MATERIALS FOR 3D PRINTING

BLUE X-RAY AND METAL DETECTABLE NYLON

DANISH
TECHNOLOGICAL
INSTITUTE

Blue X-ray Metal Detectable PA (BlueDP)

X-Ray and metal detectable nylon in blue colour

BlueDP is a type of plastic designed to replace parts that would otherwise be CNC milled or injection molded. The material was developed by the Danish Technological Institute. 3S surface-treated BlueDP is approved as food contact material (FCM) and can be detected by metal detectors and X-ray scanners in a production line, as it contains metal.

We print with Selective Laser Sintering (SLS). The technology prints in powder and uses a laser to sinter the powder layers together. 3D printing with SLS offers a great deal of design freedom, as the parts do not need support material.

The technology can print parts that meet ISO 2768-m 1 - however, the tolerances depend a lot on the geometry of the part.

Technology:
- Selective Laser SIntering

Printers:
- EOS - P396

Build volume:
- 340 x 340 x 600 mm

Layer thickness:
- 0,10 - 0,12 mm

Possible post-processing:
- Deburring
- Media blasting
- Colouring
- Lacquering
- 3S surface sealing

MATERIAL PROPERTIES (STANDARD)	BlueDP
TENSILE STRENGTH [Rm]	48 MPa
YOUNG'S MODULUS [E]	1700 MPa
YIELD STRENGTH [Rp0,2]	43 MPa
ELONGATION AT BREAK [A]	15 %
ELONGATION AT YIELD	5 %
VICKERS HARDNESS [Shore D]	80
PART DENSITY	1,043 g/cm3

SURFACE TEXTURE	Raw	3S surface sealing
Average roughness [Ra]	16	1,2

Design features:
- Minimum feature size 0,8 mm
- Minimum channel size Ø1,5 mm
- Minimum wall thickness 0,7 mm
- Support not necessary
- Hole for emptying powder Ø5 mm

Design guides:
- Minimize the volume of the part as much as possible
- Avoid large changes in the cross-sectional area of the part
- Use camphors and roundings - they are "free"
- Consider the print orientation in your design

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