PEARLTHANE® D11H98

Thermoplastic Polyurethane Elastomer

PROVISIONAL TECHNICAL DATA SHEET

PEARLTHANE® D11H98 is a high performance polycaprolactone copolyester based TPU, supplied in form of pellets, combining a unique set of properties such as mechanical properties, chemical resistance and processability for very demanding applications, such as pneumatic tubing and seals.

TYPICAL PHYSICAL PROPERTIES

Physical Property	Test Method	Typical Values *
Density @ 20ºC	DIN 53.479	1.19 g/cm^3
Shore Hardness	DIN 53.505	98 A / 52 D
Tensile Strength	DIN 53.504	35 MPa
Elongation @ Break	DIN 53.504	600 %
Modulus @ 100% Elongation	DIN 53.504	11 MPa
Modulus @ 300% Elongation	DIN 53.504	19 MPa
Tear Strength	DIN 53.515	150 kN/m
Abrasion Loss	DIN 53.516	25 mm^3
Compression Set (70 h. @ 23ºC)	ASTM D395B	35 %
Compression Set (24 h. @ 70ºC)	ASTM D395B	44 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI=10)	MQSA 111	203 – 213 ºC
Tg (DSC, 10ºC / min.)	DIN 51.007	-37 º 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 100-110º 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 is suitable for processing **PEARLTHANE® D11H98** 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.

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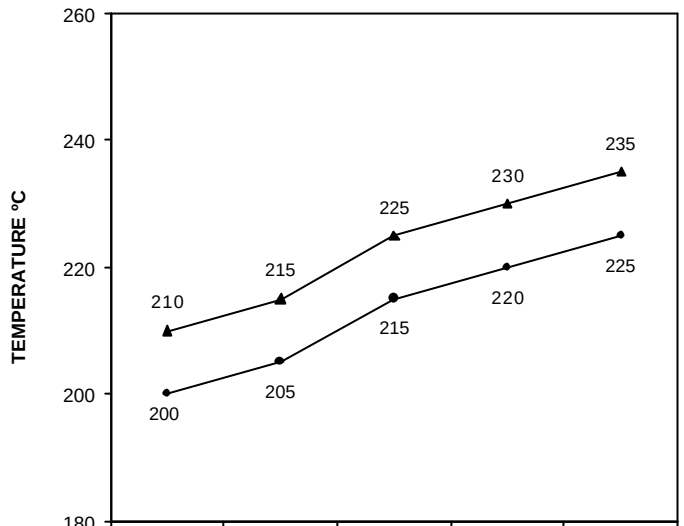
5. The filters used should be disks with holes of 1.5 to 5 mm. (depending on the screw and the die), and screen packs (the no. of meshes /cm^2 will depend on the end product which is processed), so as to create a pressure built-up.

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



	1	2	3	4	DIE
PROFILE D11H98/1	200	205	215	220	225
PROFILE D11H98/2	210	215	225	230	235

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 ºC

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:

INJECTION CONDITIONS

Feed zone	200ºC	Injection pressure	100 bar
Compression zone	210ºC	Injection time	3 sec
Metering zone	220ºC	Holding pressure	60 bar
Nozzle	215ºC	Holding time	15 sec
Mould temperature	30ºC	Cooling time	25 sec

Screw speed: approx. 80 rpm.

APPLICATIONS

PEARLTHANE® D11H98 is mainly used for tubing (e.g. pneumatic tubing) and profiles when extruded.

When processed by injection moulding, it can be used for ear tags, seals and a variety of technical parts.

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® D11H98** is available, with all the information related to safety.

PACKAGING

PEARLTHANE® D11H98 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. Additionally, 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® D11H98** should be kept in a cool (15-25ºC) 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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