

**PEARLTHANE® ECO D20N88**  
Thermoplastic Polyurethane

**PROVISIONAL TECHNICAL DATA SHEET**

**PEARLTHANE® ECO D20N88** is a 86 Shore A, High Performance natural TPU based on *Renewable Sources* for Extrusion and Injection Moulding applications. This natural low density TPU resin features very good flexibility at low temperatures and very good abrasion resistance.

**PEARLTHANE® ECO D20N88** contains approximately 60% of renewable material.

**APPLICATIONS**

**PEARLTHANE® ECO D20N88** enhances the performance of a wide range of end use products that ranges from consumer goods 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	1.13 g/cm <sup>3</sup>
Shore Hardness	DIN 53.505	86 A
Tensile Strength	DIN 53.504	25 MPa
Elongation @ Break	DIN 53.504	708 %
Modulus @ 100% Elongation	DIN 53.504	6 MPa
Modulus @ 300% Elongation	DIN 53.504	9 MPa
Tear Strength	DIN 53.515	103 kN/m
Abrasion Loss	DIN 53.516	25 mm <sup>3</sup>
Melting Range (MFI=10**)	MQSA 111	185-195 °C
Tg (DSC, 10°C / min.)	DIN 51.007	-48 °C

\*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 90-100° C is advisable, in a hot air circulatory, vacuum or desiccant-air dryer.

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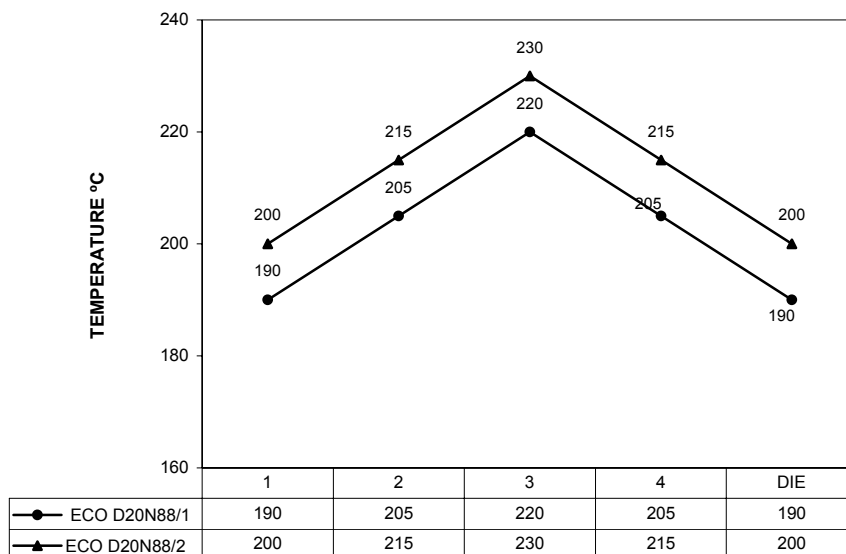
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**EXTRUSION**

In accordance with our experience, the characteristics of the extruder that is suitable for processing **PEARLTHANE® ECO D20N88** are the following:

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 no. of meshes /cm<sup>2</sup> 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 @ 100 °C

Merquinsa's Products are sold subject to Merquinsa's General Sales Conditions printed on the back of invoices and other shipping documents (available upon request). This is correct information based on our experience, and is given in good faith and without compromise. Each purchaser bears full responsibility for the application, use and processing of Merquinsa's products described herein, as well as their suitability to the purchaser's specific application, as this is beyond Merquinsa's control.

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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:

<b>INJECTION CONDITIONS</b>	
Feed zone	195°C
Compression zone	200°C
Metering zone	205°C
Nozzle	205°C
Mould temperature	35°C

**HEALTH AND SAFETY**

A safety data sheet on **PEARLTHANE® ECO D20N88** is available, with all information related to safety.

**PACKAGING**

**PEARLTHANE® ECO D20N88** 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 D20N88** 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](http://www.merquinsa.com)