

Product Specifications

| January 2020



The XDETECT® Measuring Jugs

The stackable jugs are manufactured using our own XDETECT® polypropylene compound. These strong, durable jugs are fully metal detectable, x-ray visible, and incorporate silver ion antimicrobial technology, effective against harmful bacteria and mould, including E-coli, MRSA and Salmonella.

Their conveniently designed spouts optimise the flow of liquid out of the jug, adding greater control and accuracy, and minimising any accidental spillage. The jugs feature embossed capacity markings internally and externally, in metric millilitres, imperial pints and fluid ounces. The jugs are easy to store and transport thanks to their stackable design, which allows them to be sturdily stacked up to 15 units high.

XDETECT® is highly shatter and snap resistant, strong and durable. These properties are an integral part of material, which is designed not break into potential foreign bodies, and if does, to be highly metal detectable, x-ray visible and visually identifiable to minimise the risk of foreign body contamination as far as possible. The stackable jugs comply with European and US food contact legislation governing food contact materials.

- Product Advantages:**
- ✓ Detectable by industry standard in-line metal detection systems
 - ✓ Detectable by industry standard x-ray inspection systems
 - ✓ Effective against germs and mould such as MRSA, E-Coli and Salmonella
 - ✓ Can be used to form part of HACCP and BRC procedures
 - ✓ Designed for better liquid flow and easy stacking and storage
 - ✓ EU & FDA food contact approved material

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Product Material: Polypropylene combined with selected non-toxic, food safe metal detectable, x-ray visible and antimicrobial additives

Colour Availability: Blue & Red

Pack Size: 1

Products Available:	<u>Size</u>	<u>Colour</u>	<u>Order Code</u>
	1L	Blue	8900220-B
	1L	Red	89000220-R
	2L	Blue	8900221-B
	2L	Red	8900221-R

Material Properties:

<u>Property</u>	<u>Value</u>	<u>Test Methods</u>
Specific Gravity:	1.11 g/cm ³	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 ²	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

Antimicrobial Performance:

The stackable jugs are supplied with built in silver ion antimicrobial technology. 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 compound and will not wear off over time.

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The antibacterial additives used in XDETECT® have comprehensive approvals, including those necessary for food contact approval. The active components used in SteriTouch® additives comply with the legislative requirements for most overseas territories, including Europe, USA, Australasia and the Far East.

Food Contact Status (EU)

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 (XDETECT 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 (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.

Niebling hereby declare that articles manufactured from 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.

Food Contact Status (FDA)

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.

REACH Compliance and SVHC

The REACH legislation 1907/2006/EC, dealing with the Registration, Evaluation and Authorisation of Chemicals, entered into force on 1st June 2007 and required manufacturers and/or importers to preregister and/or register chemical substances in accordance with the procedures and timelines prescribed within the Regulation.

Herewith we can confirm that our raw material suppliers (manufacturers or importers) have preregistered the monomers and relevant additives to produce polymer raw materials before 1st December 2008 and are now actively preparing for registration of preregistered substances through participation in Substance Information Exchange Forums (SIEF's) and consortia.

At the same time we hereby confirm that Niebling do not intentionally use any of the Substances of Very High Concern (SVHC) as listed by ECHA as defined in Article 57 of Regulation 1907/2006/EC (latest update on 19th December 2011) in concentrations above 0.1% by weight in our compound.

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RoHS Compliance (2011/65/EC, amending 2002/95/EC)

Niebling do not intentionally add any lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls and/or polybrominated diphenyl ethers during the manufacturing process of our compounds. This statement applies to the following substances:

Hexavalent chromium compounds	< 0.1%
Cadmium and its components	< 0.01%
Mercury and its compounds	< 0.1%
Lead and its compounds	< 0.1%
Polybrominated diphenyl ethers (PBDEs)	< 0.1%
Polybrominated biphenyls (PBBs)	< 0.1%
Pentabromodiphenyl ether	< 0.1%
Octabromodiphenyl ether	< 0.1%
Decabromodiphenyl ether	< 0.1%

Furthermore, based upon our knowledge of the manufacturing process and information provided by our compound suppliers, we would not expect these substances to be present in our final product. Analysis for these chemicals is not routinely performed on our final products however.

Metal Detectability (FOR GUIDANCE ONLY)

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. 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

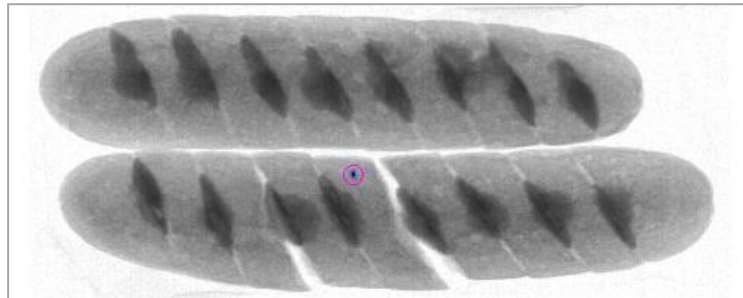
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Although designed to be detected as a ferrous contaminant, XDETECT will also trigger smaller readings as a non-ferrous and stainless steel contaminant. Please note that the above information is for guidance only, and performance will vary.

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