



versalis

# Technical Data Sheet

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## PHARMALENE<sup>®</sup>

## FL 20 PH

LDPE

Low density polyethylene

Pharmalene FL 20 PH is a homopolymer low density polyethylene (LDPE) without additives obtained by high pressure autoclave process. It is manufactured according to good manufacturing practices (GMP).

### Main Applications

The main use is in the pharmaceutical sector. Pharmalene FL 20 PH has high swell and good melt strength. It is suitable for injection blow moulding of single-use small containers. The polymer can be used in film. Extruded films are easily heat shrinkable and have good optical properties.

### Main Properties

Resin Properties	Value	Unit	Test Method
Melt Flow Rate (190 °C/2.16 kg)	2.2	g/10min	ISO 1133
Melt Flow Rate (190 °C/5 kg)	-	g/10min	ISO 1133
Melt Flow Rate (190 °C/21.6 kg)	-	g/10min	ISO 1133
Density	0.921	g/cm <sup>3</sup>	ISO 1183
Melting Point	109	°C	Internal method
Brittleness temperature	<- 75	°C	ASTM D 746
Vicat softening point (1 kg)	90	°C	ISO 306/A

  

Film Properties *	Value	Unit	Test Method
Tensile stress at yield MD	10	MPa	ISO 527-3
Tensile stress at yield TD	10	MPa	ISO 527-3
Tensile stress at break MD	25	MPa	ISO 527-3
Tensile stress at break TD	19	MPa	ISO 527-3
Elongation at break MD	300	%	ISO 527-3
Elongation at break TD	550	%	ISO 527-3
1% Secant modulus MD	160	MPa	ISO 527-3
1% Secant modulus TD	180	MPa	ISO 527-3
Elmendorf tear resistance MD	70	N/mm	ISO 6383-2
Elmendorf tear resistance TD	45	N/mm	ISO 6383-2
Impact resistance F50 (Dart Drop Test)	190	g	ISO 7765-1/A
Dynamic coefficient of friction (COF)	> 0.5	-	ISO 8295
Haze	9	%	ISO 14782
Gloss, 45°	54	%	ASTM D 2457
Recommended film thickness	25 ÷ 80	micron	-

(\*) Typical value for a film extruded with BUR 1:3, thickness 40 µm. Actual properties are typical and may vary depending upon operating conditions and additive package.

## Processing notes

Pharmalene FL 20 PH is easily processable using blown film technology.  
Melt temperature should be between 160°C and 190°C.  
Recommended thickness: 25 - 80 µm.

## Storage and Handling

Pharmalene FL 20 PH is supplied in pellet form. This material may readily be conveyed and bulk fed through equipment designed for conventional pelletised polyethylene resin, provided the equipment is designed to prevent accumulation of the fines and dust particles that are contained in all polyethylene resins. These fines and dust particles can, under certain conditions, pose an explosion hazard. We recommend that the conveying system used be equipped with filters of adequate size, operated and maintained in such a manner to ensure that no leaks develop and earthed adequately. We further recommend that good housekeeping should be practised throughout your facility.

The product should be stored in dry conditions at temperatures below 50°C and protected from sunlight. Improper storage can initiate degradation which results in odour generation, colour changes and can have negative effects on the physical properties of the product.  
Before using this product it is recommended to read and understand the relevant Safety Data Sheet.

## Availability

Contact the versalis sales office nearest to you regarding availability and your specific application requirements.

## Food Contact Status

Pharmalene FL 20 PH complies with the European Union (Reg. 10/2011) and the USA (FDA) rules, relating the use of plastic materials intended for contact with foodstuffs.

The composition of our product is in conformity with sections of the European Pharmacopoeia (eighth ed.) And those of the U.S. Pharmacopoeia (USP 34) that indicate the requirements for the polyethylene.

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### TECHNICAL SERVICE

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**IMPORTANT:** please consult the relevant safety data sheet for more detailed information. The information and data presented herein are to the best of our knowledge true and accurate but no warranty or guarantee, expressed or implied, is made nor is any liability accepted with respect to the use of such information and data.

versalis is available to provide the guaranteed values for each product on demand.