

# eMate (Low temperature PCL)

Technical Data Sheet

PCL-based biodegradable material has good toughness and impact resistance; the printing temperature of 70°C makes it safer than high-temperature PLA and ABS; an excellent material companion for 3D printing pens; after printing, the material can be placed in 60°C water to change the shape which can be used as a handmade material and be recycled.

Material Status	Mass Production
Characteristics	<ul style="list-style-type: none"> <li>Printed at Low temperature</li> <li>Safe</li> <li>Easy to shape by hand</li> <li>High toughness</li> <li>High impact resistance</li> </ul>
Applications	<ul style="list-style-type: none"> <li>Low temperature printing pen</li> <li>DIY</li> </ul>
Form	<ul style="list-style-type: none"> <li>Filament</li> </ul>
Processing method	<ul style="list-style-type: none"> <li>3D Print, FDM Print</li> </ul>

	Testing method	Typical value
<b>Physical Properties</b>		
Density	GB/T 1033	1.16 g/cm <sup>3</sup>
Melt Flow Index	GB/T 3682	0.5 (70°C/2.16kg)
<b>Mechanical Properties</b>		
Tensile Strength	GB/T 1040	18 MPa
Elongation at Break	GB/T 1040	>800 %
Flexural Strength	GB/T 9341	13 MPa
Flexural Modulus	GB/T 9341	345 MPa
IZOD Impact Strength	GB/T 1843	N/A
<b>Thermal Properties</b>		
Heat distortion Temperature	GB/T 1634	45 (°C,0.45MPa)
Continuous Service Temperature	IEC 60216	N/A
Maximum (short term) Use Temperature		N/A
<b>Electrical Properties</b>		
Insulation Resistance	DIN IEC 60167	N/A
Surface Resistance	DIN IEC 60093	N/A

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### Recommended printing parameters

Extruder Temperature	70-100°C
Build Platform Temperature	0°C
Fan Speed	100%
Printing Speed	10 - 20mm/s

Based on 0.4 mm nozzle and Simplify 3D v.4.1.2. Printing conditions may vary with different nozzle diameters

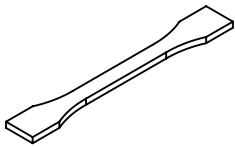
### Drying Recommendations

N/A

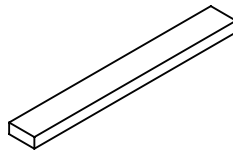
### Notes

Avoid high temperature during storage.

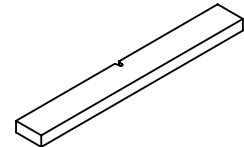
### Mechanical Properties



Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1043

The physical properties, mechanical properties, thermal properties, and electrical properties of the filament are obtained based on the injection molding spline test.

Print test condition:

Extruder Temperature	70-100°C
Build Platform Temperature	N/A
Outline/Perimeter Shells	N/A
Top/Bottom Layers	N/A
Infill Percentage	N/A
Fan speed	N/A
Printing speed	N/A

Based on 0.4 mm nozzle and Simplify 3D v.4.1.2.

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