

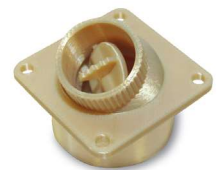
ULTEM™ 9085

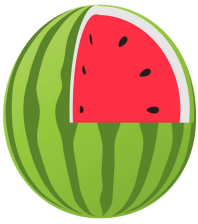
ULTEM™ 9085 resin is a flame-retardant high-performance thermoplastic for digital manufacturing and rapid prototyping. It is ideal for the transportation industry due to its high strength-to-weight ratio and its FST (flame, smoke and toxicity) rating. This unique material's certifications make it an excellent choice for the commercial transportation industry.

ULTEM 9085 resin 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. For high-quality parts that meet stringent aerospace industry requirements, ULTEM 9085 Aerospace is available.*

MECHANICAL PROPERTIES ¹	TEST METHOD	ENGLISH		METRIC	
		XZ ORIENTATION	ZX ORIENTATION	XZ ORIENTATION	ZX ORIENTATION
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	6,800 psi	4,800 psi	47 MPa	33 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	9,950 psi	6,100 psi	69 MPa	42 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	312,000 psi	329,000 psi	2,150 MPa	2,270 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	5.8%	2.2%	5.8%	2.2%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2.2%	1.7%	2.2%	1.7%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	16,200 psi	9,900 psi	112 MPa	68 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	331,000 psi	297,000 psi	2,300 MPa	2,050 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No break	3.7%	No break	3.7%
IZOD Impact, notched (Method A, 23°C)	ASTM D256	2.2 ft-lb/in	0.9 ft-lb/in	120 J/m	48 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	14.6 ft-lb/in	3.2 ft-lb/in	781 J/m	172 J/m
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	14,500 psi	12,700 psi	100 MPa	87 MPa
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	26,200 psi	13,100 psi	181 MPa	90 MPa
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	1,030,000 psi	251,000 psi	7,012 MPa	1,731 MPa

THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	307°F	153°C
Glass Transition Temperature (Tg)	DSC (SSYS)	367°F	186°C
Coefficient of Thermal Expansion	ASTM E831	3.67x10 ⁻⁰⁵ in/(in·°F)	65.27 μm/(m·°C)
Melting Point	-----	Not Applicable ³	Not Applicable ³





ULTEM™ 9085

ELECTRICAL PROPERTIES	TEST METHOD	VALUE RANGE
Volume Resistivity	ASTM D257	4.9 x10 ⁻¹⁵ - 8.2x10 ⁻¹⁵ ohm-cm
Dielectric Constant	ASTM D150-98	3 - 3.2
Dissipation Factor	ASTM D150-98	.0026 - .0027
Dielectric Strength	ASTM D149-09, Method A	110 - 290 V/mil

OTHER ²	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.34
Rockwell Hardness	ASTM D785	---
Flame Classification	UL94	V-0 (1.5 mm, 3 mm)
Oxygen Index	ASTM D2863	0.49
OSU Total Heat Release (2 min test, .060" thick)	FAR 25.853	16 kW min/m ²
UL File Number	-----	E345258
Outgassing		
Total Mass Loss (TML)	ASTM E595	0.41% (1.00% maximum)
Collected Volatile Condensable Material (CVCM)	ASTM E595	-0.1% (0.10% maximum)
Water Vapor Recovered (WVR)	ASTM E595	-0.37% (report)
Fungus Resistance (Method 508.6)	MIL-STD-810G	Passed
Burn Testing		
Horizontal Burn (15 sec)	14 CFR/FAR 25.853	Passed (0.060" thick)
Vertical Burn (60 sec)	14 CFR/FAR 25.853	Passed (0.060" thick)
Vertical Burn (12 sec)	14 CFR/FAR 25.853	Passed (0.060" thick)
45° Ignition	14 CFR/FAR 25.853	Passed (0.060" thick)
Heat Release	14 CFR/FAR 25.853	Passed (0.060" thick)
NBS Smoke Density (flaming)	ASTM F814/E662	Passed (0.060" thick)
NBS Smoke Density (non-flaming)	ASTM F814/E662	Passed (0.060" thick)