PEARLTHANE® 11T80

Thermoplastic Polyurethane Elastomer

PEARLTHANE® 11T80 is a polycaprolactone copolyester based TPU, supplied in form of translucent, colorless pellets, combining 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	1.16
Shore Hardness	ASTM D-2240	82 A
Tensile Strength	ASTM D-412	5801 psi
Elongation @ Break	ASTM D-412	630 %
Modulus @ 100% Elongation	ASTM D-412	725 psi
Modulus @ 300% Elongation	ASTM D-412	1160 psi
Tear Strength	ASTM D-624 (Die C)	455 lb/in
Abrasion Loss	DIN 53.516	20 mm^3
Compression Set (70 h. @ 73ºF)	ASTM D-395	27 %
Compression Set (24h. @ 158ºF)	ASTM D-395	36 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range *(MFI=10**)*	MQSA 111	348 – 366 ºF
Tg *(DSC, 50ºF / min.)*	DIN 51.007	- 49 ºF

** 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 - 230ºF 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® 11T80** 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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Gran Vial, 17 08160 Montmeló, Spain Tel. (34) 93 572 11 00 Fax (34) 93 572 09 34
E-mail: info@merquinsa.com http://www.merquinsa.com
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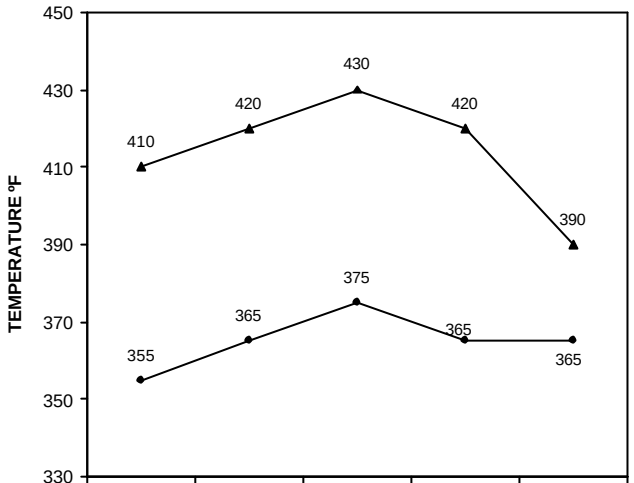
5. The filters used should be disks with holes of $^{1}/_{16}$ to $^{3}/_{16}$ in. (depending on the screw and the die), and screen packs (the no. of meshes /in^{2} will depend on the end product that is processed), so as to create a pressure built-up.

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



	1	2	3	4	DIE
PROFILE 11T80/1	355	365	375	365	365
PROFILE 11T80/2	410	420	430	420	390

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.- 1 h @ 220 ºF

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

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The suggested processing conditions are as follows:

INJECTION CONDITIONS

Feed zone	375ºF	Injection pressure	1600 psi
Compression zone	390ºF	Injection time	4sec
Metering zone	400ºF	Holding pressure	870 psi
Nozzle	410ºF	Holding time	15 sec
Mould temperature	95ºF	Cooling time	20 sec

Screw speed: approx. 75 rpm.

APPLICATIONS

PEARLTHANE® 11T80 when extruded**,** is used for making films, tubing, profiles and a variety of technical components. When processed by injection molding, can be used for making technical parts.

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® 11T80** is available, with all the information related to safety.

PACKAGING

PEARLTHANE® 11T80 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.

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STORAGE

Material received from Merquinsa should be inspected to assure the containers are not damaged during transportation before being stored prior to use. **PEARLTHANE® 11T80** should be kept in a cool (60-75ºF) 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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