Electrafil®
PROPERTY DATA
Part Number: PSUM93051
Polyether Sulfone
3D Printing Optimized

Electrafil® PESU 1810 3DP

Electrafil® PESU 1810 3DP is a specially formulated and compounded thermoplastic material designed for additive manufacturing of tooling for use in composites fabrication by autoclave curing. This product offers superior processability (surface finish and start/stop quality) compared to any other high temperature thermoplastic compounds for pellet fed large scale additive manufacturing machines. It will withstand repeated autoclave cycles at temperatures in excess of 350°F.

MECHANICAL PROPERTIES	Unit	Test Method	Additive Manufactured X direction*	Additive Manufactured Z direction*	Injection Molded
Tensile Strength @ yield	psi	ASTM D638	14,300	5,600	23,000
Tensile Elongation @ break	%	ASTM D638			2.0
Tensile Modulus	psi	ASTM D638	1,203,000	437,000	2,500,000
Flexural Strength	psi	ASTM D790	19,400	7,400	36,000
Flexural Modulus	psi	ASTM D790	1,400,000	400,000	2,300,000
Notched Izod Impact	ft-lbs/in	ASTM D256			1.2
Compressive Strength	psi	ASTM D695			26,500
Compressive Modulus	psi	ASTM D695			800,000
PHYSICAL PROPERTIES					
Specific Gravity	-	ASTM D792	1.32	1.32	1.46
THERMAL PROPERTIES					
Heat Deflection Temp @ 66 psi	°F	ASTM D648			436
Heat Deflection Temp @ 264 psi	°F	ASTM D648			432
Coeff of Thermal Expansion	μ/m°C	ASTM D696	11	97	-
Specific Heat Capacity	J/g-°C				1.44
ELECTRICAL PROPERTIES					
Surface Resistivity	Log ohs	ASTM D257			2-6

*Additive manufactured properties tested on modified test specimens to accommodate large scale AM process.

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MOISTURE

As received	Product is packaged at 0.2% or less.
Drying	3 - 6 hours at 280°F in a desiccant dryer
Recommended content for Printing.	Less than 0.04%%

PROCESSING – Additive Manufacturing

Barrel Temperatures:

Zone 1:	550-580	°F
Zone 2:	600-650	°F
Zone 3:	660-700	°F
Zone 4:	660-700	°F
Die:	650-700	°F
Melt:	650-700	°F

Special Processing Instructions: If material is to remain in dryer for more than 6 hours in dried state, reduce dryer temperature to 150°F to prevent degradation of material.

April 6, 2020