

IUPITAL® ACETAL COPOLYMER

ENGINEERING THERMOPLASTIC

IUPITAL® IS A REGISTERED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION

IUPITAL® F10 (e)

IUPITAL® F10-01 / F10-02 / F10-03 are the highest viscosity (lowest melt flow) grades in the Iupital® range and are well suited for both thick section injection moulding and profile extrusion applications. The material strength and fatigue resistance are superior to other polyacetal grades with typical applications including thick rodstock for machining, brackets and load bearing hooks.

Note: [No mould release = 01] / [Standard mould release = 02] / [Low mould deposit = 03].

Note: The letters "UV" or "W" indicate UV stabilisation has been added [ie: Iupital® F10-01-W].

	<u>CONDITIONS</u>	<u>UNITS</u>	<u>TYPICAL VALUES</u>	<u>TESTING METHODS</u>
<u>1. Mechanical Properties</u>				
Notched Izod Impact Strength	12.7 x 3.2 mm	J/m	74	ASTM D256
Tensile Strength	12.7 x 3.2 mm @ 20 mm/min	MPa	60.3	ASTM D638
Elongation to Fail	12.7 x 3.2 mm @ 20 mm/min	%	65	ASTM D638
Flexural Strength	12.7 x 6.4 mm @ 2.8 mm/min	MPa	88.3	ASTM D790
Flexural Modulus	12.7 x 6.4 mm @ 2.8 mm/min	MPa	2570	ASTM D790
Shear Strength	2.0 mm	MPa	54.9	ASTM D732
Tensile Impact Strength	1.6 mm	kJ/m ²	180	ASTM D1822
<u>2. Thermal Properties</u>				
Heat Deflection Temperature	12.7 x 6.4 mm @ 1.82 MPa	°C	110	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	2.5	ASTM D1238
Specific Gravity		-	1.41	ASTM D792
Rockwell Hardness		M	78	ASTM D785
UL Flammability	0.8 mm	Rating	HB	UL 94
Water Absorption	24 hours	%	0.22	ASTM D570
Reinforcement Level		%	-	n/a
Mould Shrinkage	3.0 x Ø100 mm disc	%	2.2±0.4	ASTM D955

TYPICAL PROCESSING CONDITIONS

IUPITAL® F10 (e)

The following typical guidelines are offered as initial processing conditions for IUPITAL® F10 (e). 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	
Cylinder temperatures	Zone 1 (Feed)	150 - 170 °C
	Zone 2	155 - 180 °C
	Zone 3	160 - 185 °C
	Zone 4	165 - 190 °C
	Zone 5	170 - 200 °C
Die Temperature Settings	160 - 200 °C	
Adjust die temperature profile to ensure an even flow rate across the profile width		
Required stock temperature	170 - 210 °C	
Back pressure	10 - 25 MPa	
Screw cooling	Desirable for extreme stock temperature control	
Take-off Roll Temperatures	80 - 120 °C	

Comment(s):

- 1 Cleanliness of the dryer, machine hopper and machine screw/barrel/die head assembly are essential for processing Iupital® Polyacetal and producing contamination free profile.
- 2 Iupital® Polyacetal is not compatible during moulding with other polymers.
- 3 It is suggested that the pre-drying, die head, roller 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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