



ULTEM™ Resin 4002
Americas: COMMERCIAL

PTFE filled, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL 94 V0 and 5VA listing in recognized colors.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	1070	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	860	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	5	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	40	%	ASTM D 638
Tensile Modulus, 5 mm/min	35200	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1580	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	36100	kgf/cm ²	ASTM D 790
Tensile Stress, yield, 50 mm/min	100	MPa	ISO 527
Tensile Stress, break, 50 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	25	%	ISO 527
Tensile Modulus, 1 mm/min	3300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	130	MPa	ISO 178
Flexural Modulus, 2 mm/min	3100	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	11	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	12	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	3874	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	10	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	8	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	11	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	219	°C	ASTM D 1525





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THERMAL			
HDT, 1.82 MPa, 3.2mm, unannealed	197	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	200	°C	ASTM D 648
CTE, -40°C to 150°C, flow	3.9E-05	1/°C	ASTM E 831
CTE, -40°C to 150°C, xflow	4.E-05	1/°C	ASTM E 831
CTE, 23°C to 150°C, flow	3.9E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	4.E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	215	°C	ISO 306
Vicat Softening Temp, Rate B/120	210	°C	ISO 306
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Ae
PHYSICAL			
Specific Gravity	1.33	-	ASTM D 792
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.6 - 0.8	%	SABIC Method
Mold Shrinkage, flow, 3.2 mm (5)	0.5 - 0.7	%	SABIC Method
Mold Shrinkage, xflow, 3.2 mm (5)	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 337°C/6.6 kgf	9.5	g/10 min	ASTM D 1238
Density	1.33	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	1.1	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.6	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	13	cm ³ /10 min	ISO 1133
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	0.4	mm	UL 94





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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	135	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	10	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	350 - 370	°C
Nozzle Temperature	350 - 370	°C
Front - Zone 3 Temperature	350 - 370	°C
Middle - Zone 2 Temperature	345 - 365	°C
Rear - Zone 1 Temperature	340 - 360	°C
Mold Temperature	135 - 165	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	40 - 70	rpm
Shot to Cylinder Size	40 - 60	%
Vent Depth	0.025 - 0.076	mm

