Technical data sheet (TPU - D53)

Thermoplastic Polyurethane Elastomer

Description
Thermoplastic elastomer polymer (TPU) is a highly malleable elastomer that prints with high toughness while retaining great flexibility. TPU is more rigid, somewhat more durable, it has a greater resistance to abrasion and the ability to maintain its elasticity at low temperatures. It also demonstrates high resistance to micro-organisms.

It is suitable to produce food packaging in accordance with the criteria of Regulation (EU) No. 10/2011 and compatible with EN 1343 models.

General suitability for food contact related applications in FDA and EU regulated markets.

Material Properties

Density	1.17 g/cm^3 ISO 1183/A
Chemical Name	Thermoplastic Polyether-Polyurethane

Print Settings

Nozzle temperature	200 - 245°C
Bed temperature	0 - 60°C
Active cooling fan	100%

Mechanical Properties

Tensile strength	50 MPa	DIN 53504-S2
Hardness	53D (Shore D scale)	DIN ISO 48-4 (3s)
Tear strength	150 kN/m	ISO 34-1
Elongation @ break	450%	DIN 53504-S2
Stress at 20% elongation	11 MPa	DIN 53504-S2
Stress at 100% elongation	15 MPa	DIN 53504-S2
Stress at 300% elongation	38 MPa	DIN 53504-S2
Notched impact strength (Charpy) at +23°C & -30°C	kB & 18	DIN EN ISO 179-1
Abrasion loss	30 mm^3	DIN ISO 4649-A

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Filament Specification

Diameter	1.75 mm & 2.85 mm
Tolerance	± 0.05

Storage & Handling

During storage, the product may acquire humidity if exposed to fresh air. The humidity it absorbs depends on the temperature, humidity, and time of exposure. Therefore, it should be store in its packaging in a cool place and keep at temperatures below 50°C. No special restrictions on storage with other products.

Expiration Date (Shelf Life)

If stored correctly and in its original packaging, the product can be used up until 24 months after opening. If the product is stored in a package that has been exposed to humidity during an extended amount of time, it could deteriorate and loose its mechanical and physical properties, even after drying.

Security

This product is not classified as dangerous according to the CE Regulation No 1272/2008, and therefore is not subject to special transport regulations. This product does not melt at room temperature.

Suitable for food contact	Yes (EU) 10/2011
Suitable for Toys	Yes
Suitable for packaging	Yes

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