

ULTEM™ Resin 1010TC

PEI

Saudi Basic Industries Corporation (SABIC)

Product Texts

ULTEM 1010TC Resin is an unreinforced amorphous polyetherimide (PEI) resin that may offer a high glass transition temperature (T_g) of 217°C and improved flow. Features are controlled light transmission levels (different colors for different transmission%) and offer 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 and the natural.

UL Yellow Card Link [E207780-100221357](https://www.ulprospector.com/usa/2022/01/01/2022-01-01-1010TC)

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	25	cm ³ /10min	ISO 1133
Temperature	360	°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	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 ²	ISO 179/1eA
Charpy notched impact strength, -30°C	4	kJ/m ²	ISO 179/1eA
Izod impact strength, +23°C, 4mm	N	kJ/m ²	ISO 180/1U
Izod impact strength, -30°C, 4mm	N	kJ/m ²	ISO 180/1U
Izod notched impact strength, +23°C, 4mm	5	kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C, 4mm	5	kJ/m ²	ISO 180/1A
Rockwell hardness	M 106	-	ISO 2039-2
Ball indentation hardness	140	MPa	ISO 2039-1
ASTM Data			
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
ISO Data			
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 1.5 mm nom. thickn.	V-0	class	IEC 60695-11-10
Thickness tested	1.5	mm	-
Burning behav. 5V at thickness h	5VA	class	IEC 60695-11-20
Thickness tested	3.0	mm	-
Thermal Conductivity	0.22	W/(m K)	DIN 52616

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ASTM Data

DTUL @ 66 psi	207	°C	ASTM D 648
DTUL @ 264 psi	190	°C	ASTM D 648
Vicat Temperature	211	°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
Comparative tracking index	150	-	IEC 60112

ASTM Data

Dielectric Strength, Short Time	19.7	kV/mm	ASTM D 149
Volume Resistivity	>1E15	Ohm*cm	ASTM D 257

Other properties

	Value	Unit	Test Standard
Water absorption	1.25	%	Sim. to ISO 62
Density	1270	kg/m ³	ISO 1183
Density	1270	kg/m ³	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 - 410	°C	-
Mold temperature	135 - 180	°C	-
Zone 1	330 - 400	°C	-
Zone 2	340 - 405	°C	-
Zone 3	345 - 415	°C	-
Back pressure	0.3 - 0.7	MPa	-

Processing Recommendation Extrusion

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

Characteristics**Processing**

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

Chemical Resistance

General Chemical Resistance

Certifications

RoHS compliant

Regional Availability

North America, Europe, Asia Pacific