

# ProteQ™

# POLYPROPYLENE

## ENGINEERING THERMOPLASTIC

ProteQ™ IS A REGISTERED TRADEMARK OF MARPLEX AUSTRALIA PTY. LTD.

### PROTEQ™ C23UST4Z

PROTEQ™ C23UST4Z is a high crystallinity, high melt flow polypropylene copolymer containing mineral filler which has been highly impact modified, heat stabilised and UV stabilised. PROTEQ™ C23UST4Z has been designed to meet the stringent requirements of automotive exterior trim durability specifications, combining easy processing with low temperature toughness, rigidity, heat resistance, hardness and improved mar resistance.

	<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 mm x 3.2 mm @ 23°C	J/m	575	ASTM D256
	12.7 mm x 3.2 mm @ -30°C	J/m	275	ASTM D256
Tensile Strength	12.7 mm x 3.2 mm @ 50 mm/min	MPa	17	ASTM D638
Elongation to Fail	12.7 mm x 3.2 mm @ 50 mm/min	%	>150	ASTM D638
Flexural Strength	12.7 mm x 3.2 mm @ 10 mm/min	MPa	n/a	ASTM D790
Flexural Modulus	12.7 mm x 3.2 mm @ 10 mm/min	MPa	1,700	ASTM D790
<b><u>2. Thermal Properties</u></b>				
Heat Deflection Temperature	12.7 mm x 3.2 mm @ 0.455 MPa	°C	126	ASTM D648
	12.7 mm x 3.2 mm @ 1.82 MPa	°C	57	ASTM D648
VICAT Softening Temperature	1 kg	°C	131	ASTM D1525
Coefficient of Linear Thermal Expansion		cm/cm/°C	5.20E-05	ASTM D696
<b><u>3. Flammability Properties</u></b>				
UL Flammability	1.6 mm	Rating	HB	UL 94
Glow Wire Temperature	1.6 mm	°C	550	AS/NZS 60695
<b><u>4. Physical Properties</u></b>				
Melt Flow Rate	230°C, 2.16 kg	g/10 min	23	ASTM D1238
Shore D Hardness	Instantaneous		66	ASTM D785
	15 seconds		59	ASTM D785
Specific Gravity		-	1.03	ASTM D792
Mould Shrinkage	3.0 mm plaque	%	0.60	ASTM D955

All test results were obtained using uncoloured material.

Issued: May 2016

*Material Safety Data Sheet (MSDS): Code 17957*

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<b>IXOM OPERATIONS PTY LTD</b>	1 NICHOLSON ST, EAST MELBOURNE, VIC. 3002 AUSTRALIA
	PH: 1300 550 036 FAX: 1300 550 081
<b>CUSTOMER SERVICE:</b>	PH: 1300 557 862 <span style="float: right;">marplex.com.au</span>
<b>MARPLEX AUSTRALIA PTY LTD</b>	165 FITZGERALD RD, LAVERTON NORTH, VIC. 3026 AUSTRALIA
24 HR EMERGENCY	• AU 1800 033 111 • NZ 0800 734 607 • INTERNATIONAL +61 3 9663 2

# TYPICAL PROCESSING CONDITIONS

## **PROTEQ™ C23UST4Z**

The following typical guidelines are offered as initial processing conditions for **PROTEQ™ C23UST4Z**. 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		85 - 90°C
Minimum drying time at desired pellet bed temp		2 - 4 hours
Mould temperature		40 - 80°C
Nozzle temperature		Do not exceed stock temperature
Melt temperature		230 - 260°C
Cylinder temperatures	Rear	210 - 230°C
	Middle	220 - 240°C
	Front	230 - 250°C
Fill speed		Medium
Screw speed		40 - 60 rpm
Screw back pressure		0.1 - 0.5 MPa
Injection pressure		60 - 140 MPa
Clamp pressure		3 - 6 kN/cm <sup>2</sup>

### **Comment(s):**

- 1 Cleanliness of the dryer, machine hopper and machine screw/barrel/nozzle assembly are essential for processing PROTEQ™ and producing contamination free moulded components.
- 2 PROTEQ™ 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/cm<sup>2</sup>
- = 10 bar
- °C = 5(F-32)/9
- 1 kN/cm<sup>2</sup> = 0.65 ton/in<sup>2</sup>