Iupital® F20-03

Mitsubishi Engineering-Plastics Corp - Acetal (POM) Copolymer

Thursday, July 24, 2008

General Information

General			
Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Features	• Fatigue Resistant • Good Abrasion Resistance • Good Chemical Resistance	• Good Creep Resistance • Good Mold Release • Good Moldability	• Good Thermal Stability • Low Friction • Medium Viscosity
Forms	• Pellets		
Processing Method	• Injection Molding		

ASTM and ISO Properties [1]

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity	1.41	1.41	ASTM D792
Density	1.41 g/cm³	1.41 g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)	9.0 g/10 min	9.0 g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	9.0 g/10 min	9.0 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	0.470 in³/10min	7.70 cm³/10min	ISO 1133
Molding Shrinkage (Flow, 0.118 in (3.00 mm))	0.020 in/in	2.0 %	ASTM D955
Molding Shrinkage (Flow)	2.0 %	2.0 %	ISO 294-4
Water Absorption (73 °F (23 °C), 24 hr)	0.22 %	0.22 %	ISO 62
Mechanical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Tensile Modulus	421000 psi	2900 MPa	ISO 527-2
Tensile Strength (73 °F (23 °C))	8890 psi	61.3 MPa	ASTM D638
Tensile Stress (Yield)	9280 psi	64.0 MPa	ISO 527-2
Tensile Strain (Yield)	8.5 %	8.5 %	ISO 527-2
Tensile Elongation (Break, 73 °F (23 °C))	60 %	60 %	ASTM D638
Nominal Tensile Strain at Break	30 %	30 %	ISO 527-2
Flexural Modulus (73 °F (23 °C))	377000 psi	2600 MPa	ASTM D790
Flexural Modulus	377000 psi	2600 MPa	ISO 178
Flexural Strength (73 °F (23 °C))	13000 psi	89.7 MPa	ASTM D790
Flexural Strength	13100 psi	90.0 MPa	ISO 178
Shear Strength	7960 psi	54.9 MPa	ASTM D732
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Charpy Notched Impact Strength			ISO 179
73 °F (23 °C)	3.33 ft·lb/in²	7.00 kJ/m²	
Charpy Unnotched Impact Strength			ISO 179
73 °F (23 °C)	119 ft·lb/in²	250 kJ/m²	
Notched Izod Impact (0.126 in (3.20 mm))	1.20 ft·lb/in	64.0 J/m	ASTM D256
Tensile Impact Strength [2]			ASTM D1822
0.0630 in (1.60 mm)	57.1 ft·lb/in²	120 kJ/m²	
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Rockwell Hardness (M-Scale)	80	80	ASTM D785

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Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed	316 °F	158 °C	
Heat Deflection Temperature			ISO 75-2/B
66 psi (0.45 MPa), Unannealed	313 °F	156 °C	
Deflection Temperature Under Load			ASTM D648
264 psi (1.8 MPa), Unannealed	230 °F	110 °C	
Heat Deflection Temperature			ISO 75-2/A
264 psi (1.8 MPa), Unannealed	221 °F	105 °C	
Melting Temperature (DSC)	331 °F	166 °C	ISO 3146
Melting Temperature	329 °F	165 °C	
CLTE, Flow (68 to 176 °F (20 to 80 °C))	0.000072 in/in/°F	0.00013 cm/cm/°C	ASTM D696
Coefficient of Linear Thermal Expansion, Flow			ISO 11359-2
--	0.000061 in/in/°F	0.00011 cm/cm/°C	
Coefficient of Linear Thermal Expansion, Transverse			ISO 11359-2
--	0.000061 in/in/°F	0.00011 cm/cm/°C	

Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity	1.0E+16 ohms	1.0E+16 ohms	ASTM D257
Surface Resistivity	1.0E+16 ohms	1.0E+16 ohms	IEC 60093
Volume Resistivity	1.0E+14 ohm·cm	1.0E+14 ohm·cm	ASTM D257
Volume Resistivity	1.0E+14 ohm·cm	1.0E+14 ohm·cm	IEC 60093
Dielectric Strength	483 V/mil	19.0 kV/mm	ASTM D149
Dielectric Constant (1E+6 Hz)	3.700	3.700	ASTM D150
Relative Permittivity			IEC 60250
100 Hz	3.90	3.90	
1E+6 Hz	3.90	3.90	
Dissipation Factor (1E+6 Hz)	0.0070	0.0070	ASTM D150
Dissipation Factor			IEC 60250
100 Hz	0.00200	0.00200	
1E+6 Hz	0.00700	0.00700	
Comparative Tracking Index	600 V	600 V	IEC 60112
Electric Strength			IEC 60243-1
0.0394 in (1.00 mm)	812.80 V/mil	32.00 kV/mm	
0.118 in (3.00 mm)	482.60 V/mil	19.00 kV/mm	

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL (0.0315 in (0.800 mm))	HB	HB	UL 94

Additional Properties

The value listed as Melting Temperature, ISO 3146, was tested in accordance with ISO 11357-3.
Molding Shrinkage, ISO 294-4, 3 mm, Flow: 2%

Processing Information

Injection	Nominal Value (English)	Nominal Value (SI)
Rear Temperature	338 °F	170 °C
Middle Temperature	356 °F	180 °C
Front Temperature	374 °F	190 °C
Nozzle Temperature	356 to 410 °F	180 to 210 °C
Processing (Melt) Temp	392 °F	200 °C

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Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Type S