Technical Data Sheet

Lotrène®Q2018 Series

Linear Low Density Polyethylene (LLDPE)

Description and Use:

Lotrène® Q2018 Series are Linear Low Density Polyethylene resins produced in a gas phase reactor using butene (C4) co-monomer.
They are designed for blown film applications and can be used in pure form as well as blended with other PE resins, such as LDPE or HDPE and mPE resins for mono extrusion or co-extrusion process to modify film properties.

Lotrène® Q2018 Series are suited for many applications in the field of consumer, industrial, food or hygiene packaging such as freezer film, bread bags, shoppers and bags as well as lamination film and multilayer packaging film.

Additive Package:

Product	Slip (Erucamide) (ppm)	Antiblock (ppm)	Thermal Stabilizers
Q2018N	No	No	Yes
Q2018M	1000	3200	Yes
Q2018H	1500	3200	Yes

Values indicated are target values. Actual values might differ from batch to batch.

PROPERTIES:

POLYMER PROPERTIES	VALUE	UNIT	TEST METHOD
Density @ 23 °C *	0.918	g/cm3	ASTM D-792
Melt Flow Index (190 °C /2.16 kg)	2.0	g/10 min.	ASTM D-1238
Crystalline Melting Point	121	°C	Internal
Vicat Softening Point	100	°C	ASTM D-1525 (A120)

Density and MFI are routinely measured during the standard quality control procedure. Other figures are given for information only. This data is not intended for specification purposes.

QATOFIN Company Limited P. O. Box 55013, Doha, State of Qatar Tel: +974 4242555, Fax: +974 4325936,

Email: info@qatofin.com.qa http://www.qatofin.com.qa

* Density of base resin

FILM PROPERTIES	VALUE (*)	UNIT	TEST METHOD
Tensile Strength @ Yield MD/ TD	11/11	MPa	ASTM D-882
Tensile Strength @ Break MD/ TD	35/32	MPa	ASTM D-882
Elongation @ Break MD/ TD	850/900	%	ASTM D-882
Secant modulus @ 1% MD/ TD	215/245	MPa	ASTM D-882
Impact Strength, F 50	130	g	ASTM D-1709
Tear resistance MD/ TD	220/420 55/105	g N/mm	ASTM D- 1922
Haze	14	%	ASTM D-1003
Gloss (@ 45 °)	55	-	ASTM D-2457

(The above properties are measured on a blown film under following parameters:
Screw 45 mm, L/D 30, die gap 2.2 mm, output 30 kg/hr, mass temperature 210°C, thickness 40 µm and BUR 2.5:1

Note: The values given in this technical data sheet are the results of tests carried out in accordance with standard test procedures. They are given as indication to enable customers to make the best use of our products but must be considered as average values provided without implying any undertaking from the manufacturer. Actual properties might differ depending on additivation and extrusion conditions.

Processing:

Extrusion temperatures: 170-210 °C
Melt temperature 190 °C
Blow-up ratio: 2:1 to 3:1
Die gap: > 1.8 mm

Lotrène® Q2018 Series can be processed at high output rates with moderate extrusion pressure, good bubble stability and gauge control on blown film lines designed for LLDPE.
Lotrène® Q2018 Series can be blended with LDPE and other PE resins in order to improve film properties or processability on conventional mono or co extrusion machines.

Handling and Storage:

Lotrène®Q2018 Series should be stored in its original Packaging or in clean appropriate silos.
The product should be stored in a dry and well ventilated area.
Lotrène® Q2018 Series should not be stored for more than three months nor be exposed to direct sunlight and/or heating during storage since this may adversely affect the properties of the product.

NB: **Lotrène®** Q2018 Series are not suitable for application in the pharmaceutical or medical sector.

Technical Data Sheet

Lotrène®Q2018C

Linear Low Density Polyethylene (LLDPE)

Description and Use

Lotrène® Q2018C can be processed at optimal output rates with moderate extrusion pressure, good web stability and gauge control on cast film machines designed for LLDPE.

Lotrène® Q2018C can advantageously be blended with LDPE or other PE resins used in cast film mono extrusion or co-extrusion to improve film properties.

Lotrène® Q2018C is suited for many applications in the field of consumer, industrial, food or hygiene packaging as well as stretch film and non-packaging applications like agricultural films e.g. mulching films.

Additive Package

Product	Slip (Erucamide)	Antiblock	Processing aid	Thermal Stabilizers
Q2018C	no	no	no	Yes, cast film

Characteristics

Property	Method	Unit	Value
Density (*)	ASTM D-792	g/cm³	0.918
Melt Flow Rate (190°C/2.16 kg)	ASTM D-1238	g/10 min	2.0
Melting temperature	Internal	°C	121
Vicat temperature	ASTM D-1525 (A120)	°C	100

Values indicated are typical for this product. Density and MFR are properties routinely measured during “the standard quality control procedure”. Other figures are generated by tests not included in the "standard quality control procedure", and are given for information only. Data are not intended for specification purposes.
(*) density on base resin

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Email: info@qatofin.com.qa http://www.qatofin.com.qa

Cast film properties

These values have been measured on a 20 µm film.

properties	Method	Unit	Value (*)
Tensile Strength at Yield MD/TD	ASTM D-882	MPa	9.7 / 9.6
Tensile Strength at Break MD/TD	ASTM D-882	MPa	37 / 23
Elongation at Break MD/TD	ASTM D-882	%	330 / 670
Elmendorf tear resistance MD/TD	ASTM D- 1922	N/mm	12 / 193
Secant modulus at 1% MD/TD	ASTM D-882	MPa	165 / 170
Dart test, F50	ASTM D-1709	g	35
Puncture force	ASTM D5748	N	25
Puncture energy	ASTM D5748	J	1.6
Haze	ASTM D-1003	%	1.8
Gloss @ 45°	ASTM D2457	gu	92

Note: The values given in this technical data sheet are the results of tests carried out in accordance with standard test procedures. They are given as indication to enable customers to make the best use of our products but must be considered as average values provided without implying any undertaking from the manufacturer. Actual properties might differ depending on extrusion conditions.
(*) the above properties are measured on cast line under the following parameters, 30 mm screw, L/D = 30:1, die length = 600 mm, die gap = 0.8 mm, line speed = 50 m/min, temperature setting = 180-230°C. Melt temperature 250°C. Chill roll temperature: 25°C.

Processing

Lotrène®Q2018C is typically extruded at a melt temperatures between 220 and 250°C.
Lotrène®Q2018C can be cast in the following conditions on machine designed for LLDPE:
>> Extrusion temperature: 180 to 250°C
>> Line speed: > 400 m/min
>> Die gap: > 0.8 mm
An excellent blending ability of LOTRÈNE Q2018C with LDPE and HDPE and mLLDPE was observed.

Handling and storage

Lotrène®Q2018C should be stored in its original Packaging or in clean appropriate silos.
The product should be stored in a dry and well ventilated area.

Lotrène® Q2018C should not be stored for more than three months nor be exposed to direct sunlight and/or heating during storage since this may adversely affect the properties of the product.

NB: **Lotrène®**Q2018C is not suitable for application in the pharmaceutical or medical sector.