

Product Specifications

| January 2020



DETECTACALC 

Introducing the DetectaCalc®

Calculators are an essential production area item but have long been identified as a foreign body contamination risk. Dropped and broken calculators can spread undetectable fragments within food, resulting in consumer hazard, product recall, penalties or even lawsuits for the food manufacturer.

The DetectaCalc® solves this problem with metal detectable and x-ray visible casing and buttons. Internal circuitry and wiring is also potentially detectable by metal detections systems, making the DetectaCalc® Pocket a comprehensively detectable plastic calculator for food production areas.

This product is designed for food production from the outset, with minimal germ traps, fully detectable food grade casing & buttons, a big display and big buttons.

DetectaCalc Advantages

- ✓ XDETECT® Dual Detectable Casing
- ✓ Metal Detectable Silicone Keypad
- ✓ Reinforced attachment loop
- ✓ Compatible with HACCP processes
- ✓ Includes all standard mathematical functions
- ✓ Dual power system - no battery change
- ✓ Sealed unit with minimal germ traps
- ✓ Includes S/S lanyard with break-release clasp
- ✓ Displays due diligence in preventing contamination
- ✓ Bright Blue Colour for Easy Visual Identification

PRODUKTINFORMATIONEN

Product Order Code:	8900470
Casing Material:	XDETECT Food Grade ABS
Button Material:	Metal Detectable Food Grade Silicone
Lanyard Material:	316 Grade Stainless Steel
Internal Materials:	Assorted wiring & circuitry including lithium battery
Pack Size:	1 Calculator, complete with stainless steel lanyard, boxed
Pack Weight:	0.05 Kg
Dimensions:	120 x 68 x 8 mm
Lanyard Length:	1000mm (318mm Ø)

Important Product Safety Information

Calculator Casing

The detectable pocket calculators feature a dual power system, comprising of a solar panel and battery, which removes the need for the products casing to ever be opened. The calculator is designed to be a permanently sealed unit, as such, no attempt should be made to open the casing of the calculator. If the calculator casing is opened, it is important that the calculator is disposed of and not used in a food production area.

Lanyard Attachment

The detectable pocket calculator is supplied fitted with a stainless steel safety lanyard, designed to prevent the accidental dropping of the calculator by operatives. This lanyard features a clasp designed to break under a sudden pressure. An appropriate risk assessment should be carried prior to use of the product with the lanyard attachment.

Food Contact

The casing and buttons of the detectable pocket calculator are manufactured from food grade metal detectable materials. This design feature is for the purpose of undertaking due diligence in the prevention of foreign body contamination, but does not mean that the product is designed to come into frequent contact with food. The detectable pocket calculator features metal detectable silicone buttons that only contain ingredients checked against the latest update of CFR21 FDA 177- 2600 and are present below the levels permitted.

Food Contact Status

Hereby we declare that the materials ABS are manufactured in line with the relevant requirements of 2023/2006/EC as amended by Commission Regulation (EC) 282/2008, 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 meet the relevant requirements of EU Framework Regulation 1935/2004 on materials and articles intended to come into contact with food.

The monomers, starting substances and additives used are listed in Annex I of the consolidated Commission Regulation No.10 (2011) as amended by 321/2011/EC (restriction of use of BPA in plastic infant feeding bottles), 1282/2011/EC, 1183/2012/EC, 202/2014/EC, 174/2015/EC, 1416/2016/EC, and 752/2017/EC, respectively, related to Plastic Materials and Articles intended to come into contact with foodstuffs.

PRODUKTINFORMATIONEN

The colourant used in the formulation of the ABS is compliant with European Council Resolution AP(89)1 on the use of colourants in plastic materials coming into contact with food, and also with German BfR Recommendations (IX). The carbon black used in the formulation of the ABS Black is specifically tested to by the supplier to ensure continuous compliance with carbon black (CAS 1333-86-4, FCM Substance No 411) purity requirements and specific restrictions/specifications mentioned in Annex I of the Commission Regulation (EU) No 10/2011 (replacing Dir. 2002/72/EC) and its current amendments, concerning Plastics coming into contact with food.

Migration Testing

The following overall migration results for XDETECT Food Grade ABS were obtained using a UKAS accredited laboratory, with overall migration simulants and conditions as detailed in EU Regulation No 10/2011 as amended, on plastic materials and articles intended to come into contact with food.

Sample: ABS-2016/047

Test conditions: Simulants A, B and Iso-octane: 10 days at 40°C 95%v/v ethanol: 2 days at 20°C

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-1186-14§ Migration into Iso- octane (Substitute test)	EN-1186-14§ Migration into 95% Ethanol (Substitute test)
Replicate #1	0.4 mg/dm ²	0.8 mg/dm ²	346.7 mg/dm ²	14.5 mg/dm ²
Replicate #2	0.4 mg/dm ²	0.8 mg/dm ²	303.8 mg/dm ²	15.5 mg/dm ²
Replicate #3	0.4 mg/dm ²	0.7 mg/dm ²	318.0 mg/dm ²	14.3 mg/dm ²
Mean Result	0.4 mg/dm²	0.8 mg/dm²	322.8 mg/dm²	14.8 mg/dm²
EU Limit	10.0 mg/dm²	10.0 mg/dm²	#20.0 mg/dm²	10.0 mg/dm²

#Limit and tolerance are quoted after the application of a fatty food reduction factor of 2 as quoted in EU Regulation 10/2011

To summarise the overall migration test results, the XDETECT Food Grade ABS complies with the overall migration requirements given in EU Regulation 10/2011, as amended, with regards to use with all non-fatty foods and aqueous foods, as given in EU regulation 10/2011, as amended.

Metal Detectability (FOR GUIDANCE ONLY)

The 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 Niebling 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. DetectaCalc 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:

PRODUKTINFORMATIONEN

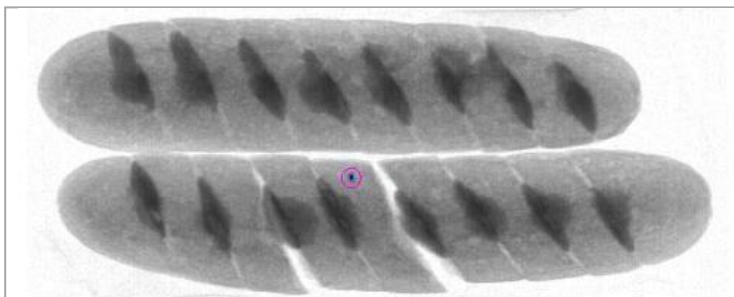
XDETECT Contaminant Size		Advised Minimum Ferrous Sensitivity for Detection
4.0 mm ³ Cube		2.0 mm FE
6.0 mm ³ Cube		2.5 mm FE
7.0 mm Ø Sphere		2.5 mm FE
8.0 mm ³ Cube		3.5 mm FE
11.0 mm Ø Sphere		4.0 mm FE
Detectable Silicone Contaminant Size		Advised Minimum Ferrous Sensitivity for Detection
Whole Button	10 x 7 x 4 mm	2.5 mm FE
½ Button	5 x 7 x 4 mm	2.0 mm FE

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.

ISO Standards

The Detectable Products are certified in accordance with ISO 9001-2015

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, Niebling Technische Bürsten GmbH, cannot guarantee favourable results and assume no liability in connection with the use of our products.