

IUPITAL® ACETAL COPOLYMER ENGINEERING THERMOPLASTIC

IUPITAL® IS A REGISTERED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION

IUPITAL® FW21

IUPITAL® FW21 is one of the oil containing grades in the Iupital® range. This grade is designed to exhibit low friction and high wear resistance via low levels of natural colour oil. The use of natural oil maintains product mouldability and base natural colour. Typical applications are in sliding mechanical components such as gears, bearings, mountings and pinch rollers used in Inkjet printing machines, VCR mechanisms, rocker type switches and washing machine planetary gears.

	CONDITIONS	UNITS	TYPICAL VALUES	TESTING METHODS
<u>1. Mechanical Properties</u>				
Notched Izod Impact Strength	12.7 x 3.2 mm	J/m	49	ASTM D256
Tensile Strength	12.7 x 3.2 mm @ 20 mm/min	MPa	55.9	ASTM D638
Elongation to Fail	12.7 x 3.2 mm @ 20 mm/min	%	40	ASTM D638
Flexural Strength	12.7 x 6.4 mm @ 2.8 mm/min	MPa	81.4	ASTM D790
Flexural Modulus	12.7 x 6.4 mm @ 2.8 mm/min	MPa	2550	ASTM D790
Shear Strength	2.0 mm	MPa	53	ASTM D732
Tensile Impact Strength	1.6 mm	kJ/m ²	49	ASTM D1822
<u>2. Thermal Properties</u>				
Heat Deflection Temperature	12.7 x 6.4 mm @ 1.82 MPa	°C	109	ASTM D648
	12.7 x 6.4 mm @ 0.46 MPa	°C	158	ASTM D648
Melting Temperature		°C	165	DSC
Coefficient of Linear Thermal Expansion		cm/cm/°C	13 exp-5	ASTM D696
<u>4. Physical Properties</u>				
Melt Flow Rate	190°C, 2.16 kg	g/10 min	9.5	ASTM D1238
Specific Gravity		-	1.42	ASTM D792
Rockwell Hardness		M	80	ASTM D785
UL Flammability	0.8 mm	Rating	HB	UL 94
Water Absorption	24 hours	%	0.22	ASTM D570
Reinforcement Level		%	Low	n/a
Mould Shrinkage	3.0 x Ø100 mm disc	%	2.0±0.4	ASTM D955

TYPICAL PROCESSING CONDITIONS

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The following typical guidelines are offered as initial processing conditions for IUPITAL® FW21. In practice, processing parameters may need to be varied to give commercially acceptable performance in conjunction with optimum physical properties. For specific technical advice on part design or processing conditions, contact the Marplex Technical Service Department.

Temperature of pellet bed in dehumidifying drier	80 - 90 °C
Minimum drying time at desired pellet bed temp	2 - 3 hours
Mould temperature	50 - 90 °C
Nozzle temperature	Do not exceed stock temperature
Stock temperature	190 - 210 °C
Cylinder temperatures	Rear 165 - 185 °C
	Middle 175 - 195 °C
	Front 185 - 205 °C
Fill speed	Medium - Fast
Screw speed	40 - 60 rpm
Screw back pressure	0.1 - 0.5 MPa
Injection pressure	60 - 130 MPa
Clamp pressure	3 - 5 kN/cm ²

Comment(s):

- 1 Cleanliness of the dryer, machine hopper and machine screw/barrel/nozzle assembly are essential for processing Iupital® Polyacetal and producing contamination free moulded components.
- 2 Iupital® Polyacetal is not compatible during moulding with other polymers.
- 3 It is suggested that the pre-drying, moulding die and material temperatures are manually confirmed using a hand held temperature measuring device.

Conversions: 1 MPa = 145 psi
= 10.2 kg/cm²
= 10 bar
°C = 5(°F-32)/9
1 kN/cm² = 0.65 ton/in²

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