Par3 Technology©

Technical Data Sheet
"RP Tempering"™ - Proto-Plasma-Rx© - Hybrid-Temp-Rx© Enhancement Comparison to Standard 3D System SLS Powder

Powder Properties Verses RP Tempering™ Enhancements

Properties	Test Method	3D Systems SLS Powder DuraFormPA	RP Tempering™ Process SLS Value Added Enhancement Proto-Plasma-RX© - "RP Tempering"™ - Hybrid-Temp-RX©		
Density	ASTM D4164	0.59	Not Applicable (n/a)	n/a	n/a
Specific Gravity	ASTM D792	0.97	n/a	n/a	n/a
Moisture Absorption	ASTM D570	0.41	0.01	0.41	0.01
Water Absorption	ASTM D570	No Published Data	0.01%	46%	0.01%
	Par3 Independent Test	46%	0.01%	46%	0.01%
Chemical Resistance	ASTM	No Published Data	92% resistance	54% resistance	92% resistance
Alkalines, hydrocarbons, fuels, solvents, chemicals		54%	92% resistance	54% resistance	92% resistance

Thermal Properties

Properties	Test Method	3D Systems SLS Powder DuraFormPA	RP Tempering™ Process SLS Value Added Enhancement Proto-Plasma-RX© - "RP Tempering"™ - Hybrid-Temp-RX©		
Melting Point	DCS	184	300*degrees	184*degrees	300*degrees
DTUL	ASTM 648	177	297*degrees	177*degrees	297*degrees
DTUL	ASTM 648	86	155*degrees	86*degrees	155*degrees
Insulation heat	Par3	No Published Data	324*degrees	156*degrees	325*degrees
Insulation Cold	Par3	No Published Data	0*degrees plus	32*degrees	0*degrees plus

Note: Proto-Plasma-RX© and Hybrid-Temp-RX© chemical plasma process when finished will not become brittle, chip or crack when stored in the proper control temperature ranges unless the completed base prototype resin fractures first.

Mechanical Properties

Properties	Test Method	3D Systems SLS Powder DuraFormPA	RP Tempering™ Process SLS Value Added Enhancement Proto-Plasma-RX© - "RP Tempering"™ - Hybrid-Temp-RX©		
Tensile Strength	ASTM D638	44	46	46	46
Tensile Modulus	ASTM D638	1600	1600	1600	1600
Tensile Elongation at break	ASTM D638	9	9	9	9
Flexural Modulus	ASTM D790	1285	1300	800 to 1400	1000 to 1600
Impact Strength (notched izod)	ASTM D256	214	280	642	660
(unotched izod)	ASTM D256	428	510	1260	1280
Torque	Par3	No Published Data	2 to 2.5 revolutions	3 to 4.5 revolutions	3 to 4.5 revolutions
	Revolutions	1.25 revolutions	2 to 2.5revolutions	3 to 4.5 revolutions	3 to 4.5 revolutions
Vibration	Par3	No Published Data			
	Rating	Fail	Pass	Fail	Pass
Sound	Par3	No Published Data			
	Rating	Fail	Pass	Fail	Pass

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Surface Finish

Properties	Test Method	3D Systems SLS Powder DuraFormPA	RP Tempering™ Process SLS Value Added Enhancement Proto-Plasma-RX© - "RP Tempering"™ - Hybrid-Temp-RX©		
Facing	As Processed	8.5			
Facing	Par3	Semi-Rough	Smooth	Semi-Rough	Smooth

Electrical Properties

Properties	Test Method	3D Systems SLS Powder DuraFormPA	RP Tempering™ Process SLS Value Added Enhancement Proto-Plasma-RX© - "RP Tempering"™ - Hybrid-Temp-RX©		
Volume Resistivity	ASTM D257-93	3.1x10(14)	3.1x10(14)	3.1x10(14)	3.1x10(14)
Surface Resistivity	ASTM D257-93	3.0x10(14)	3.0x10(14)	3.0x10(14)	3.0x10(14)
Dielectric Constant	D150-95	2.9	2.9	2.9	2.9
Dielectric Strength	D149-95a	1.6x10(4)	1.6x10(4)	1.6x10(4)	1.6x10(4)
Conductivity	Par3	Not Rated	Non-Conductive	Not Rated	Non-Conductive
Electrical Shock	Par3	Not Rated	Resistant	Not Rated	Resistant

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