

ULTEM™ FILAMENT AM9085F

DESCRIPTION

ULTEM™ AM9085F filament is a high performance polyetherimide blend product manufactured from ULTEM™ 9085 resin. It is available in black and natural (unpigmented) colors. It provides high heat resistance and mechanical strength, is UL94 V-0 compliant at 1.5 and 3.0 mm (Blue Cards are available on UL IQ Database), and meets FAR 25.853 and OSU 55/55 with low toxicity, smoke, and flame evolution.

TYPICAL PROPERTY VALUES

Revision 20181012

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Modulus			
XY ORIENTATION	2176	MPa	ASTM D638
XZ ORIENTATION	2555	MPa	ASTM D638
ZX ORIENTATION	2439	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min			
XY ORIENTATION	62	MPa	ASTM D638
XZ ORIENTATION	80	MPa	ASTM D638
ZX ORIENTATION	45	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min			
XY ORIENTATION	5.1	%	ASTM D638
XZ ORIENTATION	5.8	%	ASTM D638
ZX ORIENTATION	2.3	%	ASTM D638
Flexural Modulus, 1.3 mm/min			
XY ORIENTATION	2126	MPa	ASTM D 790
XZ ORIENTATION	2550	MPa	ASTM D 790
ZX ORIENTATION	2070	MPa	ASTM D 790
Izod Impact, notched, 23°C ⁽¹⁾			
XY ORIENTATION	104	J/m	ASTM D 256
XZ ORIENTATION	100	J/m	ASTM D 256
ZX ORIENTATION	33	J/m	ASTM D 256
Izod Impact, un-notched, 23°C			
XY ORIENTATION	763	J/m	ASTM D 256
XZ ORIENTATION	1003	J/m	ASTM D 256
ZX ORIENTATION	131	J/m	ASTM D 256
THERMAL			
HDT, 1.82 MPa, 3.2 mm, unannealed			
XY ORIENTATION	175	°C	ASTM D648
XZ ORIENTATION	175	°C	ASTM D648
ZX ORIENTATION	165	°C	ASTM D648
Coefficient of Thermal Expansion - flow			
XY ORIENTATION	57.1	µm/(m·°C)	ASTM E 831
XZ ORIENTATION	60.6	µm/(m·°C)	ASTM E 831
ZX ORIENTATION	62.1	µm/(m·°C)	ASTM E 831
Coefficient of Thermal Expansion - x-flow			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
XY ORIENTATION	58.3	$\mu\text{m}/(\text{m}\cdot^{\circ}\text{C})$	ASTM E 831
XZ ORIENTATION	61.1	$\mu\text{m}/(\text{m}\cdot^{\circ}\text{C})$	ASTM E 831
ZX ORIENTATION	62.9	$\mu\text{m}/(\text{m}\cdot^{\circ}\text{C})$	ASTM E 831
ELECTRICAL			
Volume Resistivity			
XY ORIENTATION	1.07E+15	Ohm-cm	ASTM D 257
XZ ORIENTATION	1.1E+15	Ohm-cm	ASTM D 257
Dielectric Constant - 100 MHz			
XY ORIENTATION	2.54	-	ASTM D 150
XZ ORIENTATION	2.73	-	ASTM D 150
Dissipation Factor - 100 MHz			
XY ORIENTATION	0.00233	-	ASTM D 150
XZ ORIENTATION	0.003	-	ASTM D 150
Dielectric Constant - 500 MHz			
XY ORIENTATION	2.53	-	ASTM D 150
XZ ORIENTATION	2.72	-	ASTM D 150
Dissipation Factor - 500 MHz			
XY ORIENTATION	0.005	-	ASTM D 150
XZ ORIENTATION	0.00567	-	ASTM D 150
Dielectric Constant - 1000 MHz			
XY ORIENTATION	2.52	-	ASTM D 150
XZ ORIENTATION	2.71	-	ASTM D 150
Dissipation Factor - 1000 MHz			
XY ORIENTATION	0.004	-	ASTM D 150
XZ ORIENTATION	0.004	-	ASTM D 150
FLAME CHARACTERISTICS			
FAA Flammability			
XY ORIENTATION, 1.5mm	PASS	-	FAR 25.853
OSU total heat release (2 minute test)			
XY ORIENTATION, 1.5mm	44	kW-min/m ²	FAR 25.853
OSU peak heat release rate (5 minute test)			
XY ORIENTATION, 1.5mm	45	kW/m ²	FAR 25.853
UL94 Flame Class Rating ⁽²⁾			
XY ORIENTATION, 1.5mm	V-0	-	-
XZ ORIENTATION, 1.5mm	V-0	-	-
ZX ORIENTATION, 1.5mm	V-0	-	-
XY ORIENTATION, 3.0mm	V-0	-	-
XZ ORIENTATION, 3.0mm	V-0	-	-
ZX ORIENTATION, 3.0mm	V-0	-	-

(1) Izod impact strength test coupons were printed using a Stratasys FORTUS† 900mc printer at high print density (88.5%).

(2) UL results provided herein may not be sufficient to waive end use part testing for UL listing. Contact UL for further details.

DISCLAIMER

Typical values only. Not intended for design or specification purposes. Variations within normal tolerances are possible for various colors. Test coupons were printed using a Stratasys FORTUS† 400mc printer under standard parameters unless otherwise noted.

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