lyondellbasell
Advancing Possible

Textiles and Fibers

Benefit from a comprehensive portfolio of high-performance materials for widely differing applications

www.lyondellbasell.com

Strong Market Reputation

LyondellBasell is one of the world's largest suppliers of polyolefins and advanced polyolefins to producers of textiles and fibers.

Our comprehensive portfolio offers a wide range of polypropylene grades (*Moplen*), high density polyethylene (*Hostalen*), as well as advanced polyolefins (*Adflex*) for the production of strapping, monofilaments, tapes, continuous filaments, staple fibers, spun-bond and melt blown nonwovens.

LyondellBasell works diligently to bring innovative resins to the market and we continuously develop new opportunities for polyolefins to replace other polymers and alternative materials by offering properties and performance characteristics that are unmatched in the industry.

Adding value for customers

Our vertically integrated facilities, broad product portfolio, manufacturing flexibility, superior technology base and reputation for operational excellence enable us to deliver exceptional value to our customers. Additionally, our team's experience and know-how deliver a competitive advantage in a market with a diverse set of applications.

High Density Polyethylene Resins

Hostalen textile grades are widely used in differing markets and applications ranging from packaging for agricultural products to various protective netting applications.

Hostalen ACP 7740 F1, *Hostalen* ACP 7740 F2 *and* *Hostalen* GF 7740 F2

Hostalen ACP 7740 F1 and *Hostalen* ACP 7740 F2 are two high density polyethylene resin with medium molar mass and special narrow molar mass distribution for production of tapes. *Hostalen* ACP 7740 F1 contains a lubricant.

Hostalen GF 7740 F2 is also a high density polyethylene resin with medium molar mass with slightly broader molecular mass distribution compared to the resins mentioned above.

All grades are appreciated by customers for converting on all tape-stretching and film-stretching lines to products with high tensile strength and high elongation at break, textile-like behavior and low tendency to fibrillation.

Typical applications:

- Packaging for agricultural products
- Protective netting in agriculture and building Industry
- Coated (with PELD) and uncoated fabrics
- *Hostalen* ACP7740 F1 is special formulated for Tubular nets

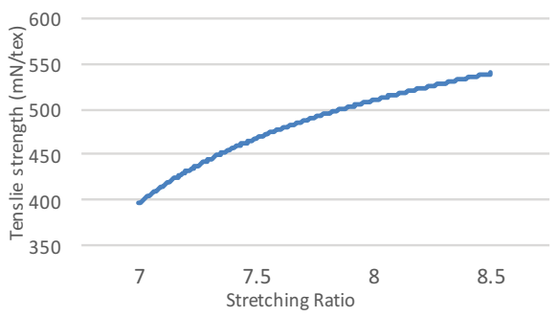
Processing conditions

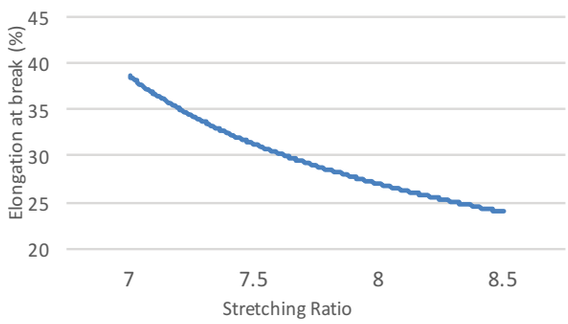
These grades should be processed using a decompression screw to prevent overheating of the melt. Primary film is mainly produced on blown film lines with low blow up ratios of about 1.5:1.

Typical temperature program

Extruder:180-220°C
Die head: 220-230°C
Hot air oven: 120°C

Stretch ratio depends on tape properties (tensile strength and elongation at break).





ISO Stretching line ETN 29-1

Testing conditions:

Film thickness 75 microns
Tape: width 5.08 mm
Throughput: 60 kg/h
Temperature comb.90 °C/heating Plate 110 °C

Hostalen ACP 7740 F3

Hostalen ACP 7740 F3 is a high density polyethylene with medium molar mass and special narrow molar mass distribution for production of tapes.

Market feedback reflects that *Hostalen* ACP 7740 F3 is appreciated for converting on the so-called Mayer-Iso-lines to products with excellent mechanical and textile properties and low tendency to fibrillation.

Compared to a standard grade *Hostalen* ACP 7740 F3 exhibits a substantial higher stretch-ability and a distinct improved tensile strength combined with better elongation at break.

