

# ULTEM™ RESIN HU1010

REGION ASIA

## DESCRIPTION

Transparent, enhanced flow Polyetherimide (Tg 217C). ECO Conforming. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI); food contact compliant; Steam, Gamma, EtO; and E-beam sterilizable.

## TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	110	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	105	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	174	MPa	ASTM D 790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	165	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3420	MPa	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	3510	MPa	ASTM D 790
Taber Abrasion, CS-17, 1 kg	10	mg/1000cy	ASTM D 1044
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
<b>IMPACT</b>			
Izod Impact, unnotched, 23°C	1335	J/m	ASTM D 4812
Izod Impact, notched, 23°C	32	J/m	ASTM D 256
Izod Impact, notched, -30°C	35	J/m	ASTM D 256
Gardner, 23°C	33	J	ASTM D 3029
Instrumented Impact Total Energy, 23°C	33	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	3	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	218	°C	ASTM D 1525
HDT, 1.82 MPa, 6.4 mm, unannealed	198	°C	ASTM D 648
CTE, -40°C to 40°C, xflow	5.E-05	1/°C	ASTM E 831
CTE, -20°C to 150°C, flow	5.58E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	5.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	5.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	211	°C	ISO 306

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/120	212	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	193	°C	ISO 75/Af
<b>PHYSICAL</b>			
Specific Gravity	1.27	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	17.8	g/10 min	ASTM D 1238
Density	1.27	g/cm <sup>3</sup>	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 220°C/5.0 kg	25	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Volume Resistivity	1.E+17	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 1.6 mm	32.7	kV/mm	ASTM D 149
Dielectric Strength, in oil, 1.6 mm	28	kV/mm	ASTM D 149
Relative Permittivity, 1 kHz	3.15	-	ASTM D 150
Dissipation Factor, 1 kHz	0.0013	-	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>			
UL Recognized, 94V-2 Flame Class Rating	0.71	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	0.75	mm	UL 94
UL Recognized, 94-5VA Rating	3	mm	UL 94
Oxygen Index (LOI)	44	%	ASTM D 2863
<b>INJECTION MOLDING</b>			
Drying Temperature	150	°C	
Drying Time	4 – 6	hrs	
Drying Time (Cumulative)	24	hrs	
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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