218 Series

Linear Low Density Polyethylene for Blown Film

Product Description

218 series resins are Linear Low Density Polyethylene grades suitable for general purpose packaging. They are easy to process giving good tensile properties, impact strength and optical properties.

218 Series includes following grades:

218N: No Slip & No Antiblock

218W: 1500 ppm Slip & 3500 ppm Antiblock

Typical Applications

Lamination film, thin liners, shopping bags, carrier bags, garbage bags, coextruded films, consumer packaging etc.

Typical data

Properties	Unit	Value [1]	ASTM Method
Resin Properties			
Melt Flow Rate @ 190°C & 2.16 kg load	g/10 min.	2	D 1238
Density @ 23°C	kg/m^3	918	D 1505
Mechanical Properties[2]			
Tensile Strength @ break, MD	MPa	35	D 882
TD		29	
Tensile Elongation @ break, MD	%	700	D 882
TD		750	
Tensile Strength @ yield, MD	MPa	12	D 882
TD		10	
1% Secant Modulus, MD	MPa	220	D 882
TD		260	
Puncture Resistance	J/mm	63	SABIC Method
Dart Impact Strength	g	85	D 1709
Elmendorf Tear Strength, MD	g	130	D 1922
TD		320	
Optical Properties[2]			
Haze	%	13	D 1003
Gloss @ 60°	-	80	D 2457
Thermal Properties			
Vicat Softening Point	°C	98	D 1525

(1) Typical values; not to be construed as specification limits.

(2) Properties have been measured by producing 30 µ film with 2.5 BUR using 100% 218N.

Processing Conditions

Typical processing conditions for 218 are:

Melt temperature: 185 - 205°C

Blow up ratio: 2 - 3

SABIC® LLDPE 118W

Linear low density polyethylene for Blown film

Description

SABIC® LLDPE 118W is a butene-linear low density polyethylene resin for general purpose applications. Films produced from this resin are tough with excellent puncture resistance, high tensile strength and good hottack properties. The resin contains anti block and slip erucamide.

Application

Typical applications for SABIC® LLDPE 118W are shipping sacks, ice bags, frozen food bags, liners, carrier bags, garbage bags, films for meatwrap, consumer packaging and high clarity film if blended with (10-20%) LDPE.

Film properties

Film of 50 µm and BUR=2 has been produced on Kiefel IBC with 140 kg/h. Die size 200 mm, die gap 2,7 mm.

Typical data. Revision 20060329

Properties	Units SI	Values	Test methods
Polymer properties			
Melt flow rate (MFR)			ISO 1133
at 190 °C and 2.16 kg	g/10 min	1.0	
Density	kg/m³	918	ISO 1183 (A)
Formulation			
Slip	mg/kg	1500	SABIC method
Anti block	mg/kg	3500	SABIC method
Anti oxidant	mg/kg	+	SABIC method
Optical properties			
Gloss (45°)	‰	42	ASTM D 2457
Haze	%	20	ASTM D 1003A
Clarity	mV	20	SABIC method
Film properties			
Impact strength	kJ/m	22	ASTM D 4272
Tear strength TD	kN/m	120	ISO 6383-2
Tear strength MD	kN/m	40	ISO 6383-2
Puncture resistance	J/m	380	SABIC method
Tensile test film			ISO 527-3
Yield stress TD	MPa	11	
Yield stress MD	MPa	11	
Stress at break TD	MPa	30	
Stress at break MD	MPa	37	
Strain at break TD	%	800	
Strain at break MD	%	600	
Modulus of elasticity TD	MPa	180	
Modulus of elasticity MD	MPa	160	
Coefficient of friction	-	0.1	ISO 8295
Blocking	g	15	SABIC method
Re-blocking	g	10	SABIC method
Thermal properties			
Vicat softening temperature			ISO 306/B
at 10 N (VST/A)	°C	101	
DSC test			SABIC method
melting point	°C	121	

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SABIC® LLDPE 218B

Linear low density polyethylene for Cast film

Description

SABIC® LLDPE 218B is a butene linear low density polyethylene resin designed for easy processing and specially formulated for optimum thermal stability at high temperatures used in cast film extrusion. Cast films produced from SABIC® LLDPE 218B exhibit excellent optical properties, improved toughness, puncture resistance and tear strength.

Application

SABIC® LLDPE 218B resin is recommended for hand and pallet stretch wrap.

Film properties

Properties are determined on 20 µm cast stretch film produced on a 2 m commercial cast stretch line: melt temperature 270 °C, chill roll temperature 20 °C and line speed of 450 m/min.

Processing conditions

SABIC® LLPDE 218B is extrudable with conventional cast film extrusion equipment. Minor machine modifications may be required for optimum use. Cast film melt temperatures 250 - 300 °C.

