

IUPILON® POLYCARBONATE

ENGINEERING THERMOPLASTIC

IUPILON® IS A REGISTERED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION

IUPILON® E1000U

IUPILON® E1000U / E1001U / E1003U are the ultra high viscosity (very low melt flow) grades in the Iupilon® range and are well suited to extrusion sheeting, rod and profile applications requiring UV stabilisation (U). Offering an excellent balance of transparency, toughness, UV stability, flame retardency and processability, typical applications include general purpose rodstock, industrial use lamp tubes and security shutter window/door panels. Note: [Standard grade = E1000U] / [FDA approved = E1001U] / [Steam resistant = E1003U].

	<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	1000	ASTM D256
Falling Dart Impact	3.2 mm	J	>85	ASTM D3029
Tensile Strength	12.7 x 3.2 mm @ 20 mm/min	MPa	65	ASTM D638
Elongation to Fail	12.7 x 3.2 mm @ 20 mm/min	%	120	ASTM D638
Flexural Strength	12.7 x 6.4 mm @ 2.8 mm/min	MPa	90	ASTM D790
Flexural Modulus	12.7 x 6.4 mm @ 2.8 mm/min	MPa	2350	ASTM D790
<u>2. Thermal Properties</u>				
Heat Deflection Temperature	12.7 x 6.4 mm @ 1.82 MPa	°C	138	ASTM D648
	12.7 x 6.4 mm @ 0.46 MPa	°C	153	ASTM D648
Coefficient of Linear Thermal Expansion		cm/cm/°C	(6-7)exp-5	ASTM D696
<u>3. Electrical Properties</u>				
Volume Resistivity		Ohm.cm	2.1 exp16	ASTM D257
Dielectric Constant		MHz	2.85	ASTM D150
<u>4. Physical Properties</u>				
Melt Flow Rate	300°C, 1.20 kg	g/10 min	3.5	ASTM D1238
Specific Gravity		-	1.2	ASTM D792
Rockwell Hardness		R	123	ASTM D785
UL Flammability	1.6 mm	Rating	V-2	UL 94
Water Absorption	24 hours	%	0.24	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® E1000U

The following typical guidelines are offered as initial processing conditions for **IUPILON® E1000U**. 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 °C
Minimum drying time at desired pellet bed temp	4 - 6 hours
Cylinder temperatures	Zone 1 (Feed) 240 - 260 °C
	Zone 2 245 - 265 °C
	Zone 3 250 - 270 °C
	Zone 4 260 - 280 °C
	Zone 5 270 - 290 °C
Die Temperature Settings	250 - 290 °C
Adjust die temperature profile to ensure an even flow rate across the profile width	
Required stock temperature	260 - 300 °C
Back pressure	10 - 25 MPa
Screw cooling	Desirable for extre stock temperature control
Take-off Roll Temperatures	80 - 130 °C

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 profile, rodstock and sheeting.
- 2 Iupilon® Polycarbonate is not compatible 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.
- 4 Excessive heat can discolour light colours of Iupilon® Polycarbonate.

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

