

ULTEM™ RESIN 1000E

REGION EUROPE

DESCRIPTION

Transparent, standard flow Polyetherimide (Tg 217C) with internal mold release. ECO Conforming. US FDA and EU Food Contact compliant, NSF 51 Listing. Effective June, 2007 this grade will no longer be supported with biocompatibility information and should not be used for medical applications which require biocompatibility. Alternative grade HU1000E.

TYPICAL PROPERTY VALUES

Revision 20180524

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	110	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	85	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	60	%	ASTM D 638
Tensile Modulus, 5 mm/min	3580	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	165	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3520	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	105	MPa	ISO 527
Tensile Stress, break, 5 mm/min	85	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	6	%	ISO 527
Tensile Strain, break, 5 mm/min	60	%	ISO 527
Tensile Modulus, 1 mm/min	3200	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	160	MPa	ISO 178
Flexural Modulus, 2 mm/min	3300	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	1335	J/m	ASTM D 4812
Izod Impact, notched, 23°C	53	J/m	ASTM D 256
Izod Impact, notched, -30°C	55	J/m	ASTM D 256
Izod Impact, Reverse Notched, 3.2 mm	1335	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	38	J	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	6	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m ²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	4	kJ/m ²	ISO 179/1eA

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m ²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m ²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate B/50	218	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	207	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	199	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	210	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	201	°C	ASTM D 648
CTE, -40°C to 150°C, flow	5.5E-05	1/°C	ASTM E 831
CTE, -40°C to 150°C, xflow	5.5E-05	1/°C	ASTM E 831
Thermal Conductivity	0.22	W/m-°C	ASTM C177
Thermal Conductivity	0.24	W/m-°C	ISO 8302
CTE, 23°C to 150°C, flow	5.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	5.5E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	215	°C	ISO 306
Vicat Softening Temp, Rate B/50	211	°C	ISO 306
Vicat Softening Temp, Rate B/120	212	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	200	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Ae
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	198	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	188	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.27	-	ASTM D 792
Water Absorption, 24 hours	0.25	%	ASTM D 570
Water Absorption, equilibrium, 23C	1.25	%	ASTM D 570
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.5 – 0.7	%	SABIC method
Mold Shrinkage, flow, 3.2 mm (5)	0.5 – 0.7	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm (5)	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	12	g/10 min	ASTM D 1238
Density	1.27	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	1.25	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.7	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	17	cm ³ /10 min	ISO 1133
INJECTION MOLDING			
Drying Temperature	150	°C	
Drying Time	4 – 6	hrs	
Drying Time (Cumulative)	24	hrs	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Maximum Moisture Content	0.02	%	
Melt Temperature	350 – 400	°C	
Nozzle Temperature	345 – 400	°C	
Front - Zone 3 Temperature	345 – 400	°C	
Middle - Zone 2 Temperature	340 – 400	°C	
Rear - Zone 1 Temperature	330 – 400	°C	
Mold Temperature	135 – 165	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	
Shot to Cylinder Size	40 – 60	%	
Vent Depth	0.025 – 0.076	mm	

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