

PEARLTHANE® 11T98

Thermoplastic Polyurethane Elastomer

PEARLTHANE® 11T98 is a polycaprolactone copolyester based TPU, supplied in form of translucent, colorless pellets, combining high hardness with excellent mechanical properties. It can be extruded and injection-molded.

TYPICAL PHYSICAL PROPERTIES

Physical Property	Test Method	Typical Values *
Specific Gravity	ASTM D-792	1.18 g/cm ³
Shore Hardness	ASTM D-2240	98 A / 52 D
Tensile Strength	ASTM D-412	5810 psi
Elongation @ Break	ASTM D-412	470 %
Modulus @ 100% Elongation	ASTM D-412	2325 psi
Modulus @ 300% Elongation	ASTM D-412	4215 psi
Tear Strength	ASTM D-624 (Die C)	1000 lb/in
Abrasion Loss	DIN 53.516	25 mm ³
Compression Set (22 h. @ 77°F)	ASTM D-395	35 %
Compression Set (24 h. @ 158°F)	ASTM D-395	42 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI = 10**)	MQSA 111	379 – 397 °F
Tg (DSC, 10°/10min)	DIN 51.007	- 22 °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 those are suitable for processing PEARLTHANE® 11T98 are as follows:

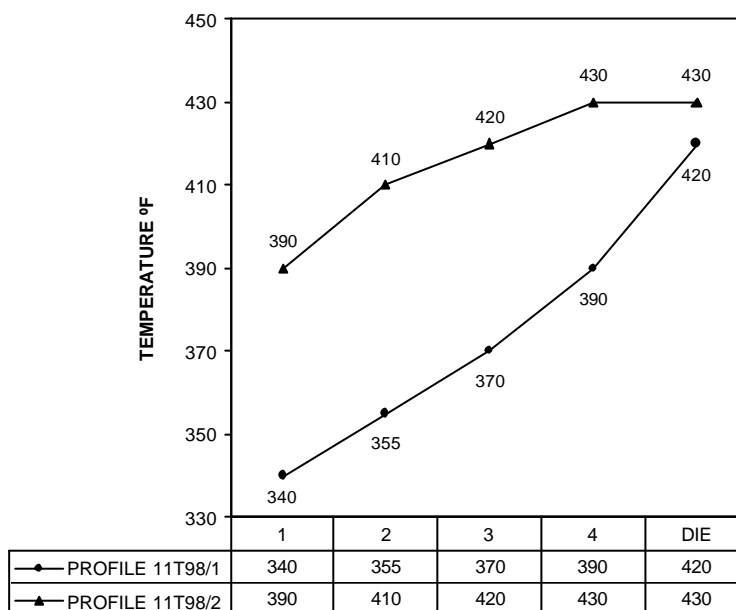
1. L/D ratio between 25:1 and 30:1
2. The extruder screw must have 3 zones and a compression ratio in between 2:1 and 3:1. (Usually, the screws that are used for Polyethylene extrusion give good results).
3. The extruder screw should have a continuous regulation device and a working power higher than 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.

PEARLTHANE® 11T98

Thermoplastic Polyurethane Elastomer

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 no. 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.- 20 rpm.,
 BREAKER PLATE.- --, FILTER PACK.- --, THICKNESS DIE.- 0,2 mm, PRE-DRYING.- 1h @ 220

INJECTION MOLDING

Based on an injection molding equipment with the following characteristics:

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

PEARLTHANE® 11T98

Thermoplastic Polyurethane Elastomer

The suggested processing conditions are as follows:

INJECTION CONDITIONS			
Feed zone	385°F	Injection pressure	1300 psi
Compression zone	400°F	Injection time	3.6 sec
Metering zone	420°F	Holding pressure	870 psi
Nozzle	400°F	Holding time	15 sec
Mold temperature	95°F	Cooling time	30 sec

Screw speed : approx. 100 rpm.

APPLICATIONS

PEARLTHANE® 11T98 when extruded, is used for making tubing, profiles and a variety of technical parts. When processed by injection molding, can be used for making sport shoe soles (football, golf shoes), wheels, seals, etc.

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® 11T98** is available, with all the information related to safety.

PACKAGING

PEARLTHANE® 11T98 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® 11T98** 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