PRODUCT DATA

AURUM® PL450C Thermoplastic Polyimide

TYPICAL PROPERTIES		TEST METHOD	UNITS	VALUE
PHYSICAL				
Specific Gravity		ASTM D-792	–	1.33
Mold Shrinkage		ASTM D-955	%	0.83
Water Absorption 24 hrs @ 73°F		ASTM D-570	%	0.34
Moisture Absorption, 24 Hrs.		73°F, 60%RH	%	0.24
MECHANICAL				
Tensile Strength	73°F	ASTM D-638	psi (MPa)	13,370 (92)
	300°F	"	"	8,400 (58)
Elongation	73°F	ASTM D-638	%	90
	300°F	"	"	90
Flexural Strength	73°F	ASTM D-790	psi (MPa)	19,900 (137)
	300°F	"	"	12,800 (88)
Flexural Modulus	73°F	ASTM D-790	psi (MPa)	426,800 (2,940)
	300°F	"	"	369,900 (2,550)
Izod Impact Strength (notched)		ASTM D-256	ft lb/in (J/m)	1.7 (90)
Compressive Strength	73°F	JIS K-7208	psi (MPa)	17,360 (120)
	300°F	"	"	11,100 (76)
Youngs Modulus		ASTM D-882	psi (MPa)	400,000 (2,760)
THERMAL				
Melt Point		DSC	°F (°C)	730 (388)
Glass Transition Temperature		DSC	°F (°C)	482 (250)
Melt Flow Index 752°F, 2.3 lbs.		ASTM D-1238	g/10 min	4.5~7.5
Coefficient of Thermal Expansion (MD/TD) 73°F		ASTM D-696	10^{-5} /°F (10^{-5}/°C)	3.0/3.0 (5.5/5.5)
Heat Deflection Temperature		ASTM D-648	°F (°C)	460 (238)
Thermal Conductivity		ASTM C-177	Kcal/m hr °C	0.15
Specific Heat	73°F	DSC	Cal/g °C	0.24
	212°F	"	"	0.24
	572°F	"	"	0.34
ELECTRICAL				
Dielectric Constant	1KHz	ASTM D-150	–	3.2
	1MHz	"	–	3.1
Dissipation Factor	1KHz	ASTM D-150	–	0.0009
	1MHz	"	–	0.0034
Surface Resistivity		ASTM D-257	Ohms	E17~E18
Volume Resistivity		"	Ohm cm	E17~E18
FLAMMABILITY				
Vertical Burn Test	0.4 mm	UL-94	–	V-0
	2.0 mm	"	–	5VA
Oxygen Index	3.2 mm	ASTM D-2863	%	47

DESCRIPTION

AURUM PL450C is a high performance thermoplastic polyimide for precision injection molded components and extruded products. A member of the AURUM family of advanced engineering resins, unfilled AURUM PL450C offers a unique balance of mechanical and thermal properties for superior performance in demanding automotive, business machinery, industrial equipment, aerospace, and semiconductor equipment applications. AURUM exhibits outstanding resistance to chemicals and radiation, a low coefficient of thermal expansion, ultra-high purity, low outgassing in a vacuum, excellent electrical properties, and flame resistance. AURUM PL450C can be conventionally extruded to produce high performance wire & cable insulation, thin-wall tubing, and fiber.

INJECTION MOLDING

AURUM PL450C can be readily injection molded in most reciprocating screw injection molding machines. AURUM resin pellets should be dried prior to melt processing on trays in an air circulation oven or desicatting hopper drier under the following conditions: 8 hours at 428°F, 10 hours at 392°F, or 12 hours at 356°F. Cylinder temperature requirements generally range from 720 - 770°F. Injection pressures of 11,000 - 20,000 psi, nominal back pressures of 0 - 50 psi, medium to high injection velocity, and screw speeds of 100 - 200 rpm are utilized for AURUM injection molding. Mold temperatures range from 356 - 410°F. AURUM sprue and runner systems can be ground and mixed with virgin AURUM resin at 15% - 30% levels without significant loss of mechanical properties for enhanced economics. AURUM can be easily

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(continued from front)

purged with unfilled or glass fiber reinforced polyethersulfone, polysulfone, or polyetherimide. AURUM can be injection molded with select outer-heating design hot runner systems.

APPLICATIONS

AURUM PL450C injection molded components are excellent replacements for metals, ceramics, and other plastics. High performance AURUM PL450C parts include heat-resistant gears, seals, ferrules and other fasteners, coil bobbins, semiconductor manufacturing and handling equipment components, and thermal and electrical insulators. Products produced from extruded AURUM PL450C resin include thin-wall tubing, wire and cable insulation, monofilament, and rod stock shapes.

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