PEARLTHANE® 15N85UV

Thermoplastic Polyurethane Elastomer

PEARLTHANE® 15N85UV is a polyether copolymer-based TPU containing an anti-UV additive, supplied in form of translucent, colorless pellets, combining hardness with excellent mechanical properties and excellent hydrolysis resistance. It can be extruded and injection-molded.

TYPICAL PHYSICAL PROPERTIES

Physical Property	Test Method	Typical Values *
Specific Gravity	ASTM D-792	1.08
Shore Hardness	ASTM D-2240	86 A
Tensile Strength	ASTM D-412	4351 psi
Elongation @ Break	ASTM D-412	600 %
Modulus @ 100% Elongation	ASTM D-412	870 psi
Modulus @ 300% Elongation	ASTM D-412	1595 psi
Tear Strength	ASTM D-624 (Die C)	540 lb/in
Abrasion Loss	DIN 53.516	25 mm^3
Compression Set (70 h. @ 73ºF)	ASTM D-395	23 %
Compression Set (24h. @ 158ºF)	ASTM D-395	37 %
Moisture Content	MQSA 44	< 0.1 %
Melting Range *(MFI = 10**)*	MQSA 111	386 ºF – 404 ºF
Tg *(DSC, 10º /10min)*	DIN 51.007	- 62 ºF

** These are typical values & should not be used for establishing specifications.*
*** Temperature at which MFI=10 g/10 min at 21.6 kg*

WORKING INSTRUCTIONS

For optimum results, previous drying of the product during 1-2 hours at 210 - 230 ºF 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® 15N85UV** 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 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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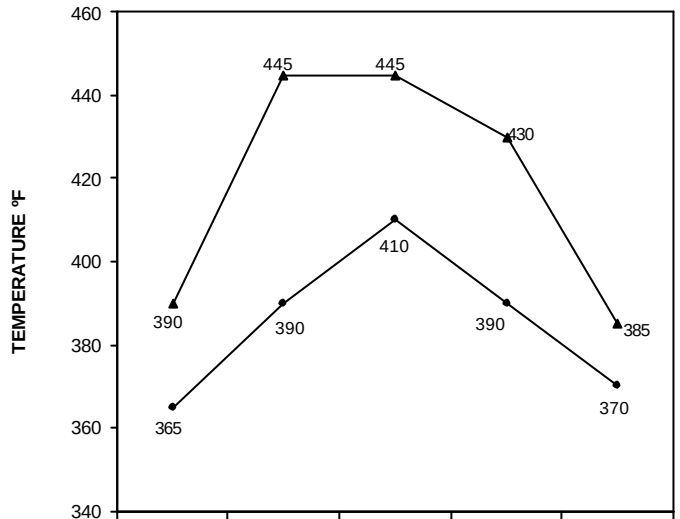
5. The filters used should be disks with holes of $^{1}/_{16}$ to $^{3}/_{16}$ in (depending on the screw and the die), and screen packs (the no. of meshes /in^2 will depend on the end product which is processed), so as to create a pressure built-up.

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



	1	2	3	4	DIE
PROFILE 15N85UV/1	365	390	410	390	370
PROFILE 15N85UV/2	390	445	445	430	385

EXTRUDER & CONDITIONS
TYPE.- 30/25D (L/D=25:1), COOLING.- Air, SCREW.- 3:1, SPEED.- 25 rpm.,
BREAKER PLATE.- --, FILTER PACK.- --, THICKNESS DIE.- 0,2 mm, PRE-DRYING.- 1h @ 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	385ºF	Injection pressure	1400 psi
Compression zone	390ºF	Injection time	2.5 sec
Metering zone	385ºF	Holding pressure	1000 psi
Nozzle	390ºF	Holding time	15 sec
Mold temperature	100ºF	Cooling time	28 sec

Screw speed : approx. 130 rpm.

APPLICATIONS

PEARLTHANE® 15N85UV is used for making films, cables, tubing, profiles and different technical parts. To improve the microbiological protection of **PEARLTHANE® 15N85UV**, it is necessary to add a biocide, preferably in form of TPU-based masterbatch.

HEALTH AND SAFETY

A safety data sheet on **PEARLTHANE® 15N85UV** is available, with all the information related to safety.

PACKAGING

PEARLTHANE® 15N85UV 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® 15N85UV** 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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