

PEARLTHANE® 11T92EM

Thermoplastic Polyurethane Elastomer

PEARLTHANE® 11T92EM 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	91 A
Tensile Strength	ASTM D-412	5076 psi.
Elongation @ Break	ASTM D-412	630 %
Modulus @ 100% Elongation	ASTM D-412	1160 psi.
Modulus @ 300% Elongation	ASTM D-412	1740 psi.
Tear Strength	ASTM D-624 (Die C)	570 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	43 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI=10)	MQSA 111	355 – 375 °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® 11T92EM are as follows:

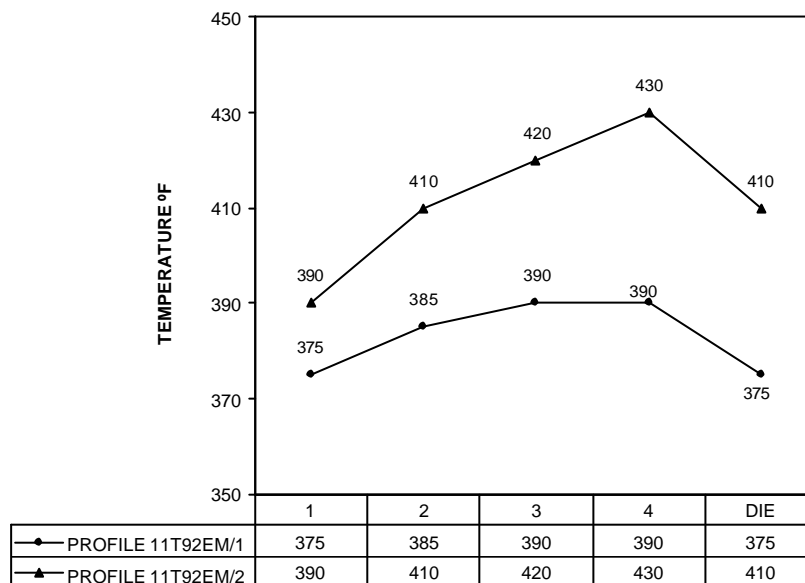
1. L/D ratio between 25:1 and 30:1
2. The extruder screw must have 3 zones and a compression ratio in between 2:1 and 3:1. (Usually, the screws that are used for Polyethylene extrusion give good results).
3. The extruder screw should have a continuous regulation device and a working power higher than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

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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 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.- 20-50 rpm.,
BREAKER PLATE.- --, FILTER PACK.- --, THICKNESS DIE.- 0,2 mm, PRE-DRYING.- 1h @ 220 °F

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	385°F	Injection pressure	1250 psi
Compression zone	390°F	Injection time	3 sec
Metering zone	410°F	Holding pressure	720 psi
Nozzle	410°F	Holding time	15 sec
Mold temperature	95°F	Cooling time	30 sec

Screw speed : approx. 180 rpm.

APPLICATIONS

PEARLTHANE® 11T92EM can be extruded into profiles, belts, tubes and film. In the case of injection molding, this grade is only recommended for certain specific applications, e.g. when large, hard-to-fill mould cavities are used.

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® 11T92EM** is available, with all the information related to safety.

PACKAGING

PEARLTHANE® 11T92EM 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 containers are not damaged during transportation before being stored prior to use. **PEARLTHANE® 11T92EM** 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