

# ***PEARLTHANE<sup>®</sup> D16N85***

(PROVISIONAL DATA SHEET)

**PEARLTHANE D16N85** is a polyether-based TPU, supplied in form of translucent, colourless or slightly yellowish pellets, combining hardness with excellent mechanical properties and excellent hydrolysis resistance. It can be extruded and injection-moulded.

## **TYPICAL PHYSICAL PROPERTIES**

| <b>Physical Property</b>        | <b>Test Method</b> | <b>Typical Values *</b> |
|---------------------------------|--------------------|-------------------------|
| Specific gravity                | ASTM D-792         | 1.08                    |
| Shore Hardness                  | ASTM D-2240        | 85 A                    |
| Tensile Strength                | ASTM D-412         | 5800 psi                |
| Elongation @ Break              | ASTM D-412         | 620 %                   |
| 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         | 20 mm <sup>3</sup>      |
| Compression Set (70 h. @ 73°F)  | ASTM D-395         | 25 %                    |
| Compression Set (24 h. @ 158°F) | ASTM D-395         | 45 %                    |
| Moisture Content                | MQSA 44            | < 0.05 %                |
| Melting Range                   | MQSA 70 (Kofler)   | 375 –390 °F             |

\* These are typical values & should not be used for establishing specifications.

## **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 D16N85** 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.

Supersedes: USA (Issue 02) 09/00

USA: (Issue 03) 10/01

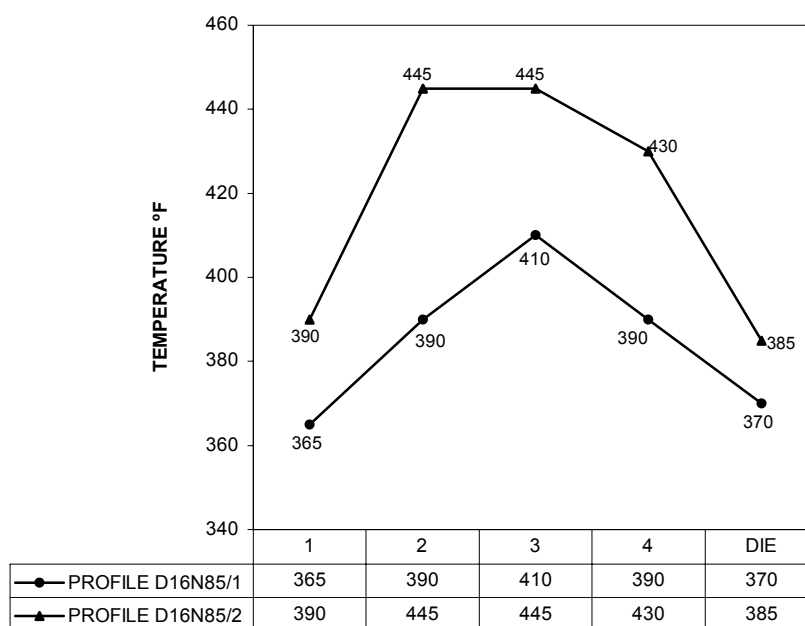
All information and advice are provided without warranty including in the case of the rights of third parties, the client being at all times responsible for testing the products and for their application, use and processing. All products are sold subject to Merquinsa General Terms of Business.

.../2

***PEARLTHANE® D16N85***  
(PROVISIONAL DATA SHEET)

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 nr. of meshes /in<sup>2</sup> 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.



**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 °F

**INJECTION MOULDING**

Based on an injection moulding equipment with the following characteristics:

- Closing force: : 30 tons
- Screw diameter: : 1.02 in
- L/D ratio: : 23
- Maximum hydraulic pressure: : 3050 psi.
- Mould: : Plaque 4.7x4.7x0.08 in.

USA: (Issue 03) 10/01

All information and advice are provided without warranty including in the case of the rights of third parties, the client being at all times responsible for testing the products and for their application, use and processing. All products are sold subject to Merquinsa General Terms of Business.

.../3

**PEARLTHANE® D16N85**  
(PROVISIONAL DATA SHEET)

The suggested processing conditions are the following ones:

| <b>INJECTION CONDITIONS</b> |       |                    |          |
|-----------------------------|-------|--------------------|----------|
| Feed zone                   | 380°F | Injection pressure | 1600 psi |
| Compression zone            | 400°F | Injection time     | 2.5 sec  |
| Metering zone               | 410°F | Holding pressure   | 700 psi  |
| Nozzle                      | 390°F | Holding time       | 15 sec   |
| Mould temperature           | 95°F  | Cooling time       | 38 sec   |

*Screw speed : approx. 130 rpm.*

**CHARACTERISTICS OF THE FILM**

|                         |  |
|-------------------------|--|
| Appearance              | : Colourless, elastic, translucent     |
| Softening point         | : 320 - 340 °F <i>MQSA 91 (Kofler)</i> |
| Dry cleaning resistance | : Excellent                            |
| Hydrolysis resistance   | : Excellent.                           |

**APPLICATIONS**

**PEARLTHANE D16N85** when extruded, is used for making films, cables, tubing and profiles. When processed by injection moulding, can be used for making technical parts.

**HEALTH AND SAFETY**

A safety data sheet on **PEARLTHANE D16N85** is available, with all information related to safety.

**PACKAGING**

**PEARLTHANE D16N85** 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 or 500 kg (Europallets). 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 D16N85** 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.

USA: (Issue 03) 10/01

Our **TECHNICAL SERVICE** will answer any inquiries about our product and its applications.

All information and advice are provided without warranty including in the case of the rights of third parties, the client being at all times responsible for testing the products and for their application, use and processing. All products are sold subject to Merquinsa General Terms of Business.