ULTEM™ Resin DH1004
Americas: COMMERCIAL

TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	960	kgf/cm²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	910	kgf/cm²	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	85	%	ASTM D 638
Tensile Modulus, 5 mm/min	29500	kgf/cm²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1420	kgf/cm²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	30500	kgf/cm²	ASTM D 790
Tensile Stress, yield, 50 mm/min	97	MPa	ISO 527
Tensile Stress, break, 50 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	7	%	ISO 527
Tensile Strain, break, 50 mm/min	80	%	ISO 527
Flexural Stress, yield, 2 mm/min	136	MPa	ISO 178
Flexural Modulus, 2 mm/min	2800	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	7	cm-kgf/cm	ASTM D 256
Izod Impact, Reverse Notched, 3.2 mm	336	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	897	cm-kgf	ASTM D 3763
Instrumented Impact Total Energy, 0°C	1009	cm-kgf	ASTM D 3763
Instrumented Impact Total Energy, -20°C	897	cm-kgf	ASTM D 3763
Instrumented Impact Ductility, 23°C	100	%	ASTM D 3763
Instrumented Impact Ductility, 0°C	100	%	ASTM D 3763
Instrumented Impact Ductility, -20°C	90	%	ASTM D 3763

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(2) Only typical data for selection purposes. Not to be used for part or tool design.
(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
(4) Internal measurements according to UL standards.
(5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

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TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
IMPACT			
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	6	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Charpy Impact, notched, 23°C	11	kJ/m²	ISO 179/2C
THERMAL			
HDT, 0.45 MPa, 6.4 mm, unannealed	214	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	204	°C	ASTM D 648
CTE, -20°C to 150°C, flow	5.6E-05	1/°C	ASTM E 831
CTE, -20°C to 150°C, xflow	5.5E-05	1/°C	ASTM E 831
Thermal Conductivity	0.19	W/m-°C	ASTM C 177
CTE, 23°C to 150°C, flow	5.E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	5.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	219	°C	ISO 306
Vicat Softening Temp, Rate B/50	212	°C	ISO 306
Vicat Softening Temp, Rate B/120	212	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	205	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Ae
PHYSICAL			
Specific Gravity	1.28	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 337°C/6.6 kgf	10	g/10 min	ASTM D 1238
Density	1.28	g/cm³	ISO 1183
Melt Volume Rate, MVR at 360°C/5.0 kg	14	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	0.75	mm	UL 94

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FLAME CHARACTERISTICS			
Oxygen Index (LOI)	46	%	ASTM D 2863
NBS Smoke Density, Flaming, Ds 4 min	0.7	-	ASTM E 662

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	150	°C
Drying Time	6 - 8	hrs
Drying Time (Cumulative)	24	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	355 - 390	°C
Nozzle Temperature	345 - 390	°C
Front - Zone 3 Temperature	345 - 390	°C
Middle - Zone 2 Temperature	335 - 390	°C
Rear - Zone 1 Temperature	330 - 390	°C
Mold Temperature	130 - 160	°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

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