The product mentioned herein is in particular not tested and therefore not validated for use in pharmaceutical/ medical applications.

Typical data. Revision 20111101

Properties	Units SI	Values	Test methods
Polymer properties			
Melt flow rate (MFR)			ISO 1133
at 190 °C and 2.16 kg	g/10 min	**2.0**	
Density	kg/m³	**918**	ISO 1183 (A)
Formulation			
Anti oxidant		**+**	SABIC method
Optical properties			
Gloss (45°)	‰	**92**	ASTM D 2457
Haze	%	**1.2**	ASTM D 1003A
Film properties			
Dart impact	kJ/m	**2.8**	ISO 7765-2
Tear strength TD	kN/m	**185**	ISO 6383-2
Protrusion Puncture resistance	J	**2.2**	ASTM D 5748-95
Elastic recovery & Stress retention			ASTM D 5459-95
Elastic recovery	%	**52.6**	
Stress retention	%	**79.9**	
Peel cling			ASTM D 5458-95
0% pre-stretch	N/mm	**0.06**	
200% pre-stretch	N/mm	**0.05**	
Thermal properties			
Vicat softening temperature			ISO 306
at 10 N (VST/A)	°C	**96**	
DSC test			SABIC method
melting point	°C	**122**	

ExxonMobil™ LLDPE LL 1002AY Blown

Linear Low Density Polyethylene Resin

Product Description

LL 1002AY is a butene LLDPE designed for the blown film process, offering high gloss and excellent draw down. Films made from LL1002AY have very good tensile and toughness properties. TnPP is not intentionally added to LL 1002AY.

General

Availability 1•Asia Pacific•Europe•Latin America

Additive•LL 1002AY: Antiblock: No; Slip: No; Processing Aid: No; Thermal Stabilizer: Yes

Applications•Agricultural Film•Garment Film•Multilayer Packaging Film •Bag in Box•General Packaging•Packaging Films •Blown Film•Industrial Packaging•Personal Care •Cast Film•Institutional Can Liners•Produce Bags On A Roll •Food Packaging•Lamination Film•Shoppers •Form Fill And Seal Packaging•Liners•Trash Can Liners •Freezer Film•Mulch Film

Revision Date•01/01/2019

Resin Properties	Typical Value(English)	Typical Value(SI)	Test Based On
Density	0.918g/cm³	0.918g/cm³	ASTM D1505
Melt Index (190°C/2.16 kg)	2.0g/10 min	2.0g/10 min	ASTM D1238
Peak Melting Temperature	250°F	121°C	ExxonMobil Method

Film Properties	Typical Value(English)	Typical Value(SI)	Test Based On
Tensile Strength at Yield MD	1400psi	9.4MPa	ASTM D882
Tensile Strength at Yield TD	1300psi	8.9MPa	ASTM D882
Tensile Strength at Break MD	7100psi	49MPa	ASTM D882
Tensile Strength at Break TD	4200psi	29MPa	ASTM D882
Elongation at Break MD	590%	590%	ASTM D882
Elongation at Break TD	800%	800%	ASTM D882
Secant Modulus TD - 1% Secant	32000psi	220MPa	ASTM D882
Dart Drop Impact	70g	70g	ASTM D1709A
Elmendorf Tear Strength MD	90g	90g	ASTM D1922
Elmendorf Tear Strength TD	400g	400g	ASTM D1922

~~Optical Properties~~	~~Typical Value(English)~~	~~Typical Value(SI)~~	~~Test Based On~~
Gloss (45°)	76	76	ASTM D2457
Haze	4.4%	4.4%	ASTM D1003

Legal Statement

Tris(nonylphenol)phosphite (TNPP) CAS# 26523-78-4 is not intentionally used by ExxonMobil in this product. Although this product is not routinely tested for its presence, based on product composition knowledge this substance is not expected to be present. However, the fact that this substance is not intentionally used by ExxonMobil in this product does not exclude that trace levels of this substance may be present as a result of the specific characteristics of the raw materials and/or of the manufacturing process.

This product is not intended for use in medical applications and should not be used in any such applications.

Processing Statement

The test specimen was prepared and tested at our European Technology Center using a 25.4 µm (1.0 mil) thick film (screw diameter = 75 mm, die gap = 2.5 mm, BUR = 2.5 and temperature setting of 200°C). Optical film properties have been measured on a 25.4 µm thick film with addition of 10% LDPE at the same conditions.

Notes

Typical properties: these are not to be construed as specifications.

1 Product may not be available in one or more countries in the identified Availability regions. Please contact your Sales Representative for complete Country Availability.

For additional technical, sales and order assistance: www.exxonmobilchemical.com/ContactUs