



# Ultem\* Resin 1010A

## Asia Pacific: COMMERCIAL

Transparent, high flow Polyetherimide (Tg 217C). ECO Conforming.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	UNIT	STANDARD
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	1120	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	1070	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	60	%	ASTM D 638
Tensile Modulus, 5 mm/min	36600	kgf/cm <sup>2</sup>	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1680	kgf/cm <sup>2</sup>	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	35800	kgf/cm <sup>2</sup>	ASTM D 790
Tensile Stress, yield, 5 mm/min	105	MPa	ISO 527
Tensile Stress, break, 5 mm/min	85	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	6	%	ISO 527
Tensile Strain, break, 5 mm/min	60	%	ISO 527
Tensile Modulus, 1 mm/min	3200	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	160	MPa	ISO 178
Flexural Modulus, 2 mm/min	3300	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, unnotched, 23°C	136	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	3	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	3	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	336	cm-kgf	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m <sup>2</sup>	ISO 180/1A

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity.  
 All properties, except the melt volume rate are measured on injection moulded samples.  
 All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. 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) Own measurement according to UL.

Source, GMD, Last Update: 06/08/2006

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	UNIT	STANDARD
<b>IMPACT</b>			
Izod Impact, notched 80*10*4 -30°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	3	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	219	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	205	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	197	°C	ASTM D 648
CTE, -40°C to 150°C, flow	5.5E-05	1/°C	ASTM E 831
CTE, -40°C to 150°C, xflow	5.5E-05	1/°C	ASTM E 831
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 B/50	211	°C	ISO 306
Vicat Softening Temp, Rate B/120	212	°C	ISO 306
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Ae
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	193	°C	ISO 75/Af
<b>PHYSICAL</b>			
Specific Gravity	1.27	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 - 0.7	%	GE Method
Melt Flow Rate, 337°C/6.6 kgf	17.8	g/10 min	ASTM D 1238
Density	1.27	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	1.25	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.7	%	ISO 62
Melt Volume Rate, MVR at 360°C/5.0 kg	25	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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