-	COMPLIANT
Bis(n-butyl)phthalate DBP	Olive Oil	40°C	1 Hour	300 µg/kg	-	COMPLIANT

Statement of EU Food Contact Compliance

BST Detectable Products hereby declare that articles manufactured from BST XDETECT are, according to EU regulations, authorised to come into direct contact with all types of foodstuffs at a maximum temperature of 40°C for a maximum time period of one hour.

Statement of USA Food Contact Compliance

The polypropylene base resin used in XDETECT 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.



Metal Detectability (FOR GUIDANCE ONLY)

BST XDETECT is an electromagnetically detectable and x-ray visible plastic compound. The metal detectability of this compound will vary based on, but not limited to the following factors:

- Detector Calibration Levels
- Food Product Type / Effect (E.g. Wet, Dry, Frozen, Liquid)
- Detector Aperture Dimensions
- Contaminant 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. XDETECT samples gave following test piece equivalent readings when tested through the geometric centre of an Anritsu KD8124AW coaxial metal detection system with a 95 x 450 mm aperture:

XDETECT Contaminant Size	Advised Minimum Ferrous Sensitivity for Detection
4.0 mm ³ Cube	2.0 mm FE
6.0 mm ³ Cube	2.5 mm FE
7.0 mm Ø Sphere	2.5 mm FE
8.0 mm ³ Cube	3.5 mm FE
11.0 mm Ø Sphere	4.0 mm FE

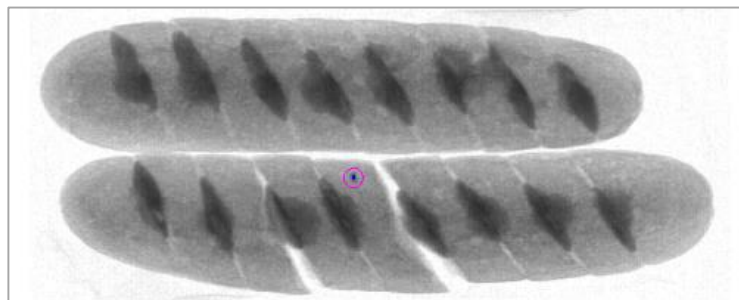


Although designed to be detected as a ferrous contaminant, XDETECT will also trigger smaller readings as a non-ferrous and stainless steel contaminant. Please note that the above information is for guidance only, and performance will vary.

X-Ray Visibility (FOR GUIDANCE ONLY)

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

Based on our experience and testing, positive readings should be consistent for XDETECT fragments as small as 5mm³. X-ray detection performance will be reduced when small fragments are buried in deeper, denser products. **Detection will depend on product type and density.** This screenshot shows a 5mm³ XDETECT 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.

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. © 2014 BS Teasdale & Son Ltd. All Content, Data & Images are owned by BS Teasdale & Son Ltd and are protected by international copyright law.

