

## ASTADUR™ KB4700

ASTADUR™ KB4700 is an UL94 V-0 rated flame retardant Polybutylene Terephthalate (PBT) based polymer alloy. Key features are high toughness, easy processing, high heat resistance and rigidity. ASTADUR™ KB4700 is designed to offer improved chemical resistance and dimensional stability in a range of environments.

Note: The letters “U” indicate UV stabilisation has been added [ ie: ASTADUR™ KB4700U ].

|                                         | CONDITIONS                    | UNITS    | TYPICAL VALUES | TESTING METHODS |
|-----------------------------------------|-------------------------------|----------|----------------|-----------------|
| <b>1. Mechanical Properties</b>         |                               |          |                |                 |
| Notched Izod Impact Strength            | 12.7 mm x 3.2 mm              | J/m      | 400            | ASTM D256       |
| Falling Dart Impact Strength            | 3.2 mm plaque                 | J        | 60             | ASTM D3029      |
| Tensile Strength                        | 12.7 mm x 3.2 mm @ 5.0 mm/min | MPa      | 46             | ASTM D638       |
| Elongation to Fail                      | 12.7 mm x 3.2 mm @ 5.0 mm/min | %        | >100           | ASTM D638       |
| Flexural Strength                       | 12.7 mm x 3.2 mm @ 1.3 mm/min | MPa      | 74             | ASTM D790       |
| Flexural Modulus                        | 12.7 mm x 3.2 mm @ 1.3 mm/min | MPa      | 2400           | ASTM D790       |
| <b>2. Thermal Properties</b>            |                               |          |                |                 |
| Heat Deflection Temperature             | 12.7 mm x 12.7 mm @ 0.45 Mpa  | °C       | 125            | ASTM D648       |
|                                         | 12.7 mm x 12.7 mm @ 1.82 Mpa  | °C       | 95             | ASTM D648       |
|                                         | 12.7 mm x 3.2 mm @ 0.455 Mpa  | °C       | 110            | ASTM D648       |
|                                         | 12.7 mm x 3.2 mm @ 1.82 MPa   | °C       | 77             | ASTM D648       |
| VICAT Softening Temperature             | 1 kg                          | °C       | 160            | ASTM D1525      |
| Coefficient of Linear Thermal Expansion |                               | cm/cm/°C | 8.50E-05       | ASTM D696       |
| <b>3. Flammability Properties</b>       |                               |          |                |                 |
| UL Flammability                         | 3.0 mm                        | Rating   | V-0            | UL 94           |
| Glow Wire Temperature                   | 3.0 mm                        | °C       | 960            | AS/NZS 60695    |
| <b>4. Physical Properties</b>           |                               |          |                |                 |
| Melt Flow Rate                          | 250°C, 3.8 kg                 | g/10 min | 16             | ASTM D1238      |
| Specific Gravity                        |                               | -        | 1.28           | ASTM D792       |
| Rockwell Hardness                       | R Scale                       | R        | 110            | ASTM D785       |
| Mould Shrinkage                         | 3.0 mm plaque                 | %        | 0.70           | ASTM D955       |

All test results were obtained using uncoloured material.

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Material Safety Data Sheet (MSDS) Code: 17300

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# TYPICAL PROCESSING CONDITIONS

## ASTADUR™ KB4700

The following typical guidelines are offered as initial processing conditions for ASTADUR™ KB4700

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                         |        | 100 - 120°C                     |
| Minimum drying time at desired pellet bed temp                           |        | 4 - 6 hours                     |
| Mould temperature                                                        |        | 60 - 110°C                      |
| Nozzle temperature                                                       |        | Do not exceed stock temperature |
| Melt temperature (residence time dependent)                              |        | 250 - 280°C                     |
| Cylinder temperatures                                                    | Rear   | 230 - 250°C                     |
|                                                                          | Middle | 240 - 260°C                     |
|                                                                          | Front  | 250 - 270°C                     |
| Fill Speed                                                               |        | Medium                          |
| Screw speed                                                              |        | 40 - 60 rpm                     |
| Screw back pressure                                                      |        | 0.2 - 0.4 MPa                   |
| Injection Pressure                                                       |        | 40 - 130 MPa                    |
| Clamp pressure                                                           |        | 4 - 8 kN/cm²                    |
| NOTE: An appropriate sized cushion is suggested to reduce residence time |        |                                 |

### Comments:

01. Cleanliness of the dryer, machine hopper and machine screw/barrel/die head assembly are essential for processing ASTADUR™ PBT and producing contamination free profile, rodstock and sheeting.
02. ASTADUR™ PBT is not compatible during processing with other polymers - this also includes ASTALAC™ ABS and ASTALOY™ PC/ABS.
03. It is suggested that the pre-drying, diehead, roller and material temperatures are manually confirmed using a hand held temperature measuring device.

### Conversions:

1 MPa = 145psi  
1 MPa = 10.2kg/cm<sup>2</sup>  
1 MPa = 10 bar  
°C = 5(°F-32)/9  
1 kN/cm<sup>2</sup> = 0.85 ton/in<sup>2</sup>