

# ULTEM™ RESIN HU1004

REGION AMERICAS

## DESCRIPTION

High Temperature, Transparent, Polyetherimide Blend with Improved Ductility and Enhanced Hydrostability. 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
Hygiene and Healthcare	Pharmaceutical Packaging and Drug Delivery, Surgical devices, General Healthcare, Patient Testing

## TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	95	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	90	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	85	%	ASTM D638
Tensile Modulus, 5 mm/min	2900	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	140	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3000	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	97	MPa	ISO 527
Tensile Stress, break, 50 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	7	%	ISO 527
Tensile Strain, break, 50 mm/min	80	%	ISO 527
Flexural Stress, yield, 2 mm/min	136	MPa	ISO 178
Flexural Modulus, 2 mm/min	2800	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	70	J/m	ASTM D256
Izod Impact, Reverse Notched, 3.2 mm	3300	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	93	J	ASTM D3763
Instrumented Impact Total Energy, 0°C	99	J	ASTM D3763
Instrumented Impact Total Energy, -20°C	93	J	ASTM D3763
Instrumented Dart Impact Ductility, 23°C	100	%	ASTM D3763
Instrumented Dart Impact Ductility, 0°C	100	%	ASTM D3763
Instrumented Dart Impact Ductility, -20°C	90	%	ASTM D3763
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	6	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m <sup>2</sup>	ISO 180/1A
Charpy Impact, notched, 23°C	11	kJ/m <sup>2</sup>	ISO 179/2C
<b>THERMAL</b>			
HDT, 0.45 MPa, 6.4 mm, unannealed	214	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	204	°C	ASTM D648

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -20°C to 150°C, flow	5.6E-05	1/°C	ASTM E831
CTE, -20°C to 150°C, xflow	5.5E-05	1/°C	ASTM E831
Thermal Conductivity	0.19	W/m.°C	ASTM C177
CTE, 23°C to 150°C, flow	5.E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	5.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	219	°C	ISO 306
Vicat Softening Temp, Rate B/50	212	°C	ISO 306
Vicat Softening Temp, Rate B/120	212	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	205	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Ae
Relative Temp Index, Elec <sup>(1)</sup>	105	°C	UL 746B
Relative Temp Index, Mech w/impact <sup>(1)</sup>	105	°C	UL 746B
Relative Temp Index, Mech w/o impact <sup>(1)</sup>	105	°C	UL 746B
<b>PHYSICAL</b>			
Specific Gravity	1.28	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 337°C/6.6 kgf	10	g/10 min	ASTM D1238
Density	1.28	g/cm <sup>3</sup>	ISO 1183
Melt Volume Rate, MVR at 360°C/5.0 kg	14	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	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥0.75	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 1	≥0.75	mm	UL 746A
<b>FLAME CHARACTERISTICS <sup>(1)</sup></b>			
UL Yellow Card Link	<a href="#">E121562-100737020</a>	-	-
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
Oxygen Index (LOI)	46	%	ASTM D2863
NBS Smoke Density, Flaming, Ds 4 min	0.7	-	ASTM E662
<b>INJECTION MOLDING</b>			
Drying Temperature	150	°C	
Drying Time	6 – 8	Hrs	
Drying Time (Cumulative)	24	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	355 – 390	°C	
Nozzle Temperature	345 – 390	°C	
Front - Zone 3 Temperature	345 – 390	°C	
Middle - Zone 2 Temperature	335 – 390	°C	
Rear - Zone 1 Temperature	330 – 390	°C	
Mold Temperature	130 – 160	°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.

## DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.