

PEARLTHANE® D11H98

Thermoplastic Polyurethane Elastomer

PROVISIONAL TECHNICAL DATA SHEET

PEARLTHANE® D11H98 is a special 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 *
Specific Gravity	ASTM D-792	1.20
Shore Hardness	ASTM D-2240	52 D
Tensile Strength	ASTM D-412	6531 psi.
Elongation @ Break	ASTM D-412	480 %
Modulus @ 100% Elongation	ASTM D-412	1886 psi.
Modulus @ 300% Elongation	ASTM D-412	3338 psi.
Tear Strength	ASTM D-624 (Die C)	902 lb/in
Abrasion Loss	DIN 53.516	25 mm ³
Compression Set (70 h. @ 73°F)	ASTM D-395	25 %
Compression Set (24h. @ 158°F)	ASTM D-395	35 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI=10)	MQSA 111	395 – 415 °F
Tg. (DSC, 50°F / min.)	DIN 51 007	-36° F

* 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 210 - 230° F 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® D11H98** 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 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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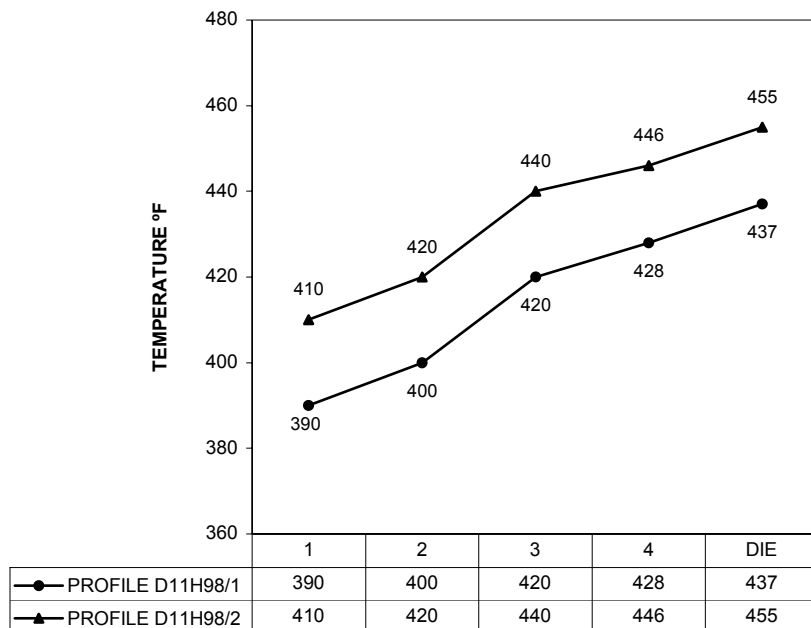
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5. The filters used should be disks with holes of $\frac{1}{16}$ to $\frac{3}{16}$ in. (depending on the screw and the die), and screen packs (the nr. of meshes /in² will depend on the end product which is processed), so as to create a pressure built-up.

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



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 @ 220 °F

INJECTION MouldING

Based on an injection moulding equipment with the following characteristics:

- Closing force: : 30 tons
- Screw diameter: : 1.02 in
- L/D ratio: : 23
- Maximum hydraulic pressure: : 3050 psi.
- Mould: : Plaque 4.7x4.7x0.08 in.

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The suggested processing conditions are the following ones:

INJECTION CONDITIONS			
Feed zone	390°F	Injection pressure	1450 psi
Compression zone	410°F	Injection time	2.9 sec
Metering zone	428°F	Holding pressure	870 psi
Nozzle	419°F	Holding time	15 sec
Mould temperature	86°F	Cooling time	25 sec

Screw speed : approx. 80 rpm.

APPLICATIONS

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

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 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 (60-75°F) 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