

# ***PEARLTHANE<sup>®</sup> D16N80***

(PROVISIONAL DATA SHEET)

**PEARLTHANE D16N80** is a polyether - based TPU, supplied in form of translucent, colourless or slightly yellowish pellets, combining hardness with excellent mechanical properties and excellent hydrolysis and micobe resistance. It can be extruded and injection-moulded.

## **TYPICAL PROPERTIES**

<b>Property</b>	<b>Test Method</b>	<b>Typical Values *</b>
Density @ 20°C	DIN 53.479	1.10 gr/cm <sup>3</sup>
Shore Hardness	DIN 53.505	81 A
Tensile Strength	DIN 53.504	35 MPa
Elongation @ Break	DIN 53.504	660 %
Modulus @ 100% Elongation	DIN 53.504	5 MPa
Modulus @ 300% Elongation	DIN 53.504	7.5 MPa
Tear Strength	DIN 53.515	75 kN/m
Abrasion Loss	DIN 53.516	20 mm <sup>3</sup>
Compression Set (70 h. @ 23°C)	DIN 53.517	25 %
Compression Set (24 h. @ 70°C)	DIN 53.517	40 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI=10)	MQSA 111	160 – 170 °C
Tg (DSC, 10°C / min.)	DIN 51.007	- 46° C

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

## **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.

### **EXTRUSION**

In accordance with our experience, the characteristics of the extruder that are suitable for processing **PEARLTHANE D16N80** 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 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.

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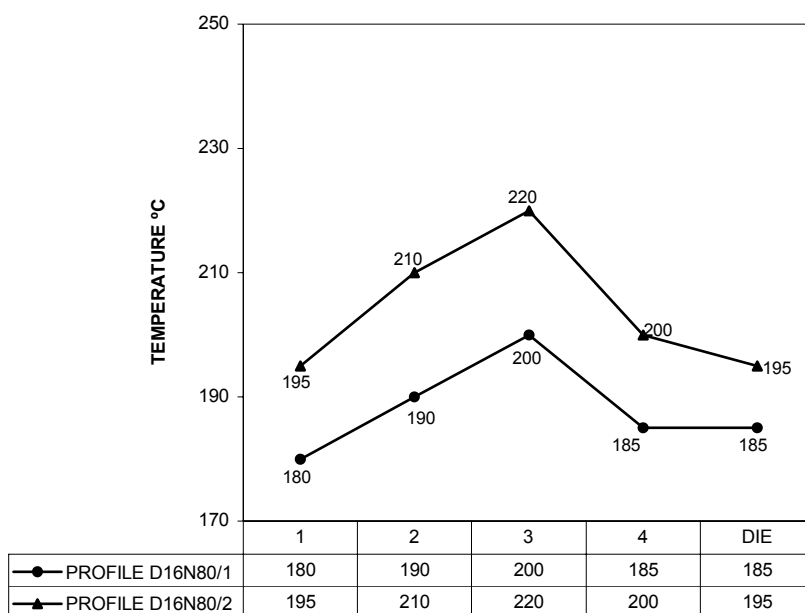
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5. The filters used should be disks with holes of 1.5 to 5 mm. (depending on the screw and the die), and screen packs (the nr. of meshes /cm<sup>2</sup> will depend on the end product which is processed), so as to create a pressure built-up.

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



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

**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

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The suggested processing conditions are the following ones:

<b>INJECTION CONDITIONS</b>			
Feed zone	180°C	Injection pressure	110 bar
Compression zone	190°C	Injection time	2.5 sec
Metering zone	195°C	Holding pressure	50 bar
Nozzle	195°C	Holding time	15 sec
Mould temperature	35°C	Cooling time	38 sec

*Screw speed : approx. 130 rpm.*

### **APPLICATIONS**

**PEARLTHANE D16N80** can be used for blown- and cast films, cables, tubing and profiles. When processed by injection moulding, can be used for making technical parts.

### **HEALTH AND SAFETY**

A safety data sheet on **PEARLTHANE D16N80** is available, with all information related to safety.

### **PACKAGING**

**PEARLTHANE D16N80** is packaged in heat-sealed, moisture proof multi-layer bags of 25 kg net weight made of PE/Aluminium/PE. Bags are shipped on pallets of 750 kg or 500 kg (Europallets). Additionally, PE-lined cardboard gaylords of 700 kg net weight are available.

### **STORAGE**

Material received from Merquinsa should be inspected to assure containers are not damaged during transportation before being stored prior to use. **PEARLTHANE D16N80** 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.

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Our **TECHNICAL SERVICE** will answer any inquiries about our product and its applications.

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