

# PEARLTHANE® 11T85UV

Thermoplastic Polyurethane Elastomer

PEARLTHANE® 11T85UV is a UV resistant polycaprolactone copolyester based TPU, supplied in form of translucent, colorless pellets, featuring adequate hardness with excellent flow and mechanical properties. It can be injection-molded and co-extruded.

## TYPICAL PROPERTIES

Property	Test Method	Typical Values *
Specific Gravity	ASTM D-792	1.16
Shore Hardness	ASTM D-2240	86 A
Tensile Strength	ASTM D-412	5801 psi.
Elongation @ Break	ASTM D-412	630 %
Modulus @ 100% Elongation	ASTM D-412	870 psi.
Modulus @ 300% Elongation	ASTM D-412	1450 psi.
Tear Strength	ASTM D-624 (Die C)	515 lb/in
Abrasion Loss	DIN 53.516	25 mm <sup>3</sup>
Compression Set (70 h. @ 73°F)	ASTM D-395	20 %
Compression Set (24h. @ 158°F)	ASTM D-395	35 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range (MFI=10)	MQSA 111	350 – 370 °F
Tg (DSC, 50°F / min)	DIN 51.007	- 40 °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

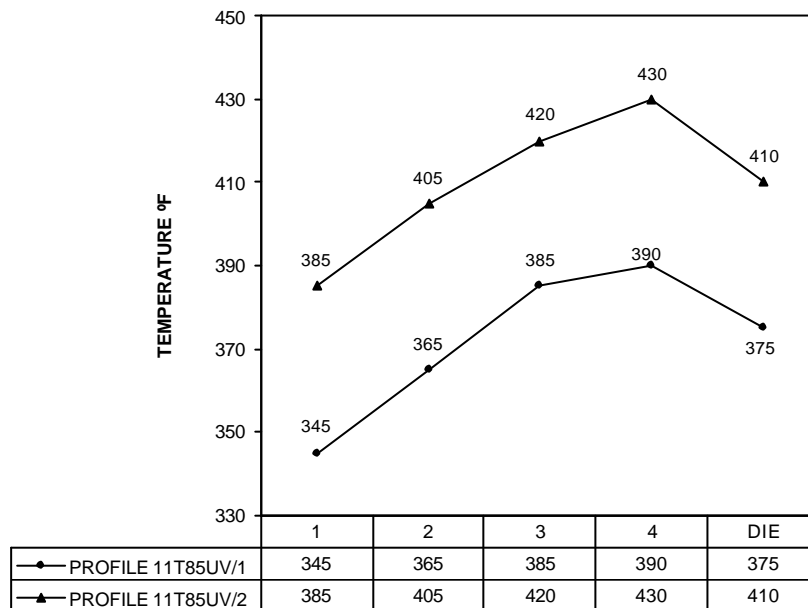
In accordance with our experience, the characteristics of the extruder that are suitable for processing **PEARLTHANE® 11T85UV** are as follows:

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 /in<sup>2</sup> 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:



**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.

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 as follows:

## INJECTION CONDITIONS

Feed zone	380°F	Injection pressure	1450 psi
Compression zone	390°F	Injection time	2.8 sec
Metering zone	410°F	Holding pressure	870 psi
Nozzle	410°F	Holding time	15 sec
Mold temperature	95°F	Cooling time	10 sec

Screw speed : approx. 105 rpm.

## APPLICATIONS

**PEARLTHANE® 11T85UV** when processed by injection molding, can be used for making shoe soles, screens (mining industry), automotive parts, etc.

**PEARLTHANE® 11T85UV** when processed by coextrusion, can be used for making wire-bond hoses (thanks to its excellent adhesion to flexible PVC) and a variety of technical components.

## HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® 11T85UV** is available, with all the information related to safety.

## PACKAGING

**PEARLTHANE® 11T85UV** 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® 11T85UV** 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](http://www.merquinsa.com)