

Essentium Duratem TECHNICAL DATA SHEET

ESSENTIUM DURATEM

Duratem is a unique material made up of polyetherimide or PEI, polycarbonate or PC, and siloxane. Unlike other high-temperature materials on the market, Duratem has an impact strength of about 30 kilojoules per square meter, making it five times as strong as PEI 9085 and nine times as strong as PEKK. The base resin of Duratem meets UL 94V-0 flame testing standards at 1.6 millimeters and passes FAR 25.853 testing for flammability, heat release, smoke density, and toxicity. It also contains a non-halogenated flame retardant for health and safety.

MECHANICAL PROPERTIES					
Metric	Test Method	0.4 mm Nozzle		0.8 mm Nozzle	
		PRINT ORIENTATION		PRINT ORIENTATION	
		XY	ZX	XY	ZX
Ultimate Tensile Strength, MPa	ISO 37	40.0 (0.8)	23.3 (0.9)	41.4 (1.1)	25.8 (0.6)
Tensile Modulus, MPa	ISO 37	465 (10)	339 (14)	501 (14)	368 (9)
Strain at Break, %	ISO 37	129 (15)	18.6 (2.6)	111 (24)	19.1 (1.7)
Notched Izod Impact Strength, kJ/m ²	ISO 180/A	—	—	30.6 (1.1)	—

MATERIAL PROPERTIES		
Property	Method	Value
Density, g/cm ³	ISO 1183	1.20
HDT @ 0.45 MPa, °C	ISO 75	145
Moist. Absorption (23°C / 50% RH/24 hr), %	ISO 62	0.58
OSU Total Heat Release (2 min.), kW-min/m ²	FAR 25.853	49.2 (4.9)
OSU Peak Heat Release (5 min.), kW/m ²	FAR 25.853	103.5 (4.9)
Oxygen Index (LOI), %	ASTM D 2863	48

