

Technical Data Sheet

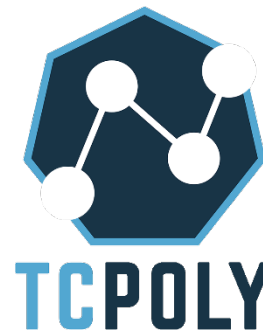
Ice9™ TPU

Thermally conductive, electrically non-insulating plastic

Filament product code: TC-TPU-175-1000

Pellet product code: TC-TPU-000-1000

Properties based on 3D printed samples



GENERAL PROPERTIES		VALUE		
Base Material		Thermoplastic polyurethane		
Color		Dark gray		
Density		1500 kg/m ³		
THERMAL PROPERTIES		METRIC	ENGLISH	ASTM
Thermal conductivity, in-plane		6 W/m-K	42 BTU·in/hr·ft ² ·°F	E1461
Thermal conductivity, through-plane		2 W/m-K	14 BTU·in/hr·ft ² ·°F	E1461
Specific heat		1300 J/kg-K	0.31 BTU/lb·°F	E1269
Coefficient of thermal expansion		80 ppm/ °C	44 ppm/°F	E831
Heat deflection temperature, 0.45 MPa		65 °C	149 °F	D648
Max. continuous temperature		110 °C	230 °F	*
MECHANICAL PROPERTIES		METRIC	ENGLISH	ASTM
Shore Hardness		88 A		D2240
Flexural modulus		95 MPa	15 ksi	D638
Tensile strength, Break		27 MPa	4 ksi	D638
Elongation at break		10 %	10 %	D638
Impact strength, Izod notched		No break	No break	D256
ELECTRICAL PROPERTIES		METRIC		ASTM
Volume resistivity		>10 ⁵ Ω-cm		D257

* Highest temperature recommended for operation of more than 1 hour and is based internal testing and not any recognized standard.

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Recommended FDM Print Settings

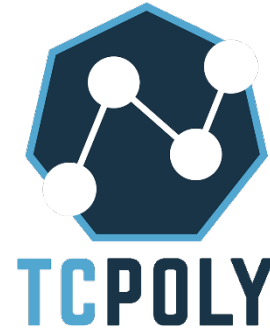
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Base Material		Thermoplastic polyurethane	
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Filament diameter		1.75 ± 0.1 mm	
TEMPERATURE SETTINGS		VALUE	UNITS
Extruder temperature		230-270	°C
Bed temperature		0-50	°C
Cooling fan		Bridging only, 60	%
SLICING SETTINGS		VALUE	UNITS
Print speed		20-125	mm/s
Layer height		0.2-0.7	mm
Retraction distance		6	mm
Extra restart distance		0.5	mm
Infill for best thermal performance		95-100	%
ADDITIONAL GUIDELINES			
Nozzle diameter		0.4-1.0 mm	
Extruder type		Direct drive, dual gear highly suggested	
Print bed preparation		Painters tape with glue stick if no heated bed	
Part removal from bed		Heat bed to 70°C then gently remove with spatula	
Storage instructions		Sealed bag	
Drying instructions		4 hour @ 70°C	
PEI flex sheet		50°C during print, flex sheet to pop off	

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