Typical applications:

- Round bale and pallet netting
- Packaging tubes and bags
- Higher tenacity tapes and nets

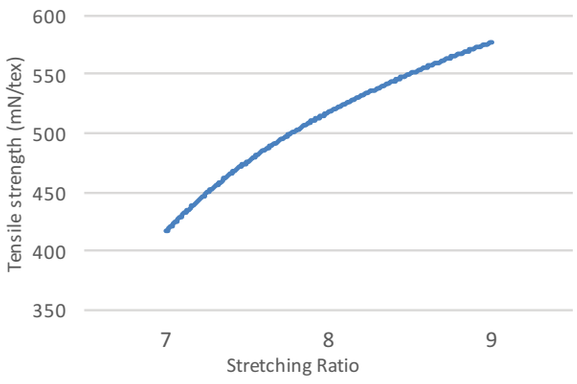
Processing conditions

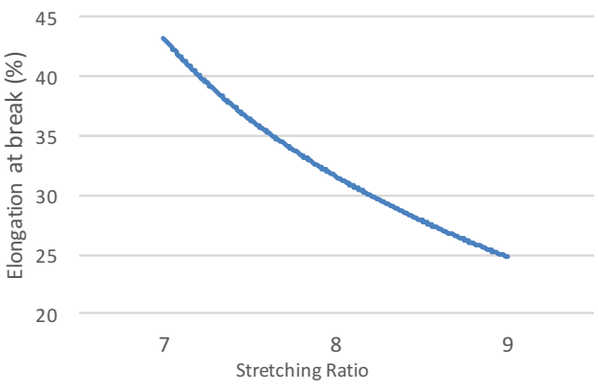
Hostalen ACP 7740 F3 is typically processed using a decompression screw to prevent overheating of the melt. Primary film is mainly produced on blown film lines with low blow up ratios of about 1.5:1.

Typical temperature program:

Extruder:180-220 °C
Die head: 220-230 °C
Hot air oven:120 °C

Stretch ratio depends on tape properties (tensile strength and elongation at break).





ISO Stretching line ETN 29-1

Testing conditions:

Film thickness 75 microns
Tape: width 5.08 mm

Throughput: 60 kg/h
Temperature comb.90 °C/heating Plate 110 °C

High Density Polyethylene Resins

Hostalen GF 7750 M2

Hostalen GF 7750 M2 is a high density polyethylene with medium molar mass and special narrow molar mass distribution for production of monofilaments. This grade contains a lubricant.

Hostalen GF 7750 M2 is an easy flowing polymer and is appreciated by customers for converting on production lines with hot water bath to monofilaments with excellent tensile strength.

Typical applications:

- Ropes and yarns for nets
- Protective netting in agriculture and building industry
- Geotextiles

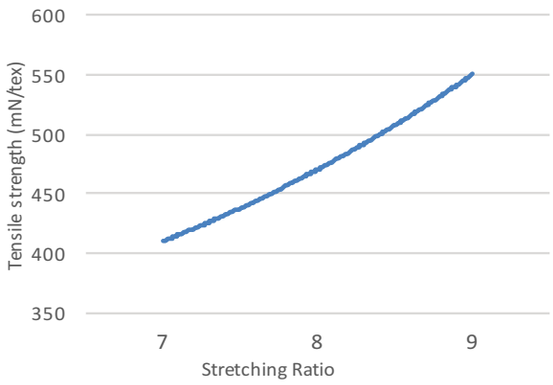
Processing conditions

Hostalen GF 7750 M2 is typically processed using decompression screw to prevent overheating of the melt. Die hole design: land length/diameter ratio= 4:1.

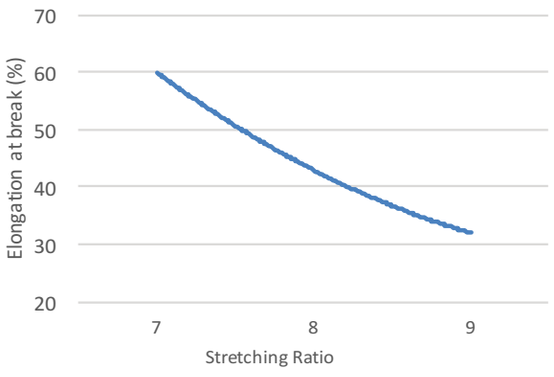
Typical temperature program:

Extruder: 200-250 °C
Die head: 250-260 °C
Hot water bath: 97 °C
Hot air oven: 120 °C

Stretch ratio depends on monofilament properties (tensile strength and elongation at break).



