PRODUCT DATA

AURUM® JCL3030 Thermoplastic Polyimide

TYPICAL PROPERTIES		TEST METHOD	UNITS	VALUE
PHYSICAL				
Specific Gravity		ASTM D-792	–	1.42
Filler Content		-	%	30
Mold Shrinkage		-	%	0.25
Water Absorption 24 hrs @ 73°F		ASTM D-570	%	0.23
MECHANICAL				
Tensile Strength	73°F	ASTM D-638	psi (MPa)	33,300 (229)
	300°F	"	"	20,500 (144)
Elongation	73°F	ASTM D-638	%	2
	300°F	"	"	4
Flexural Strength	73°F	ASTM D-790	psi (MPa)	45,600 (314)
	300°F	"	"	31,300 (216)
Flexural Modulus	73°F	ASTM D-790	psi (MPa)	2,500,000 (17,200)
	300°F	"	"	2,200,000 (15,160)
Izod Impact Strength (notched)		ASTM D-256	ft lb/in (J/m)	2.0 (110)
Compressive Strength	73°F	JIS K-7208	psi (MPa)	30,000 (207)
	300°F	"	"	14,800 (102)
THERMAL				
Melt Point		DSC	°F (°C)	730 (388)
Glass Transition Temperature		DSC	°F (°C)	482 (250)
Melt Flow Index (788°F/ 22 lbs.)		ASTM D-1238	g/10 min	27~37
Coefficient of Thermal Expansion		ASTM D-696	10^{-5}/ °F (10^{-5}/ °C)	.33MD / 2.6TD (0.6MD / 4.7TD)
Heat Deflection Temperature		ASTM D-648	°F (°C)	478 (248)

DESCRIPTION

AURUM JCL3030 is a high-performance polyimide for precision injection molded components and extruded products. A member of the AURUM family of advanced engineering resins, carbon fiber reinforced AURUM JCL3030 offers a unique balance of mechanical, thermal, and tribological properties for outstanding performance in demanding automotive, business machinery, industrial equipment, aerospace, and semiconductor equipment applications. AURUM components offer excellent mechanical strength and toughness, dimensional stability, low outgassing, and exceptional radiation resistance. In addition, AURUM exhibits outstanding resistance to hydraulic, automotive, and many industrial fluids and solvents, a low coefficient of thermal expansion, creep resistance, and flame retardancy. AURUM JCL3030 withstands high PV levels and provides a low wear factor and low friction surface over a broad temperature range in both dry and lubricated environments.

INJECTION MOLDING

AURUM JCL3030 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 desiccating hopper dryer under the following conditions: 8 hours at 428°F, 10 hours at 392°F, or 12 hours at 356°F. Cylinder temperature requirements range from 720 - 806°F. Injection pressures of 11,000 - 35,000 psi, nominal back pressures of 0-50 psi, medium to high injection velocities, 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 or wear properties for enhanced economies. AURUM can be easily 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 JCL3030 components are excellent replacements for metals, ceramics, and other plastics. High-performance AURUM parts include: thrust washers and oil seal rings for automotive and off road vehicle transmissions, thermal insulators and stripper fingers for high-speed copiers, jet engine components, check valve balls, spline couplings, heat-resistant gears, vanes, wear strips, and valve seats. Other AURUM applications include carriers for aluminum hard disks and silicon wafers, journal bearings, and bearing retainers.

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