

# PEARLTHANE® 11H98

Thermoplastic Polyurethane Elastomer

**PEARLTHANE® 11H98** 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 @ 20°C	DIN 53.479	1.18 g/cm <sup>3</sup>
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 <sup>3</sup>
Compression Set (70 h. @ 23°C)	ASTM D395B	35 %
Compression Set (22 h. @ 70°C)	ASTM D395B	44 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI=10)	MQSA 111	203 – 213 °C
Tg (DSC, 10°C / min.)	DIN 51.007	-37 °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 100-110° C is advisable, in a hot air circulatory, vacuum or desiccant-air dryer.

### EXTRUSION

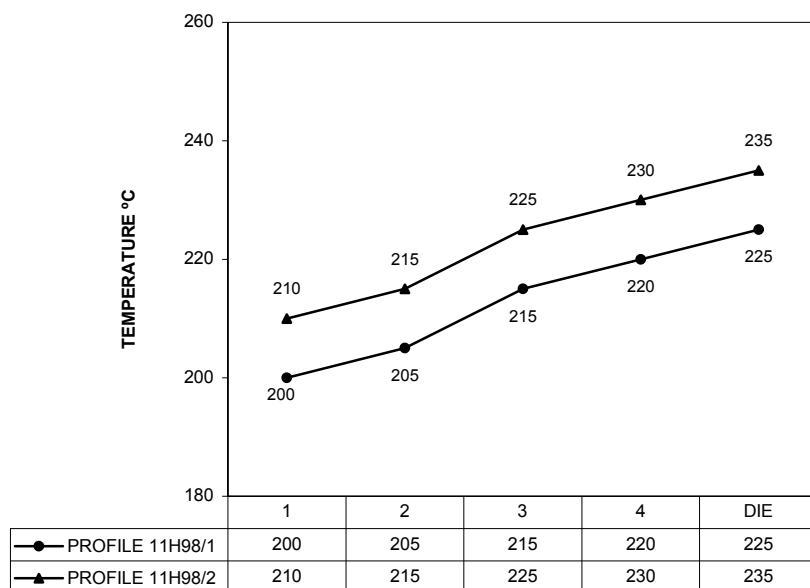
In accordance with our experience, the characteristics of the extruder that is suitable for processing **PEARLTHANE® 11H98** are the following:

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<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 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 @ 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

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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The suggested processing conditions are the following:

## INJECTION CONDITIONS

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

*Screw speed: approx. 80 rpm.*

## APPLICATIONS

**PEARLTHANE® 11H98** 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® 11H98** is available, with all the information related to safety.

## PACKAGING

**PEARLTHANE® 11H98** is packaged in heat-sealed, moisture proof PE bags of 25 Kg net weight. 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® 11H98** 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)