Monofilament diameter 0.32 mm



Monofilament diameter 0.32 mm

Monofilaments stretched in boiling water bath (97 °C) and annealed in hot air oven (120 °C)
Testing: span 250 mm, elongation speed 250 mm/min

Hostalen GF 7750 M3

Hostalen GF 7750 M3 is a high density polyethylene with medium molar mass and special narrow molar mass distribution for production of high tenacity monofilaments. This grade contains a lubricant.

Hostalen GF 7750 M3 is an easy flowing polymer and is appreciated by customers for converting on production lines with hot water bath to monofilaments with excellent tensile strength.

Typical applications:

- Ropes and yarns for fishnets
- Anti-hail nets
- Protective netting in agriculture and building industry
- Geotextiles
- Monofilament requiring higher tenacity

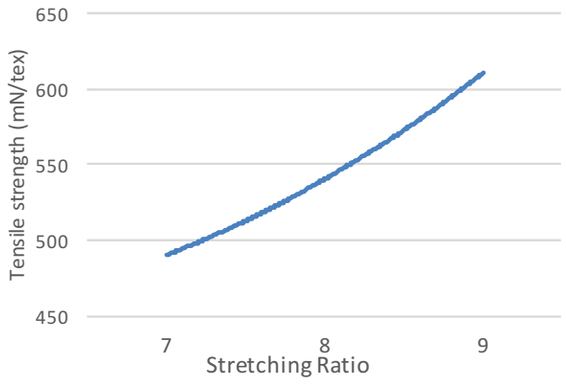
Processing conditions

Hostalen GF 7750 M3 should be processed using decompression screw to prevent overheating of the melt. Die hole design: land length/diameter ratio= 4:1.

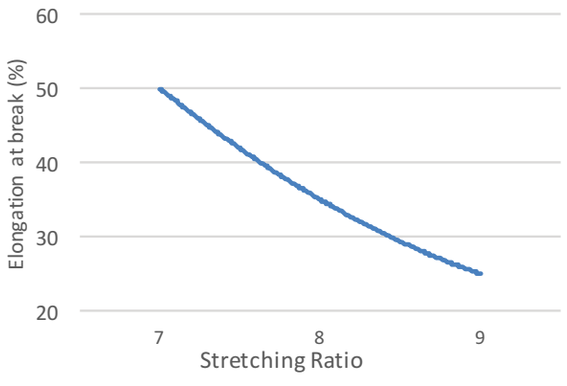
Typical temperature program:

Extruder: 200-250°C
Die head: 250-260°C
Hot water bath: 97°C
Hot air oven: 120°C

Stretch ratio depends on monofilament properties (tensile strength and elongation at break).



Monofilament diameter 0,32 mm



Monofilament diameter 0,32 mm

Monofilaments stretched in boiling water bath (97 °C) and annealed in hot air oven (120 °C)
Testing: span 250 mm, elongation speed 250 mm/min

Polypropylene Resins

Fibers and Fabrics

With its low density polypropylene yields the highest volume of fiber per unit weight compared with other fiber, such as nylon, polyester and acrylic, offering light-weight fabrics with high loft. Polypropylene fabrics have the ability to transmit moisture instead of absorbing it, making it the material of choice for sanitary products. Polypropylene fibers and yarns are used to make a wide range of high quality carpets and fabrics as well as nonwovens. LYB offers a wide range of polypropylene grades for fiber applications.

***Moplen* HP561R**
This grade has a very-narrow molecular weight distribution and is used for the production of high-tenacity yarns and spun bond nonwovens. With MFR 25 g/10 min (2.16 kg/230°C), *Moplen* HP561R is formulated with an anti-gas fading stabilization package.

***Moplen* HP561S**
This grade has a very-narrow molecular weight distribution and is used for the production of fine filaments for spun bond nonwovens. With MFR 35 g/10 min (2.16 kg/230°C), *Moplen* HP561S is formulated with an anti-gas fading stabilization package.

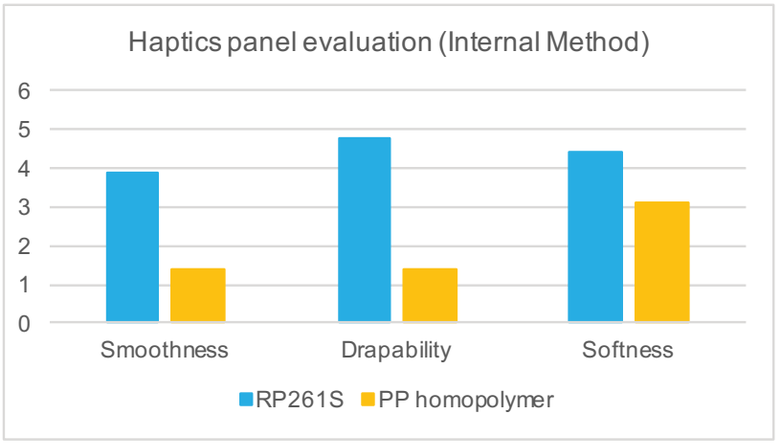
***Moplen* PP567P**
A homo-polymer grade with MFR 18 g/10 min (2.16 kg/230°C) that is formulated with an anti-gas fading stabilization package. *Moplen* PP567P has a narrow molecular weight distribution and is used for the production of high-tenacity spun-bonded nonwovens.

