ULTEM™ Resin 1010UCL

PEI — Saudi Basic Industries Corporation (SABIC)

Product Texts

ULTEM 1010UCL resin is an amorphous, transparent polyetherimide (PEI) thermoplastic offering enhanced flow and a glass transition temperature (Tg) of 217°C. 1010UCL offers the same performance as ULTEM 1010 resin and offers further enhanced cleanliness control for (optical) applications.

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	**13**	cm³/10min	ISO 1133
Temperature	**340**	°C	-
Load	**5**	kg	-
ASTM Data			
Melt Flow Index, MFI	**17.8**	g/10min	ASTM D 1238
Temperature	**337**	°C	-
Load	**6.6**	kg	-

Mechanical properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	**3200**	MPa	ISO 527
Yield stress	**105**	MPa	ISO 527
Yield strain	**6**	%	ISO 527
Stress at break	**85**	MPa	ISO 527
Strain at break	**60**	%	ISO 527
Flexural modulus, 23°C	**3300**	MPa	ISO 178
Izod impact strength, +23°C	**N**	kJ/m²	ISO 180/1U
Izod notched impact strength, +23°C	**5**	kJ/m²	ISO 180/1A
Izod notched impact strength	**5**	kJ/m²	ISO 180/1A
Temperature	**-30**	°C	-
Ball indentation hardness	**140**	MPa	ISO 2039-1
ASTM Data			
Tensile Modulus	**3580**	MPa	ASTM D 638
Tensile Strength at Yield	**110**	MPa	ASTM D 638
Elongation at Yield	**7**	%	ASTM D 638
Elongation at Break	**60**	%	ASTM D 638
Flexural Modulus	**3510**	MPa	ASTM D 790
Rockwell Hardness	**M 109**	-	ASTM D 785
Taber Abrasion Resistance	**10**	mg/1000 cycles	ASTM D 1044
Gardner Impact	**33**	J	ASTM D 2794,4226,5420
Izod Impact notched, 1/8 in	**32**	J/m	ASTM D 256
Izod Impact unnotched, 1/8 in	**1340**	J/m	ASTM D 256

Thermal properties	Value	Unit	Test Standard
ISO Data			
Temp. of deflection under load, 1.80 MPa	**190**	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	**200**	°C	ISO 75-1/-2
Vicat softening temperature, A	**215**	°C	ISO 306
Vicat softening temperature, B	**211**	°C	ISO 306
Coeff. of linear therm. expansion, parallel	**50**	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	**50**	E-6/K	ISO 11359-1/-2
ASTM Data			
Coefficient of Thermal Expansion, MD	**55.8**	E-6/K	ASTM D 696
DTUL @ 66 psi	**207**	°C	ASTM D 648
DTUL @ 264 psi	**198**	°C	ASTM D 648
Vicat Temperature	**218**	°C	ASTM D 1525
Thermal Conductivity, solid state	**0.0317**	W/(m K)	ASTM C 177

Electrical properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 1MHz	**2.9**	-	IEC 62631-2-1

Dissipation factor, 1MHz	**60**	E-4	IEC 62631-2-1
Volume resistivity	**1E13**	Ohm*m	IEC 62631-3-1
Surface resistivity	**>1E15**	Ohm	IEC 62631-3-2
Electric strength	**33**	kV/mm	IEC 60243-1
ASTM Data			
Dielectric Strength, Short Time	**32.7**	kV/mm	ASTM D 149
Volume Resistivity	**1E17**	Ohm*cm	ASTM D 257

Other properties	**Value**	**Unit**	**Test Standard**
Water absorption	**1.25**	%	Sim. to ISO 62
Humidity absorption	**0.7**	%	Sim. to ISO 62
Density	**1270**	kg/m³	ISO 1183
Water Absorption, 24hr	**0.25**	%	ASTM D 570
Water Absorption, Equilibrium	**1.25**	%	ASTM D 570
Density	**1270**	kg/m³	ASTM D 792

Processing Recommendation Injection Molding	**Value**	**Unit**	**Test Standard**
Pre-drying - Temperature	**150**	°C	-
Pre-drying - Time	**4 - 6**	h	-
Processing humidity	**≤0.02**	%	-
Melt temperature	**350 - 400**	°C	-
Mold temperature	**135 - 165**	°C	-
Zone 1	**330 - 400**	°C	-
Zone 2	**340 - 400**	°C	-
Zone 3	**345 - 400**	°C	-
Nozzle temperature	**345 - 400**	°C	-
Screw speed	**40 - 70**	rpm	-
Back pressure	**0.3 - 0.7**	MPa	-

Characteristics

Processing
Injection Molding

Special Characteristics
Flame retardant, Heat stabilized or stable to heat, Transparent

Features
Amorphous, Creep Resistance, Good Adhesion, Low Smoke

Chemical Resistance
General Chemical Resistance, Hydrolytically Stable

Applications
Aircraft and Aerospace, Automotive, Building Construction, Electrical and Electronical, General Purpose, Packaging, Sports Equipment

Regional Availability
North America, Europe, Asia Pacific, South and Central America