PEARLTHANE® 15N95UV

Thermoplastic Polyurethane Elastomer

PEARLTHANE® 15N95UV is a UV-resistant polyether copolymer based TPU, supplied in form of translucent, colourless pellets, combining hardness with excellent mechanical properties and excellent hydrolysis resistance. It can be extruded and injection-moulded.

TYPICAL PROPERTIES

Property	Test Method	Typical Values *
Density @ 20ºC	DIN 53.479	1.10 g/cm^3
Shore Hardness	DIN 53.505	95 A / 45 D
Tensile Strength	DIN 53.504	35 MPa
Elongation @ Break	DIN 53.504	545 %
Modulus @ 100% Elongation	DIN 53.504	10 MPa
Modulus @ 300% Elongation	DIN 53.504	19 MPa
Tear Strength	DIN 53.515	145 kN/m
Abrasion Loss	DIN 53.516	25 mm^3
Compression Set *(70 h. @ 23ºC)*	ASTM D395B	25 %
Compression Set *(24 h. @ 70ºC)*	ASTM D395B	40 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range *(MFI=10)*	MQSA 111	192 – 202 ºC
Tg *(DSC, 10ºC / min.)*	DIN 51.007	- 46 ºC

** 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 ºC 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® 15N95UV** 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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E-mail: info@merquinsa.com http://www.merquinsa.com
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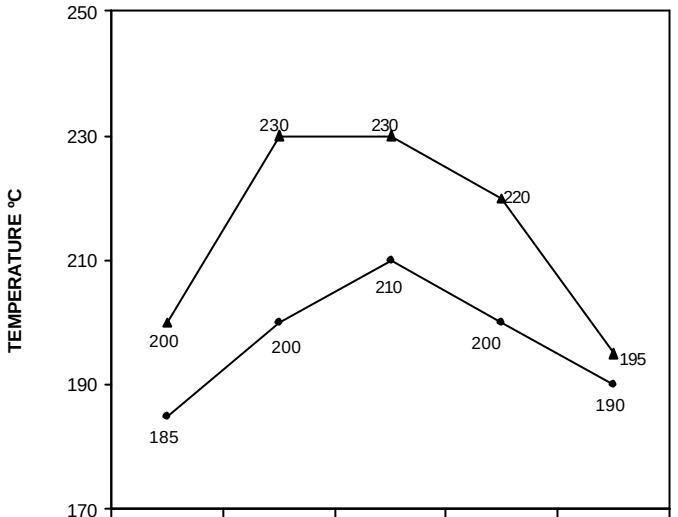
5. The filters used should be disks with holes of 1.5 to 5 mm. (depending on the screw and the die), and screen packs (the nr. of meshes /cm^2 will depend on the end product which is processed), so as to create a pressure built-up.

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



	1	2	3	4	DIE
PROFILE 15N95UV/1	185	200	210	200	190
PROFILE 15N95UV/2	200	230	230	220	195

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 ºC

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

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The suggested processing conditions are as follow:

INJECTION CONDITIONS			
Feed zone	195ºC	Injection pressure	110 bar
Compression zone	200ºC	Injection time	3.1 sec
Metering zone	200ºC	Holding pressure	60 bar
Nozzle	200ºC	Holding time	15 sec
Mould temperature	35ºC	Cooling time	38 sec

Screw speed : approx. 75 rpm.

APPLICATIONS

PEARLTHANE® 15N95UV can be used for high performance animal ear tags and a variety of technical parts for outdoor use. When extruded**,** it can be used for tubing and profiles.

To improve the microbiological protection of **PEARLTHANE® 15N95UV**, it is necessary to add a biocide, preferably in form of TPU-based masterbatch.

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® 15N95UV** is available, with all the information related to safety.

PACKAGING

PEARLTHANE® 15N95UV 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® 15N95UV** should be kept in a cool (15-25ºC) 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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