

# ProteQ™

# POLYPROPYLENE ENGINEERING THERMOPLASTIC

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## PROTEQ™ C15ST4

PROTEQ™ C15ST4 is a medium flow 20% talc filled heat stabilised grade of polypropylene copolymer. It is intended for use in applications where elevated use temperatures occur and heat age stability is required.

Note: The letter "U" indicate UV stabilisation has been added [ ie: PROTEQ™ C15UST4 ].

|  | <u>CONDITIONS</u>            | <u>UNITS</u> | <u>TYPICAL<br/>VALUES</u> | <u>TESTING<br/>METHODS</u> |
|--|------------------------------|--------------|---------------------------|----------------------------|
| <b><u>1. Mechanical Properties</u></b>   |                              |              |                           |                            |
| Unnotched Izod Impact Strength           | 12.7 mm x 3.2 mm             | J/m          | 650                       | ASTM D256                  |
| Notched Izod Impact Strength             | 12.7 mm x 3.2 mm             | J/m          | 60                        | ASTM D256                  |
| Tensile Strength                         | 12.7 mm x 3.2 mm @ 50 mm/min | MPa          | 28                        | ASTM D638                  |
| Elongation to Fail                       | 12.7 mm x 3.2 mm @ 50 mm/min | %            | 45                        | ASTM D638                  |
| Flexural Strength                        | 12.7 mm x 3.2 mm @ 10 mm/min | MPa          | 46                        | ASTM D790                  |
| Flexural Modulus                         | 12.7 mm x 3.2 mm @ 10 mm/min | MPa          | 2350                      | ASTM D790                  |
| <b><u>2. Thermal Properties</u></b>      |                              |              |                           |                            |
| Heat Deflection Temperature              | 12.7 mm x 3.2 mm @ 0.455 Mpa | °C           | 131                       | ASTM D648                  |
|  | 12.7 mm x 3.2 mm @ 1.82 MPa  | °C           | 70                        | ASTM D648                  |
| Coefficient of Linear Thermal Expansion  |                              | cm/cm/°C     | 7.50E-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     | 13                        | ASTM D1238                 |
| Shore D Hardness                         | instantaneous                |              | 71                        | ISO 868                    |
|  | 15 seconds                   |              | 63                        | ISO 868                    |
| Specific Gravity                         |                              | -            | 1.04                      | ASTM D792                  |
| Mould Shrinkage                          | 3.0 mm plaque                | %            | 1.20                      | ASTM D955                  |

All test results were obtained using uncoloured material.

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Material Safety Data Sheet (MSDS): Code 17957

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# TYPICAL PROCESSING CONDITIONS

## **PROTEQ™ C15ST4**

The following typical guidelines are offered as initial processing conditions for **PROTEQ™ C15ST4**. 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                                |        | 50 - 80°C                       |
| Nozzle temperature                               |        | Do not exceed stock temperature |
| Melt temperature                                 |        | 220 - 270°C                     |
| Cylinder temperatures                            | Rear   | 195 - 215°C                     |
|  | Middle | 205 - 225°C                     |
|  | Front  | 215 - 235°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 ASTALAC™ ABS 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>