

IUPILON® POLYCARBONATE ENGINEERING THERMOPLASTIC

IUPILON® IS A REGISTERED TRADEMARK OF MITSUBISHI ENGINEERING PLASTICS CORPORATION

IUPILON® S1000U

IUPILON® S1000U / S1001U / S1003U are the medium viscosity (low/medium melt flow) grades in the Iupilon® range and are suited to general purpose injection moulding applications which require UV stabilisation (U). Offering an exceptional combination of transparency, toughness, heat resistance, flame retardency and processability, typical applications include emergency vehicle lighting, electrical junction box covers and marine navigation lamp lenses.

Note: [Standard grade = S1000U] / [FDA approved = S1001U] / [Steam resistant = S1003U].

	<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	900	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 D149
Dielectric Constant		MHz	2.85	ASTM D150
<u>4. Physical Properties</u>				
Melt Flow Rate	300°C, 1.20 kg	g/10 min	8.5	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	%	0.24	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® S1000U

The following typical guidelines are offered as initial processing conditions for **IUPILON® S1000U**. 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
Mould temperature	60 - 110 °C
Nozzle temperature	Do not exceed stock temperature
Stock temperature	270 - 300 °C
Cylinder temperatures	Rear 245 - 265 °C
	Middle 260 - 280 °C
	Front 275 - 295 °C
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/cm ²

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
°C = 5(°F-32)/9
1 kN/cm² = 0.65 ton/in²

