

AquaSys® 180 Soluble Support for Additive Manufacturing

Rev 2: 9/8/23

GENERAL INFORMATION			
Resin	Water Soluble Copolymer		
Filler	Carbohydrate and Polyamide		
Fill level	0-100%		
Uses	Extrusion, Injection Molding, 3D Printing		
Form	Pellets or Filament (1.75mm or 2.85mm)		
PHYSICAL PROPERTIES		UNITS	METHOD
Specific Gravity	1.26	g/cm ³	ASTM D792
Coefficient Thermal Expansion	4.2E-05	in/in°C	ASTM D696
INJECTION MOLDED MECHANICAL PROPERTIES		UNITS	METHOD
Tensile Modulus	983,000	psi	ASTM D638
Tensile Strength	18,000	psi	ASTM D638
Tensile Elongation @ Break	2.8	%	ASTM D638
Flexural Modulus	872,000	psi	ASTM D790
Flexural Strength	28,700	psi	ASTM D790
IZOD Impact Unnotched	10.3	ft-lbf/in	ASTM D256
IZOD Impact Notched	0.4	ft-lbf/in	ASTM D4812
Heat Deflection Temperature (0.45 Mpa)	70	°C	ASTM D648
Vicat Softening (10.0N)	171	°C	ASTM D1525
PRINTED PARTS MECHANICAL PROPERTIES		UNITS	METHOD
Tensile Modulus	850,000	psi	ASTM D638
Tensile Strength	7,300	psi	ASTM D638
Tensile Elongation @ Break	0.90	%	ASTM D638
Flexural Modulus	740,000	psi	ASTM D790
Flexural Strength	13,000	psi	ASTM D790
IZOD Impact Unnotched	4.0	ft-lbf/in	ASTM D256
IZOD Impact Notched	0.41	ft-lbf/in	ASTM D4812
PRINTED SPECIMEN CONDITIONS			
System Used	Open Source FGF/DPE – Tmaker BIGFoot Pro		
Nozzle	0.8mm		
Layer Height	0.4mm		
Infill	100% Rectilinear 45°		
Speed	20mm/s		
Build Orientation	XY Flat		
THERMAL PROPERTIES			
Melt Flow Index at 245°C; 16.8 kg g/10 minutes	3		
Glass Transition Temperature	85°C		

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RECOMMENDED PRINT SETTINGS

Extruder Inlet Temperature	240-290°C
Extruder Outlet Temperature	260-290°C
Chamber Temperature	Ambient to 180°C
Build Plate Temperature	50 to 180°C
Build Plate Material	Glass, PEI
Build Plate Adhesive	Optional
Nozzle Size (mm)	0.8
Layer Height (mm)	0.4
Print Speed (mm/s)	10-30
Solubility	Soluble in Tap Water 70-80°C with Agitation
Feedstock Drying Conditions (Optional)	70°C for 3-4 hours

RECOMMENDED DRYING CONDITIONS (OPTIONAL)

Oven dry for at least 4-6 hours at 85 °C

RECOMMENDED MOLDING CONDITIONS

Barrel temperatures	200 – 224 °C
Mold temperatures	38 – 55 °C

STORAGE AND PACKAGING

Store AquaSys 180 in metallized foil packaging with desiccant. Reseal after use.

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