Stratasys ULTEM™ 9085

Polyether Imide

Stratasys

Message:

Production-Grade Thermoplastic for Fortus 3D Production Systems
ULTEM 9085 is a flame retardant high performance thermoplastic for direct digital manufacturing and rapid prototyping. It is ideal for the transportation industry due to its high strength-to-weight ratio and its FST (flame, smoke, and toxicity) rating. This unique material's preexisting certifications make it an excellent choice for the commercial transportation industry - especially aerospace, marine and ground vehicles. Combined with a Fortus® 3D Production System, ULTEM 9085 allows design and manufacturing engineers to produce fully functional parts that are ideal for advanced functional prototypes or end use without the cost or lead time of traditional tooling.

General Information	
Features	Durable Flame Retardant Good Chemical Resistance Good Sterilizability Good Strength High Heat Resistance High Impact Resistance
Uses	Aerospace Applications Automotive Applications Engineering Parts Industrial Applications Marine Applications Prototyping Tooling
UL File Number	E345258
Appearance	Black Tan
Processing Method	3D Printing, Fused Filament Fabrication (FFF)

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.34	g/cm³	ASTM D792
Thickness - Layer Capability	254.0 to 330.2	µm	
Volume Resistance [1]	6.0E+13 to 1.0E+14	ohms	ASTM D257
Flammability - FAA	< 5.00		FAR 25.853
Heat Release - 65/65, <40HR Peak (1.52 mm)	Passed		FAR 25.853
NBS Smoke Density			ASTM F814/E662
flaming	Passed		

non-flaming	Passed		
OSU Total Heat Release			FAR 25.853
2 min test	16.0	kW·min/m²	
5 min test	36.0	kW/m²	
Vertical Burn - 60 second (1.02 to 6.35 mm)	2.0	sec	FAR 25.853
Fungal Resistance - Method 508.6	Passed		MIL STD-810G
Outgassing			ASTM E595
Collected Volatile Condensable Material (CVCM)	-0.10	%	
Total Mass Lost (TML)	0.41	%	
Water Vapor Recovered (WVR)	-0.37	%	
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus [2] (3.18 mm)	2220	MPa	ASTM D638
Tensile Strength [3] (3.18 mm)	71.7	MPa	ASTM D638
Tensile Elongation [4] (Break, 3.18 mm)	6.0	%	ASTM D638
Flexural Modulus [5]	2500	MPa	ASTM D790
Flexural Strength [6]	115	MPa	ASTM D790
Compressive Modulus	1930	MPa	ASTM D732
Compressive Strength	105	MPa	ASTM D695
Shear Strength (6.35 mm)	57.2	MPa	ASTM D732
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact (23°C)	110	J/m	ASTM D256A
Unnotched Izod Impact (23°C)	610	J/m	ASTM D256
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load (1.8 MPa, Unannealed, 3.18 mm)	153	°C	ASTM D648
Glass Transition Temperature	367	°C	DSC
CLTE - Flow	6.6E-5	cm/cm/°C	ASTM E228
Electrical	**Nominal Value**	**Unit**	**Test Method**
Dielectric Strength	4.3 to 11	kV/mm	ASTM D149
Dielectric Constant [7]	3.00 to 3.20		ASTM D150
Dissipation Factor [8]	2.6E-3 to 2.7E-3		ASTM D150
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating	V-0		UL 94
NOTE			

1.	All Electrical Property values were generated from the average of test plaques built with default part density (solid). Test plaques were 4.0 x 4.0 x 0.1 inches (102 x 102 x 2.5 mm) and were built both in the flat and vertical orientation. The range of values is mostly the result of the difference in properties of test plaques built in the flat vs. vertical orientation.
2.	Type I, 5.1 mm/min
3.	Type I, 5.1 mm/min
4.	Type I, 5.1 mm/min
5.	Method I (3 point load), 1.3 mm/min
6.	Method I (3 point load), 1.3 mm/min
7.	All Electrical Property values were generated from the average of test plaques built with default part density (solid). Test plaques were 4.0 x 4.0 x 0.1 inches (102 x 102 x 2.5 mm) and were built both in the flat and vertical orientation. The range of values is mostly the result of the difference in properties of test plaques built in the flat vs. vertical orientation.
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