MARPLEX

Marplex Australia Pty Ltd

IUPILON® POLYCARBONATE
ENGINEERING THERMOPLASTIC

IUPILON® IS A REGISTRED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION

IUPILON® H4000

IUPILON® H4000 is the lowest viscosity (ultra high melt flow) grade in the Iupilon® range and is well suited to extremely intricate or "difficult to fill" injection moulding applications, especially those requiring stress free mouldings for optical and electrical signal transmittance. Offering a balance of transparency, toughness, heat resistance, flame retardency and processability, typical applications include domestic video and audio discs (compact discs) as well as digital discs for the computer data and program storage field.

	CONDITIONS	UNITS	TYPICAL VALUES	TESTING METHODS
1. Mechanical Properties				
Notched Izod Impact Strength	12.7 x 3.2 mm	J/m	100	ASTM D256
Falling Dart Impact	3.2 mm	J	50	ASTM D3029
Tensile Strength	12.7 x 3.2 mm @ 20 mm/min	MPa	60	ASTM D638
Elongation to Fail	12.7 x 3.2 mm @ 20 mm/min	%	100	ASTM D638
Flexural Strength	12.7 x 6.4 mm @ 2.8 mm/min	MPa	86	ASTM D790
Flexural Modulus	12.7 x 6.4 mm @ 2.8 mm/min	MPa	2300	ASTM D790
2. Thermal Properties				
Heat Deflection Temperature	12.7 x 6.4 mm @ 1.82 MPa	ºC	121	ASTM D648
	12.7 x 6.4 mm @ 0.46 MPa	ºC	128	ASTM D648
Coefficient of Linear Thermal Expansion		cm/cm/℃	(6-7) exp-5	ASTM D696
3. Electrical Properties				
Volume Resistivity		Ohm.cm	2.1 exp16	ASTM D149
Dielectric Constant		MHz	2.85	ASTM D150
4. Physical Properties				
Melt Flow Rate	300ºC, 1.20 kg	g/10 min	62	ASTM D1238
Specific Gravity		-	1.20	ASTM D792
Rockwell Hardness		R	123	ASTM D785
UL Flammability	1.6 mm	Rating	V-2	UL 94
Water Absorption	24 hours	%	0.15	ASTM D570
Total Light Transmittance	3.0 mm	%	85	ASTM D1003
Reinforcement Level		%	-	n/a
Mould Shrinkage	3.0 x Ø100 mm disc	%	0.6±0.2	ASTM D955

TYPICAL PROCESSING CONDITIONS

IUPILON® H4000

The following typical guidelines are offered as initial processing conditions for IUPILON® H4000
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		120 - 125 ºC
Minimum drying time at desired pellet bed temp		4 - 6 hours
Mould temperature		60 - 110 ºC
Nozzle temperature		Do not exceed stock temperature
Stock temperature		240 - 270 ºC
Cylinder temperatures	Rear	225 - 245 ºC
	Middle	235 - 255 ºC
	Front	245 - 265 ºC
Fill speed		Medium
Screw speed		40 - 60 rpm
Screw back pressure		0.1 - 0.5 MPa
Injection pressure		60 - 140 MPa
Clamp pressure		4 - 8 kN/cm²

Comment(s):

1 Cleanliness of the dryer, machine hopper and machine screw/barrel/nozzle assembly are essential for processing Iupilon® Polycarbonate and producing contamination free moulded components.

2 Iupilon® Polycarbonate is not compatible 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
ºC = 5(ºF-32)/9
1 kN/cm² = 0.65 ton/in²