



## ULTEM™ Resin AUT230

### Americas: COMMERCIAL

Transparent polyetherimide (Tg 247 degC). Very low outgassing and plateout, for automotive lighting applications where highly metallized, reflective surfaces are required. Haze onset temperature of 230 degC (SABIC Innovative Plastics method)

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	970	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	970	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	6	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	25	%	ASTM D 638
Tensile Modulus, 5 mm/min	35700	kgf/cm <sup>2</sup>	ASTM D 638
Flexural Modulus, 1.3 mm/min, 50 mm span	32300	kgf/cm <sup>2</sup>	ASTM D 790
Tensile Stress, yield, 5 mm/min	95	MPa	ISO 527
Tensile Stress, break, 5 mm/min	78	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	8.5	%	ISO 527
Tensile Strain, break, 5 mm/min	16.8	%	ISO 527
Tensile Modulus, 1 mm/min	3110	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	123	MPa	ISO 178
Flexural Modulus, 2 mm/min	3080	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, unnotched, 23°C	NB	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	7	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	7	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	4	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 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>			
Vicat Softening Temp, Rate B/50	242	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	217	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	237	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	230	°C	ASTM D 648
CTE, -40°C to 150°C, flow	5.E-05	1/°C	ASTM E 831
CTE, -40°C to 150°C, xflow	5.E-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
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	242	°C	ISO 306
Vicat Softening Temp, Rate B/120	238	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	228	°C	ISO 75/Af
Metallized Haze Onset	230	°C	SABIC Method
<b>PHYSICAL</b>			
Specific Gravity	1.3	-	ASTM D 792
Mold Shrinkage on Tensile Bar, flow (2) (5)	0.5 - 0.7	%	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
Density	1.3	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	1.75	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.6	%	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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(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

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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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