

# ULTEM™ RESIN HU1110

REGION ASIA

## DESCRIPTION

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.

INDUSTRY	SUB INDUSTRY
Healthcare	Pharmaceutical Packaging and Drug Delivery, Surgical devices, General Healthcare, Patient Testing

## TYPICAL PROPERTY VALUES

Revision 20220721

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	110	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	85	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	70	%	ASTM D638
Tensile Modulus, 5 mm/min	3720	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	174	MPa	ASTM D790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	165	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3420	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	3720	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	110	MPa	ISO 527
Tensile Stress, break, 5 mm/min	80	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	3500	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	140	MPa	ISO 178
Flexural Modulus, 2 mm/min	3300	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	56	J/m	ASTM D256
Izod Impact, notched, -30°C	-	J/m	ASTM D256
Gardner, 23°C	23	J	ASTM D3029
Instrumented Dart Impact Total Energy, 23°C	28	J	ASTM D3763
Izod Impact, notched 80°10'4 +23°C	4	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80°10'4 -30°C	4	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80°10'4 sp=62mm	5	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	219	°C	ASTM D1525
HDT, 1.82 MPa, 6.4 mm, unannealed	198	°C	ASTM D648
CTE, -40°C to 40°C, flow	5.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	5.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	5.5E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	5.5E-05	1/°C	ISO 11359-2

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/50	200	°C	ISO 306
Vicat Softening Temp, Rate B/120	205	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	210	°C	ISO 75/Af
Relative Temp Index, Elec <sup>(1)</sup>	170	°C	UL 746B
Relative Temp Index, Mech w/impact <sup>(1)</sup>	170	°C	UL 746B
Relative Temp Index, Mech w/o impact <sup>(1)</sup>	170	°C	UL 746B
<b>PHYSICAL</b>			
Specific Gravity	1.36	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	16	g/10 min	ASTM D1238
Density	1.36	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/saturated)	1.2	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.65	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	21	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥3	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥0.75	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 3	≥3	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 4	≥0.75	mm	UL 746A
High Voltage Arc Track Rate {PLC}	2	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	5	PLC Code	ASTM D495
<b>FLAME CHARACTERISTICS <sup>(1)</sup></b>			
UL Yellow Card Link	<a href="#">E121562-100044748</a>	-	-
UL Recognized, 94-5VA Flame Class Rating	≥3	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
UL Recognized, 94V-2 Flame Class Rating	≥0.4	mm	UL 94
<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	

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.



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