versalis

Technical Data Sheet

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PHARMALENE®

LDPE

FL 20 PH

Low density polyethylene

Pharmalene FL 20 PH is a low density polyethylene (LDPE) without additives obtained by high pressure autoclave process. It is produced according to good manufacturing practices (GMP) and is mainly used for blown film extrusion, extrusion and extrusion blow moulding.

Main Applications

Pharmalene FL 20 PH is intended for the use within pharmaceutical sector and is characterized by an optimal balance between processability and mechanical properties.
Pharmalene FL 20 PH is suitable for the production of multilayer films for blisters and for pharmaceutical monodoses or small bottles.

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/cm³	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.

Pharmalene® is a registered trademark of Versalis

Manufacturer website: https://www.versalis.eni.com/

Processing notes

Pharmalene FL 20 PH can be processed by conventional blown film extrusion equipments. Melt temperature from 160 °C to 190 °C is recommended. Depending on extrusion conditions, the suggested film thickness is 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 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, is 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.
Shelf Life: Polyethylene can be stored over a long period of time, as long as it is stored protected from solar irradiation, in a ventilated, dry and cool place, with a temperature kept below 50°C. Any exposure of the material to solar irradiation, reinforced by higher temperatures, has a detrimental impact on the product quality and can induce a degradation, which goes on subsequently.
We guarantee that Versalis Pharmalene® products keep complying with Versalis sales specification for 2 years after date of delivery under the recommended storage conditions. This statement does not prevent user performing MFR and density tests on the incoming material and every year for quality evaluation.
Ensuring a consistent material quality, we strongly recommend to follow the above mentioned handling and storage conditions for all Pharmalene® products. In case of non-respect of these storage precautions, Versalis cannot be held liable to any quality problem related to inappropriate handling and storage of the material and shelf-life can be altered.
Before using this product it is recommended to refer to the relevant Safety Data Sheet (SDS) for more detailed information.

Availability

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

Food Contact and Pharmacopoeia Status

Pharmalene FL 20 PH complies with the European Union (Reg. 10/2011) and the USA (FDA) rules, related to the use of plastic materials intended for contact with foodstuffs. The composition of our product is compliant to the relevant sections of the European Pharmacopoeia (10th ed.) and those of the U.S. Pharmacopoeia (USP 42). Certificates of compliance are available upon request.

Technical Management Polyethylene Pharmalene

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