

PEARLTHANE® **ECO** D12T55D

Thermoplastic Polyurethane

PROVISIONAL TECHNICAL DATA SHEET

PEARLTHANE® **ECO** D12T55D is a 55 Shore D , High Performance natural TPU based on *Renewable Sources* for Extrusion and Injection Moulding applications. This natural TPU resin features properties similar to standard TPU of same hardness, i.e. excellent mechanical properties and abrasion resistance.

PEARLTHANE® **ECO** D12T55D contains 30% of renewable material.

APPLICATIONS

PEARLTHANE® **ECO** D12T55D enhances the performance of a wide range of end use products that ranges from extrusion profiles, belts, consumer electronics and sport and leisure applications, among others, where environmentally-friendly materials can bring value to the end product.

TYPICAL PHYSICAL PROPERTIES

Physical Property	Test Method	Typical Values *
Density @ 20°C	DIN 53.479	1.16 g/cm ³
Shore Hardness	DIN 53.505	55 D
Tensile Strength	DIN 53.504	37 MPa
Elongation @ Break	DIN 53.504	450 %
Modulus @ 100% Elongation	DIN 53.504	15 MPa
Modulus @ 300% Elongation	DIN 53.504	27 MPa
Tear Strength	DIN 53.515	175 kN/m
Abrasion Loss	DIN 53.516	35 mm ³
Melting Range (MFI=10**)	MQSA 111	205-215°C
Moisture Content	MQSA 44	< 0.10 %

* These are typical values & should not be used for establishing specifications.

** Temperature at which MFI = 10 g/10 min @ 21.6 kg.

WORKING INSTRUCTIONS

For optimum results, previous drying of the product during 1-2 hours at 100-110° C is advisable, in a hot air circulatory, vacuum or desiccant-air dryer.

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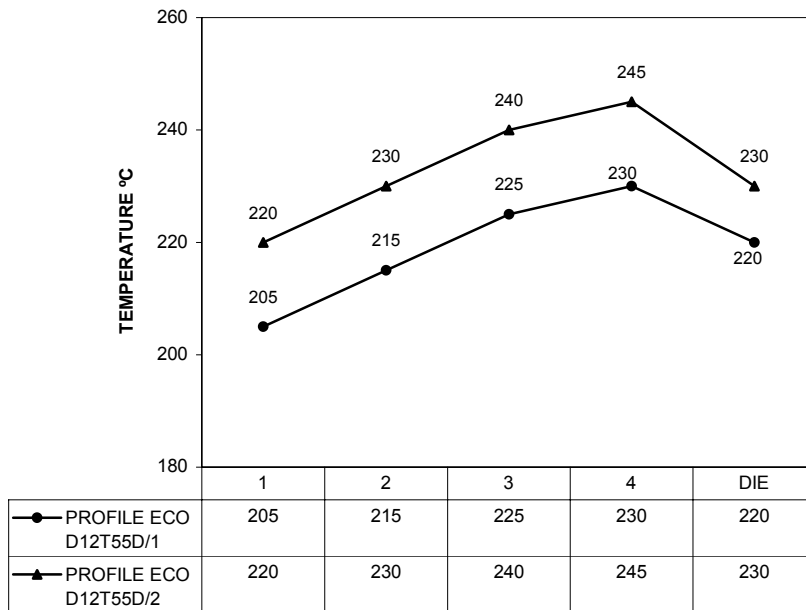
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EXTRUSION

In accordance with our experience, the characteristics of the extruder that are suitable for processing **PEARLTHANE® ECO D12T55D** are the following ones:

1. L/D ratio between 25:1 and 30:1
2. The extruder screw must have 3 zones and a compression ratio in between 2:1 and 3:1 (usually, the screws that are used for Polyethylene extrusion give good results).
3. The extruder screw should have a continuous regulation device and a working power higher than for processing other plastics.
4. The speed of the extruder should be low (12 to 60 rpm, depending on its diameter), so as to avoid material degradation due to shearing.
5. The filters used should be disks with holes of 1.5 to 5 mm (depending on the screw and the die), and screen packs (the nr. of meshes /cm² will depend on the end product that is processed), so as to create a pressure built-up.

The suggested processing-temperature profiles for film extrusion (flat films) are depicted in the figure below.



EXTRUDER & CONDITIONS
 TYPE.- 30/25D (L/D=25:1), COOLING.- Air, SCREW.- 3:1, SPEED.- 20-50 rpm.,
 BREAKER PLATE.- --, FILTER PACK.- --, THICKNESS DIE.- 0,2 mm, PRE-DRYING.- 1 h @ 105 °C

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INJECTION MOULDING

Based on an injection moulding equipment with the following characteristics:

Closing force:	: 30 tons
Screw diameter:	: 26 mm
L/D ratio:	: 23
Maximum hydraulic pressure:	: 210 bar
Mould:	: Plaque 120x120x2 mm

The suggested processing conditions are the following ones:

INJECTION CONDITIONS	
Feed zone	210°C
Compression zone	220°C
Metering zone	225°C
Nozzle	225°C
Mould temperature	35°C

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® ECO D12T55D** is available, with all information related to safety.

PACKAGING

PEARLTHANE® ECO D12T55D is packaged in heat-sealed, moisture proof PE bags of 25 kg net weight. Bags are shipped on pallets of 750 kg. Additionally, PE/Al/PE -lined cardboard gaylords of 700 kg net weight are available.

STORAGE

Material received from Merquinsa should be inspected to assure the containers are not damaged during transportation before being stored prior to use. **PEARLTHANE® ECO D12T55D** should be kept in a cool (15-25°C) and dry environment prior to being processed. Standard practice of consuming resin on first-in first-out basis should be employed.

For more information, please feel free to contact us at www.merquinsa.com

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