COEX™

TECHNICAL DATA SHEET

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Flame Retardant ABS 3D Printer Filament

Flame-retardant acrylonitrile butadiene styrene (ABS) · Product code CX16 · 1.75 mm and 2.85 mm

Base resin: Flame-retardant acrylonitrile butadiene styrene (ABS)

Typical values for the base resin. Printed parts vary with print settings, orientation and moisture content.

Physical properties

Property	Standard	Unit	Typical value
Density / specific gravity	ASTM D792	g/cm³	1.16
Melt mass-flow rate (MFR), 220 °C / 10.0 kg	ASTM D1238	g/10 min	54
Molding shrinkage, flow, 23 °C, 3.20 mm	ASTM D955	% (in/in)	0.40 to 0.70 (0.0040 to 0.007
Rockwell hardness, R scale, 23 °C	ASTM D785		100
UL 94 flame rating, 1.0 mm	UL 94		HB
UL 94 flame rating, 1.5 mm	UL 94		V-0
UL 94 flame rating, 2.0 mm	UL 94		V-0, 5VA
UL 94 flame rating, 2.5 mm	UL 94		V-0, 5VA
UL 94 flame rating, 3.0 mm	UL 94		V-0, 5VA

Mechanical properties

Property	Standard	Unit	Typical value
Tensile modulus, 23 °C, 3.20 mm, 1.0 mm/min	ASTM D638	MPa (psi)	2,060 (299,000)
Tensile strength at yield, 23 °C, 3.20 mm, 50 mm/min	ASTM D638	MPa (psi)	40.2 (5,830)
Tensile elongation at yield, 23 °C, 3.20 mm, 50 mm/min	ASTM D638	%	5.0
Tensile elongation at break, 23 °C, 3.20 mm, 50 mm/min	ASTM D638	%	> 15
Flexural modulus, 23 °C, 6.40 mm, 15 mm/min	ASTM D790	MPa (psi)	2,210 (320,000)
Flexural strength, 23 °C, 6.40 mm, 15 mm/min	ASTM D790	MPa (psi)	63.7 (9,250)
Notched Izod impact, 23 °C, 3.20 mm	ASTM D256	J/m (ft·lb/in)	300 (5.7)
Notched Izod impact, 23 °C, 6.40 mm	ASTM D256	J/m (ft·lb/in)	200 (3.7)

Thermal properties

Property	Standard	Unit	Typical value
Deflection temperature under load, 1.8 MPa (264 psi), unannealed, 6.40 mm	ASTM D648	°C (°F)	84.0 (183)
Relative thermal index, electrical, 1.8 to 3.0 mm	UL 746B	°C (°F)	85.0 (185)
Relative thermal index, impact, 1.8 to 3.0 mm	UL 746B	°C (°F)	85.0 (185)
Relative thermal index, strength, 1.8 to 3.0 mm	UL 746B	°C (°F)	80.0 (176)

Filament specifications

Diameter	Nominal	Minimum	Maximum	Tolerance
1.75 mm	1.75 mm (0.0689 in)	1.72 mm (0.0677 in)	1.78 mm (0.0701 in)	±0.03 mm (±0.0012 i
2.85 mm	2.85 mm (0.1122 in)	2.79 mm (0.1098 in)	2.91 mm (0.1146 in)	±0.06 mm (±0.0024 i

Recommended print settings

Nozzle temperature	245–265°C
Bed temperature	90–110°C
Enclosure	An enclosure is required
Part cooling fan	0–30% (off for the first layer)
Drying	Dry an opened spool at 80°C for 4–6 hours
Storage	Keep filament dry: store it sealed, and dry it again only after the spool has been exposed to air
Bed adhesion	use WELD3D, ABS slurry or Kapton tape
Ventilation	Use direct ventilation. Vent outdoors, or through HEPA and carbon filtration.
Nozzle handling	Never let Flame Retardant ABS cool in the nozzle. Remove it while the nozzle is still hot, then purge with standard ABS.

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