***Moplen* HP561N**
This grade has a very-narrow molecular weight distribution and is used for the production of high-tenacity yarns and spun bond nonwovens with superior mechanical strength. With MFR 12 g/10 min (2.16 kg/230°C), *Moplen* HP561N is formulated with an anti-gas fading stabilization package.

***Moplen* HP452J, HP552K, HP552L**
The higher molecular weight of these grades can enable customers to increase the fiber tenacity, which translates into stronger nonwovens. These grades are formulated with an anti-gas fading stabilization package and are used for the production of high-tenacity staple fibers.

***Moplen* HP554M, HP552N, HP552R**
These homo-polymer grades are formulated with an anti-gas fading stabilization package and are used for the production of staple fibers and continuous filaments. *Moplen* HP554M is suitable for the production of staple fibres with high thermal-bonding strength.

Outstanding softness with *Moplen* RP261S

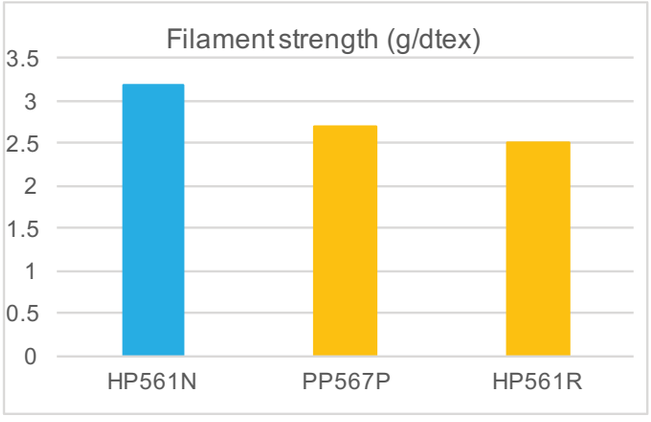


Moplen RP261S is a new polypropylene copolymer with MFR 30 and a very narrow molecular weight distribution.

Moplen RP261S is formulated with an anti-gas fading stabilization package and is developed for the production of spunbond nonwovens and continuous filaments with very high softness and very high flexibility.

Moplen RP261S significantly advances the softness and comfort of polypropylene textiles.

Superior filament strength using *Moplen* HP561N



Moplen HP561N is a new polypropylene homopolymer grade with MFR 12 and a very narrow molecular weight distribution.

Moplen HP561N is formulated with an anti-gas fading stabilization package and is developed for the production of spunbond nonwovens and continuous filaments with high tenacity.

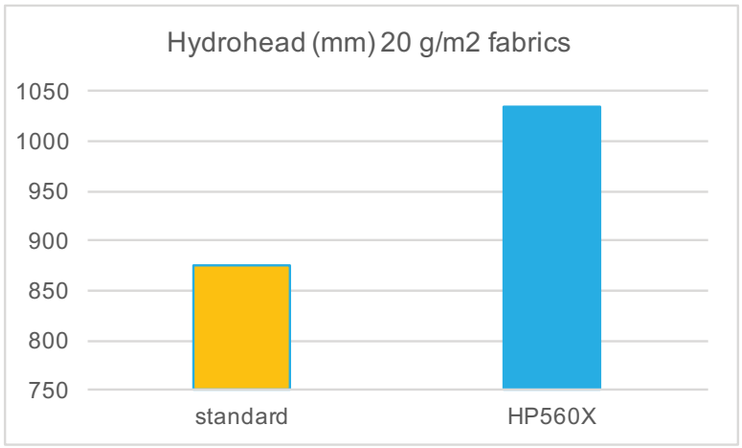
Moplen HP561N advances polypropylene technical value in demanding textile applications such as geotextiles, nonwovens for packaging, upholstery, building and construction.

Microfilaments

LyondellBasell has a wide range of very high-fluidity grades that are successfully used by customers for the production of melt blown nonwovens and for compounding applications and.

