

GRADE COMPARISON

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ULTEM™ RESIN ATX200



Region Europe

MECHANICAL

Taber Abrasion, CS-17, 1 kg (SABIC method)	20 mg/1000cy
Tensile Strain, yield, 50 mm/min (ISO 527)	6.5 %
Tensile Modulus, 5 mm/min (ASTM D 638)	3300 MPa
Flexural Stress, yield, 2 mm/min (ISO 178)	125 MPa
Flexural Stress, yld, 1.3 mm/min, 50 mm span (ASTM D 790)	145 MPa
Tensile Strain, brk, Type I, 5 mm/min (ASTM D 638)	70 %
Tensile Strain, break, 50 mm/min (ISO 527)	20 %
Tensile Stress, yield, 50 mm/min (ISO 527)	95 MPa
Tensile Modulus, 1 mm/min (ISO 527)	3000 MPa
Flexural Modulus, 2 mm/min (ISO 178)	3100 MPa
Tensile Stress, break, 50 mm/min (ISO 527)	75 MPa
Ball Indentation Hardness, H358/30 (ISO 2039-1)	125 MPa
Tensile Stress, yld, Type I, 5 mm/min (ASTM D 638)	96 MPa
Flexural Modulus, 1.3 mm/min, 50 mm span (ASTM D 790)	3170 MPa
Tensile Strain, yld, Type I, 5 mm/min (ASTM D 638)	7 %
Tensile Stress, brk, Type I, 5 mm/min (ASTM D 638)	85 MPa

IMPACT

Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm (ISO 179/1eA)	4 kJ/m ²
Izod Impact, notched, 23°C (ASTM D 256)	53 J/m
Izod Impact, notched 80*10*4 +23°C (ISO 180/1A)	5 kJ/m ²
Izod Impact, Reverse Notched, 3.2 mm (ASTM D 256)	2136 J/m
Izod Impact, unnotched, 23°C (ASTM D 4812)	2082 J/m
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm (ISO 179/1eA)	4 kJ/m ²
Instrumented Impact Total Energy, 23°C (ASTM D 3763)	50 J
Izod Impact, notched, -30°C (ASTM D 256)	55 J/m
Izod Impact, notched 80*10*4 -30°C (ISO 180/1A)	5 kJ/m ²

THERMAL

Vicat Softening Temp, Rate B/50 (ASTM D 1525)	209 °C
CTE, 23°C to 150°C, flow (ISO 11359-2)	5.E-05 1/°C
Relative Temp Index, Mech w/o impact (UL 746B)	115 °C
CTE, -40°C to 150°C, xflow (ASTM E 831)	5.E-05 1/°C
Relative Temp Index, Elec (UL 746B)	115 °C
HDT, 1.82 MPa, 3.2mm, unannealed (ASTM D 648)	187 °C
Relative Temp Index, Mech w/impact (UL 746B)	115 °C
Vicat Softening Temp, Rate B/120 (ISO 306)	205 °C

HDT, 1.82 MPa, 6.4 mm, unannealed (ASTM D 648)	190 °C
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm (ISO 75/Be)	195 °C
Vicat Softening Temp, Rate B/50 (ISO 306)	200 °C
CTE, 23°C to 150°C, xflow (ISO 11359-2)	5.E-05 1/°C
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm (ISO 75/Ae)	180 °C
Vicat Softening Temp, Rate A/50 (ISO 306)	210 °C
CTE, -40°C to 150°C, flow (ASTM E 831)	5.E-05 1/°C
Thermal Conductivity (ISO 8302)	0.23 W/m-°C
Ball Pressure Test, 125°C +/- 2°C (IEC 60695-10-2)	PASSES -
PHYSICAL	
Specific Gravity (ASTM D 792)	1.26 -
Moisture Absorption (23°C / 50% RH) (ISO 62)	0.5 %
Melt Flow Rate, 337°C/6.6 kgf (ASTM D 1238)	24 g/10 min
Mold Shrinkage, flow, 3.2 mm (SABIC method)	0.5-0.7 %
Melt Volume Rate, MVR at 340°C/5.0 kg (ISO 1133)	16 cm ³ /10 min
Water Absorption, (23°C/sat) (ISO 62)	0.9 %
Mold Shrinkage on Tensile Bar, flow (SABIC method)	0.5-0.7 %
Mold Shrinkage, xflow, 3.2 mm (SABIC method)	0.5-0.7 %
Density (ISO 1183)	1.26 g/cm ³
ELECTRICAL	
Relative Permittivity, 1 MHz (IEC 60250)	2.9 -
Dissipation Factor, 50/60 Hz (IEC 60250)	0.001 -
Volume Resistivity (IEC 60093)	1.E+15 Ohm-cm
Dissipation Factor, 1 MHz (IEC 60250)	0.005 -
Comparative Tracking Index (UL) {PLC} (UL 746A)	4 PLC Code
Surface Resistivity, ROA (IEC 60093)	>1.E+15 Ohm
Comparative Tracking Index (IEC 60112)	150 V
Relative Permittivity, 50/60 Hz (IEC 60250)	2.9 -
Hot-Wire Ignition (HWI), PLC 0 (UL 746A)	≥0.75 mm
High Amp Arc Ignition (HAI), PLC 4 (UL 746A)	≥0.75 mm
FLAME CHARACTERISTICS	
UL Recognized, 94V-0 Flame Class Rating (UL 94)	≥1.5 mm
UL Recognized, 94V-2 Flame Class Rating (UL 94)	≥0.75 mm
UL Yellow Card Link (-)	E45329-100397331
INJECTION MOLDING	
Drying Temperature	130-140 °C
Melt Temperature	340-380 °C
Middle - Zone 2 Temperature	330-350 °C
Rear - Zone 1 Temperature	320-340 °C
Nozzle Temperature	340-360 °C
Front - Zone 3 Temperature	340-360 °C
Hopper Temperature	80-100 °C
Mold Temperature	125-140 °C
Drying Time	3-4 hrs

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