

## Ultem\* Resin 1000

### Americas: COMMERCIAL

Transparent, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 and 5VA listing. US FDA and EU Food Contact compliant, NSF 51 listing, compliant in natural color. 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 HU1000.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	UNIT	STANDARD
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 0.2 in/min	15900	psi	ASTM D 638
Tensile Strain, yld, Type I, 0.2 in/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 0.2 in/min	60	%	ASTM D 638
Tensile Modulus, 0.2 in/min	519000	psi	ASTM D 638
Flexural Stress, yld, 0.10 in/min, 4 in span	23900	psi	ASTM D 790
Flexural Modulus, 0.10 in/min, 4 in span	509000	psi	ASTM D 790
Hardness, Rockwell M	109	-	ASTM D 785
Taber Abrasion, CS-17, 1 kg	10	mg/1000cy	ASTM D 1044
<b>IMPACT</b>			
Izod Impact, unnotched, 73°F	25	ft-lb/in	ASTM D 4812
Izod Impact, notched, 73°F	1	ft-lb/in	ASTM D 256
Izod Impact, Reverse Notched, 73°F	25	ft-lb/in	ASTM D 256
Gardner Impact, 73°F	26	ft-lb	ASTM D 3029
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	426	°F	ASTM D 1525
HDT, 66 psi, 0.250", unannealed	410	°F	ASTM D 648
HDT, 264 psi, 0.250", unannealed	394	°F	ASTM D 648
CTE, flow, 0°F to 300°F	3.1E-05	1/°F	ASTM E 831
CTE, xflow, 0°F to 300°F	3.E-05	1/°F	ASTM E 831
Thermal Conductivity	0.22	W/m-°C	ASTM C 177
Relative Temp Index, Elec	170	°C	UL 746B
Relative Temp Index, Mech w/impact	170	°C	UL 746B
Relative Temp Index, Mech w/o impact	170	°C	UL 746B

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 230C/50% relative humidity. All properties, except the melt volume rate are measured on injection moulded samples. All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. Not to be used for part or tool design.

3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

4) Own measurement according to UL.

Source, GMD, Last Update:04/14/2003

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	UNIT	STANDARD
<b>PHYSICAL</b>			
Specific Gravity	1.27	-	ASTM D 792
Water Absorption, 24 hours @ 73°F	0.25	%	ASTM D 570
Water Absorption, equilibrium, 73F	1.25	%	ASTM D 570
Mold Shrinkage, flow, 0.125"	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 337°C/6.6 kgf	9	g/10 min	ASTM D 1238
Poisson's Ratio	0.3	-	ASTM D 638
<b>ELECTRICAL</b>			
Volume Resistivity	1.E+17	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 62 mils	831	V/mil	ASTM D 149
Dielectric Strength, in oil, 62 mils	710	V/mil	ASTM D 149
Dielectric Strength, in oil, 125 mils	500	V/mil	ASTM D 149
Relative Permittivity, 100 Hz	3.15	-	ASTM D 150
Relative Permittivity, 1 kHz	3.15	-	ASTM D 150
Dissipation Factor, 100 Hz	0.0015	-	ASTM D 150
Dissipation Factor, 1 kHz	0.0012	-	ASTM D 150
Dissipation Factor, 2450 MHz	0.0025	-	ASTM D 150
Arc Resistance, Tungsten {PLC}	5	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	1	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	2	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	3	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
<b>FLAME CHARACTERISTICS</b>			
CSA (See File for complete listing)	LS88480	File No.	CSA LISTED
Oxygen Index (LOI)	47	%	ASTM D 2863
NBS Smoke Density, Flaming, Ds 4 min	0.7	-	ASTM E 662

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
<b>Injection Molding</b>		
Drying Temperature	300	°F
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	24	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	660 - 750	°F
Nozzle Temperature	650 - 750	°F
Front - Zone 3 Temperature	650 - 750	°F
Middle - Zone 2 Temperature	640 - 750	°F
Rear - Zone 1 Temperature	630 - 750	°F
Mold Temperature	280 - 330	°F
Back Pressure	50 - 100	psi
Screw Speed	40 - 70	rpm
Shot to Cylinder Size	40 - 60	%
Vent Depth	0.001 - 0.003	in
<b>Extrusion Blow Molding</b>		
Drying Temperature	280 - 300	°F
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	24	hrs
Maximum Moisture Content	0.01 - 0.02	%
Melt Temperature (Parison)	610 - 670	°F
Barrel - Zone 1 Temperature	620 - 660	°F
Barrel - Zone 2 Temperature	620 - 670	°F
Barrel - Zone 3 Temperature	620 - 670	°F
Barrel - Zone 4 Temperature	620 - 670	°F
Adapter - Zone 5 Temperature	620 - 670	°F
Head - Zone 6 - Top Temperature	620 - 670	°F
Head - Zone 7 - Bottom Temperature	620 - 670	°F
Screw Speed	10 - 70	rpm

- DO NOT purge with low melting styrene or acrylic resins.
- Up to 30% Regrind has been successfully reprocessed.

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
<b>Extrusion Blow Molding</b>		
Mold Temperature	150 - 350	°F
Die Temperature	620 - 670	°F

- DO NOT purge with low melting styrene or acrylic resins.
- Up to 30% Regrind has been successfully reprocessed.

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