

**Product Texts**

ULTEM HU1010 resin is an unreinforced amorphous polyetherimide (PEI) resin that may offer a high glass transition temperature (Tg) of 217°C and improved flow. The intended use for this material is in medical devices and pharmaceutical applications. The materials is biocompatible (ISO 10993 or USP Class VI) and Healthcare management of change applies. The material may offer Steam-, Peroxide-, Gamma-, EtO-, UV-C- and E-beam resistance for repeated sterilization cycles. It may offer global food compliance (FDA, CN, EC). Features are excellent mechanical, electrical and dimensional properties up to high temperatures. The material may offer very good chemical resistance for an amorphous material and is inherently flame retardant offering UL94 V0 and 5V ratings. The material is RoHS compliant. The base material is transparent amber colored but is also available in custom colors - transparent and opaque.

UL Yellow Card Link [E121562-100044748](https://www.ulprospector.com/121562-100044748)

Processing/Physical Characteristics	Value	Unit	Test Standard
<b>ISO Data</b>			
Melt volume-flow rate, MVR	25	cm <sup>3</sup> /10min	ISO 1133
Temperature	360	°C	-
Load	5	kg	-
<b>ASTM Data</b>			
Melt Flow Index, MFI	17.8	g/10min	ASTM D 1238
Temperature	337	°C	-
Load	6.6	kg	-

Mechanical properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Tensile Modulus	3200	MPa	ISO 527
Yield stress	110	MPa	ISO 527
Yield strain	6	%	ISO 527
Strain at break	50	%	ISO 527
Flexural modulus	3300	MPa	ISO 178
Charpy notched impact strength, +23°C	4	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	4	kJ/m <sup>2</sup>	ISO 179/1eA
Izod impact strength, +23°C, 4mm	N	kJ/m <sup>2</sup>	ISO 180/1U
Izod impact strength, -30°C, 4mm	N	kJ/m <sup>2</sup>	ISO 180/1U
Izod notched impact strength, +23°C, 4mm	5	kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength, -30°C, 4mm	5	kJ/m <sup>2</sup>	ISO 180/1A
Rockwell hardness	M 106	-	ISO 2039-2
Ball indentation hardness	140	MPa	ISO 2039-1
<b>ASTM Data</b>			
Tensile Modulus	3350	MPa	ASTM D 638
Tensile Strength at Yield	115	MPa	ASTM D 638
Elongation at Yield	7	%	ASTM D 638
Elongation at Break	60	%	ASTM D 638
Flexural Modulus	3200	MPa	ASTM D 790
Rockwell Hardness	M 109	-	ASTM D 785
Taber Abrasion Resistance	10	mg/1000 cycles	ASTM D 1044
Izod Impact notched, 1/8 in	32	J/m	ASTM D 256
Izod Impact notched, Low-Temperature	41	J/m	ASTM D 256
Temperature	-30	°C	-
Izod Impact unnotched, 1/8 in	1600	J/m	ASTM D 256

Thermal properties	Value	Unit	Test Standard
<b>ISO Data</b>			
Temp. of deflection under load, 1.80 MPa	192	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	209	°C	ISO 75-1/-2
Vicat softening temperature, A	215	°C	ISO 306
Vicat softening temperature, B	211	°C	ISO 306
Vicat softening temperature, 120°C/h 50N	212	°C	ISO 306
Burning behav. at thickness h	V-2	class	IEC 60695-11-10
Thickness tested	0.4	mm	-
Burning behav. 5V at thickness h	5VA	class	IEC 60695-11-20
Thickness tested	3.0	mm	-

**ULTEM™ Resin HU1010**

PEI

Saudi Basic Industries Corporation (SABIC)

Thermal Conductivity	<b>0.22</b>	W/(m K)	DIN 52616
<b>ASTM Data</b>			
DTUL @ 66 psi	<b>207</b>	°C	ASTM D 648
DTUL @ 264 psi	<b>190</b>	°C	ASTM D 648
Vicat Temperature	<b>211</b>	°C	ASTM D 1525
Thermal Conductivity, solid state	<b>0.0317</b>	W/(m K)	ASTM C 177

<b>Electrical properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
<b>ISO Data</b>			
Relative permittivity, 1MHz	<b>2.9</b>	-	IEC 62631-2-1
Dissipation factor, 1MHz	<b>60</b>	E-4	IEC 62631-2-1
Volume resistivity	<b>1E13</b>	Ohm*m	IEC 62631-3-1
Surface resistivity	<b>&gt;1E15</b>	Ohm	IEC 62631-3-2
Electric strength	<b>33</b>	kV/mm	IEC 60243-1
Comparative tracking index	<b>150</b>	-	IEC 60112
<b>ASTM Data</b>			
Dielectric Strength, Short Time	<b>19.7</b>	kV/mm	ASTM D 149
Volume Resistivity	<b>&gt;1E15</b>	Ohm*cm	ASTM D 257

<b>Other properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Water absorption	<b>1.25</b>	%	Sim. to ISO 62
Density	<b>1270</b>	kg/m <sup>3</sup>	ISO 1183
Density	<b>1270</b>	kg/m <sup>3</sup>	ASTM D 792

<b>Processing Recommendation Injection Molding</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Pre-drying - Temperature	<b>150</b>	°C	-
Pre-drying - Time	<b>4 - 6</b>	h	-
Processing humidity	<b>≤0.02</b>	%	-
Melt temperature	<b>350 - 410</b>	°C	-
Mold temperature	<b>135 - 180</b>	°C	-
Zone 1	<b>330 - 400</b>	°C	-
Zone 2	<b>340 - 405</b>	°C	-
Zone 3	<b>345 - 415</b>	°C	-
Back pressure	<b>0.3 - 0.7</b>	MPa	-

<b>Processing Recommendation Extrusion</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Pre-drying - Temperature	<b>140 - 150</b>	°C	-
Pre-drying - Time	<b>4 - 6</b>	h	-
Processing humidity	<b>≤0.02</b>	%	-
Melt temperature	<b>320 - 355</b>	°C	-
Mold temperature	<b>65 - 175</b>	°C	-
Zone 1	<b>350 - 325</b>	°C	-
Zone 2	<b>330 - 355</b>	°C	-
Zone 3	<b>330 - 355</b>	°C	-
Zone 4	<b>330 - 355</b>	°C	-
Zone 5	<b>330 - 355</b>	°C	-

**Characteristics****Processing**

Injection Molding, Film Extrusion, Profile Extrusion, Blow Molding, Additive Manufacturing

**Special Characteristics**

Transparent, Ethylene Oxide (EtO) Sterilization, Steam sterilization, Gamma irradiation sterilization, Electron beam (e-beam) sterilization

**Certifications**

Food contact, Food approval FDA 21 CFR, US Pharmacopeia Class VI Approved, RoHS compliant

**Applications**

Medical

**Chemical Resistance**

General Chemical Resistance

**Regional Availability**

North America, Europe, Asia Pacific