



## ULTEM™ Resin HU2310

### Americas: COMMERCIAL

30% Glass fiber filled, enhanced flow Polyetherimide (Tg 217°C). ECO Conforming. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI), food contact compliant.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	1720	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	1610	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Modulus, 5 mm/min	94200	kgf/cm <sup>2</sup>	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	2240	kgf/cm <sup>2</sup>	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	94300	kgf/cm <sup>2</sup>	ASTM D 790
Tensile Stress, yield, 5 mm/min	165	MPa	ISO 527
Tensile Stress, break, 5 mm/min	165	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2	%	ISO 527
Tensile Strain, break, 5 mm/min	2	%	ISO 527
Tensile Modulus, 1 mm/min	9500	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	225	MPa	ISO 178
Flexural Modulus, 2 mm/min	8500	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	8	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	9	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	101	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	10	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	10	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	228	°C	ASTM D 1525

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(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.

Source GMD, last updated:

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>THERMAL</b>			
HDT, 1.82 MPa, 3.2mm, unannealed	208	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	210	°C	ASTM D 648
CTE, -20°C to 150°C, flow	1.6E-05	1/°C	ASTM E 831
CTE, -20°C to 150°C, xflow	4.1E-05	1/°C	ASTM E 831
CTE, 23°C to 150°C, flow	1.6E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	4.1E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	213	°C	ISO 306
Vicat Softening Temp, Rate B/120	220	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	210	°C	ISO 75/Af
<b>PHYSICAL</b>			
Specific Gravity	1.51	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.2 - 0.4	%	SABIC Method
Melt Flow Rate, 337°C/6.6 kgf	7.6	g/10 min	ASTM D 1238
Density	1.51	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.9	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.5	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	8	cm <sup>3</sup> /10 min	ISO 1133

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
<b>Injection Molding</b>		
Drying Temperature	150	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	24	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	350 - 400	°C
Nozzle Temperature	345 - 400	°C
Front - Zone 3 Temperature	345 - 400	°C
Middle - Zone 2 Temperature	340 - 400	°C
Rear - Zone 1 Temperature	330 - 400	°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

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