ULTEM™ Resin HU2300

PEI-GF30 — Saudi Basic Industries Corporation (SABIC)

Product Texts

ULTEM HU2300 resin is a standard flow 30% glass Fiber reinforced polyetherimide resin. The intended use for this material is in medical devices and pharmaceutical applications. The material offers biocompatibility (ISO 10993 or USP Class VI) and Healthcare management of change applies. The material may offer Steam-, Hydrogen Peroxide-, Gamma-, EtO-, UV-C- and E-beam resistance for repeated sterilization cycles. It may offer global food compliance (FDA, CN, EC). The material is RoHS compliant and is intrinsically flame retardant without the use of FR modifiers. It offers UL94 V0 and 5VA ratings. The material can also offer excellent dimension stability, strength, stiffness and creep resistance up to high temperature due to its high glass transition temperature of 217°C. The material is opaque and can be custom colored.

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	**6**	cm³/10min	ISO 1133
Temperature	**360**	°C	-
Load	**5**	kg	-
ASTM Data			
Melt Flow Index, MFI	**5**	g/10min	ASTM D 1238
Temperature	**337**	°C	-
Load	**6.6**	kg	-

Mechanical properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	**10500**	MPa	ISO 527
Stress at break	**175**	MPa	ISO 527
Strain at break	**2.4**	%	ISO 527
Flexural modulus, 23°C	**9600**	MPa	ISO 178
Charpy impact strength, +23°C	**40**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**40**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	**10**	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	**10**	kJ/m²	ISO 179/1eA
Izod impact strength, +23°C	**40**	kJ/m²	ISO 180/1U
Izod notched impact strength, +23°C, 4mm	**10**	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C, 4mm	**10**	kJ/m²	ISO 180/1A
Izod notched impact strength, +23°C	**10**	kJ/m²	ISO 180/1A
Izod notched impact strength	**10**	kJ/m²	ISO 180/1A
Temperature	**-30**	°C	-
Rockwell hardness	**M 110**	-	ISO 2039-2
Ball indentation hardness	**165**	MPa	ISO 2039-1
ASTM Data			
Tensile Modulus	**10400**	MPa	ASTM D 638
Tensile Strength at Break	**175**	MPa	ASTM D 638
Elongation at Break	**2.5**	%	ASTM D 638
Flexural Modulus	**9700**	MPa	ASTM D 790
Rockwell Hardness	**M 114**	-	ASTM D 785
Izod Impact notched, 1/8 in	**90**	J/m	ASTM D 256
Izod Impact notched, Low-Temperature	**80**	J/m	ASTM D 256
Temperature	**-30**	°C	-
Izod Impact unnotched, 1/8 in	**600**	J/m	ASTM D 256

Thermal properties	Value	Unit	Test Standard
ISO Data			
Temp. of deflection under load, 1.80 MPa	**210**	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	**215**	°C	ISO 75-1/-2
Vicat softening temperature, A	**225**	°C	ISO 306
Vicat softening temperature, B	**213**	°C	ISO 306
Vicat softening temperature, 120°C/h 50N	**220**	°C	ISO 306
Coeff. of linear therm. expansion, parallel	**18**	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	**48**	E-6/K	ISO 11359-1/-2
Burning behav. at thickness h	**V-0**	class	IEC 60695-11-10
Thickness tested	**0.2**	mm	-
Yellow Card available	**yes**	-	-

Burning behav. 5V at thickness h	**5VA**	class	IEC 60695-11-20
Thickness tested	**1.2**	mm	-
Yellow Card available	**yes**	-	-
Oxygen index	**48**	%	ISO 4589-1/-2
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12
GWFI - thickness tested (1)	**2**	mm	-
Glow Wire Ignition Temperature (GWIT)	**900**	°C	IEC 60695-2-13
GWIT - thickness tested (1)	**2**	mm	-
ASTM Data			
Coefficient of Thermal Expansion, MD	**19**	E-6/K	ASTM D 696
Coefficient of Thermal Expansion, TD	**41**	E-6/K	ASTM D 696
DTUL @ 66 psi	**215**	°C	ASTM D 648
DTUL @ 264 psi	**211**	°C	ASTM D 648
Vicat Temperature	**227**	°C	ASTM D 1525
Limiting Oxygen Index	**50**	%	ASTM D 2863

Electrical properties	**Value**	**Unit**	**Test Standard**
ISO Data			
Relative permittivity, 1MHz	**3.4**	-	IEC 62631-2-1
Dissipation factor, 1MHz	**25**	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	**35**	kV/mm	IEC 60243-1
Comparative tracking index	**150**	-	IEC 60112
ASTM Data			
Dielectric Strength, Short Time	**24.8**	kV/mm	ASTM D 149
Volume Resistivity	**3E16**	Ohm*cm	ASTM D 257
Arc Resistance	**90**	s	ASTM D 495

Other properties	**Value**	**Unit**	**Test Standard**
Water absorption	**0.9**	%	Sim. to ISO 62
Humidity absorption	**0.5**	%	Sim. to ISO 62
Density	**1510**	kg/m³	ISO 1183
Water Absorption, 24hr	**0.16**	%	ASTM D 570
Water Absorption, Equilibrium	**0.9**	%	ASTM D 570
Density	**1510**	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 - 410**	°C	-
Mold temperature	**135 - 180**	°C	-
Feed temperature	**80 - 120**	°C	-
Zone 1	**330 - 400**	°C	-
Zone 2	**340 - 410**	°C	-
Zone 3	**345 - 420**	°C	-
Screw speed	**40 - 70**	rpm	-
Back pressure	**0.3 - 1.5**	MPa	-

Characteristics

Processing

Injection Molding, Profile Extrusion, Sheet Extrusion, Other Extrusion

Certifications

Food contact, Food approval FDA 21 CFR, Medical Grade, Biocompatibility ISO 10993, US Pharmacopeia Class VI Approved, RoHS compliant

Special Characteristics
Flame retardant, Halogen-free, U.V. stabilized or stable to weather, Heat stabilized or stable to heat, Opaque, Sterilizable, Ethylene Oxide (EtO) Sterilization, Steam sterilization, Gamma irradiation sterilization, Electron beam (e-beam) sterilization

Features
Amorphous, Creep Resistance, Good Adhesion, Low Smoke

Chemical Resistance
General Chemical Resistance, Hydrolytically Stable, Radiation Resistance

Applications
Medical

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