

Technical datasheet

PA Blue Metal Detectable

colorFabb

Date of issue: November 20th, 2023
Version: v2.0

Description

The colorFabb PA Blue Metal Detectable is a 3D printing filament infused with metal detectable particles. The typical blue color and the metal particles, make printed objects readily detectable in various situations.

Disclaimer: Please be advised that the metal particles integrated into our product are designed for detection by specialized metal detection equipment used in the food industry. Standard household magnets or basic metal detectors may not reliably detect these particles. Our materials are optimized for advanced metal detection systems like electromagnetic induction and X-ray inspection. For accurate detection, we recommend using appropriate equipment designed for the food processing environment and increasing the infill for the 3D printed object to increase the particle content.

Typical Properties

Mechanical Properties – 3D Printed

| | Method | Value | Unit |
|---------------------|-----------------------|-------|-------------------|
| Youngs Modulus | Tensile, ISO 527-1A | 3100 | MPa |
| Tensile Strength | Tensile, ISO 527-1A | 65 | MPa |
| Elongation at break | Tensile, ISO 527-1A | 4.5 | % |
| Flexural Modulus | Flexural, ISO 178 | N/A | MPa |
| Flexural Strength | Flexural, ISO 178 | N/A | MPa |
| Impact Strength | Charpy Notch, ISO 179 | 3.1 | kJ/m ² |

Mechanical Properties – Injection Molded*

| | Method | Value | Unit |
|------------------------|---------------------------|-------|-------------------|
| Youngs Modulus | Tensile, ISO 527-1A | 3800 | MPa |
| Tensile Strength | Tensile, ISO 527-1A | 85 | MPa |
| Elongation at break | Tensile, ISO 527-1A | 4 | % |
| Flexural Modulus | Flexural, ISO 178 | N/A | MPa |
| Flexural Strength | Flexural, ISO 178 | N/A | MPa |
| Charpy Impact Strength | Charpy Unnotched, ISO 179 | 81 | kJ/m ² |
| Density | ISO 1183 | 1.25 | g/cm ³ |

Thermal Properties*

| | Method | Value | Unit |
|------------------------|----------------------------------|-------|---------|
| Glass Transition Temp. | DSC, ISO 11357 | N/A | °C |
| Melting Temp. | DSC, ISO 11357 | N/A | °C |
| Decomposition Temp. | TGA, ISO 11358 | N/A | °C |
| Heat Deflection Temp. | HDT-B, ISO 75 | 90 | °C |
| Melt Flow Index | MFI, (250°C/2.16 kg), ISO 1133-A | 6 | g/10min |

*These results are obtained from the information provided by the supplier of the raw material

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Filament Specifications

| | Unit | | |
|--------------------------|------|--------|-------|
| Diameter | mm | 1.75 | 2.85 |
| Max. roundness deviation | mm | ± 0.05 | ± 0.1 |
| Net. Filament weight | g | 750 | 750 |

Guideline for print settings

| | Unit | |
|----------------------------|------|------------|
| Nozzle Temp. | °C | 265-290 |
| Bed Temp. | °C | Ambient-50 |
| Bed / surface modification | - | - |
| Active cooling fan | % | 0-50** |
| Print Speed | mm/s | 30-40 |

Notes

The reported properties are an average of a batch of 3D specimens.

The specimens have been printed in XY plane, using ... mm layer height, 100% infill, 0,4 mm nozzle, °C nozzle temperature and ... °C bed temperature.

** The fan speed is advised to be altered depending on the desired end finish. A fan speed of 0% is advised to achieve the best layer-to-layer adhesion. In a geometry needs cooling, a maximum of 50% regular fan speed is advised,

Disclaimer

The product- and technical information provided in this datasheet is correct to the best of our knowledge. The information given is provided as a guidance for good use, handling and processing, and is not to be considered as a quality specification. The information only relates to the specific product and the material properties.