

# IUPITAL® ACETAL COPOLYMER

## ENGINEERING THERMOPLASTIC

IUPITAL® IS A REGISTERED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION

### IUPITAL® F30

IUPITAL® F30-01 / F30-02 / F30-03 are the low viscosity (high melt flow) grades in the Iupital® range and are suited to general purpose injection moulding applications. Offering an exceptional combination of processability, rigidity, frictional wear, heat and chemical resistance, typical applications include camera components, fountain pen nibs and electronic calculator buttons.

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® F30-03-W ].

	<u>CONDITIONS</u>	<u>UNITS</u>	<u>TYPICAL VALUES</u>	<u>TESTING METHODS</u>
<b><u>1. Mechanical Properties</u></b>				
Notched Izod Impact Strength	12.7 x 3.2 mm	J/m	54	ASTM D256
Tensile Strength	12.7 x 3.2 mm @ 20 mm/min	MPa	62.3	ASTM D638
Elongation to Fail	12.7 x 3.2 mm @ 20 mm/min	%	50	ASTM D638
Flexural Strength	12.7 x 6.4 mm @ 2.8 mm/min	MPa	91.2	ASTM D790
Flexural Modulus	12.7 x 6.4 mm @ 2.8 mm/min	MPa	2620	ASTM D790
Shear Strength	2.0 mm	MPa	54.9	ASTM D732
Tensile Impact Strength	1.6 mm	kJ/m <sup>2</sup>	98	ASTM D1822
<b><u>2. Thermal Properties</u></b>				
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
<b><u>4. Physical Properties</u></b>				
Melt Flow Rate	190°C, 2.16 kg	g/10 min	27	ASTM D1238
Specific Gravity		-	1.41	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		%	-	n/a
Mould Shrinkage	3.0 x Ø100 mm disc	%	2.0±0.4	ASTM D955



# TYPICAL PROCESSING CONDITIONS

## IUPITAL® F30

The following typical guidelines are offered as initial processing conditions for IUPITAL® F30. 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		0.5 - 2.5 MPa
Injection pressure		60 - 130 MPa
Clamp pressure		3 - 5 kN/cm <sup>2</sup>

### 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/cm<sup>2</sup>
- = 10 bar
- °C = 5(°F-32)/9
- 1 kN/cm<sup>2</sup> = 0.65 ton/in<sup>2</sup>