***Moplen* HP560W (MFR 450*) / *Moplen* HP560X (MFR 800*) / *Moplen* HP560Y (MFR 1200*)**
These *Moplen* grades are setting new references in terms of processing and performance. The very narrow molecular weight distribution (MWD) of our grades allows filament diameter to be reduced by up to 20% compared with standard grades.
The resulting finer filaments can deliver a markedly improved barrier performance (increased hydro-head and reduced air permeability) as well as soft-touch characteristics that add value to sanitary products. The use of the latest generation of Avant Ziegler/Natta non-phthalate catalyst opens the door for a range of applications that require the purest of polypropylene grades.

** g/10 min (2.16 kg/230°C)*



Strapping

Polypropylene strapping is typically used by customers when content needs to be tightly packed. Its high breaking energy can result in a great ability to absorb shock loads and its flexibility reduces edge and corner deformations, sometimes even allowing the elimination of corner protectors that can reduce package costs. Polypropylene straps have no sharp edges and no rust stains, while being light, unaffected by moisture, easy and safe to remove.

Moplen HP556E is used in this application

Tapes, Twines and Ropes

Polypropylene tapes are woven or knitted in textile products such as carpet backing, knitting and sewing threads, face yarns for tufted carpets, artificial turf, reusable bags, sacks, flexible intermediate bulk containers, industrial fabrics for civil engineering uses, geotextiles, baler twines, ropes and industrial filters. *Moplen* HP450H, *Moplen* HP456H, *Moplen* HP456J and *Adflex* Q100F are used in these applications.

Main Product Portfolio

Properties	MFR [g / 10'] 190 °C / 5 kg	MFR [g / 10'] 190 °C / 21.6 kg	FRR 21,6 kg / 5 kg	Density g / cm³	Additivation	Features/ Application
Method	ISO 1133	ISO1133		ISO 1183		
High Density Polyethylene						
Hostalen ACP 7740 F1	1,8	18	10	0,948	Lubricant	Narrow MWD, tubular nets, slit films & tapes, various nets
Hostalen ACP 7740 F2	1,8	18	10	0,948		Narrow MWD, slit films & tapes, various nets
Hostalen GF 7740 F2	1,8	23	13	0,946		Slit films & tapes, various nets
Hostalen ACP 7740 F3	1,6	17	10	0,946		Narrow MWD, round bale nets
Hostalen GF 7750 M2	3,3	33	10	0,957	Lubricant	Monofilament, various nets
Hostalen GF 7750 M3	1,7	18	11	0,957	Lubricant	High tenacity monofilaments, Various nets

Properties	MFR [g/ 10'] 230 °C/2,16 kg	Additivation	Features/Application
Method	ISO 1133		
Polypropylene Strapping - Tapes - Monofilament			
Adflex Q100F	0,6	-	Strapping
Moplen HP556E	0,8	low WCO	Strapping
Moplen HP450H	1,8	-	Strapping, tapes, monofilaments
Moplen HP456H	1,8	low WCO	Strapping, tapes, monofilaments
Moplen HP456J	3,4	low WCO	Strapping, tapes, monofilaments
Polypropylene Staple Fibers - CF/BCF			
Moplen HP452J	3,4	AGF	Staple fibers
Moplen HP552K	4	AGF	Staple fibers
Moplen HP552L	6	AGF	Staple fibers
Moplen HP554M	11,5	AGF	Thermal-bonding staple fibers
Moplen HP552N	13	AGF	Staple fibers, CF
Moplen HP552R	25	AGF	Staple fibers, CF/BCF
Moplen RP261S	30	AGF	High softness
Polypropylene Spun bond - POY - HTY			
Moplen HP561N	12	AGF	Narrow MWD for spun bond, HTY
Moplen PP567P	18	AGF	Narrow MWD for spun bond, HTY
Moplen HP561R	25	AGF	Narrow MWD for spun bond, HTY
Adflex Z101H	27	AGF	In-blend for enhanced softness
Moplen RP261S	30	AGF	Narrow MWD, High softness
Moplen HP561S	35	AGF	Narrow MWD for spun bond, POY
Polypropylene Melt blown			
Moplen HP560W	450	-	Very narrow MWD
Moplen HP560X	800	-	Very narrow MWD
Moplen HP560Y	1200	-	Very narrow MWD

AGF - Anti-Gas Fading
HTY - High Tenacity Yarn
POY - Partially Oriented Yarn
MFR - Melt Flow Rate

BCF/ CF - Bulk Continuous/Continuous Filament
MWD - Molecular Weight Distribution
WCO - Water Carry Over
FRR - Flow Rate Ratio

ABOUT US

LyondellBasell (NYSE: LYB) is one of the largest plastics, chemicals and refining companies in the world. Driven by its employees around the globe, LyondellBasell produces materials and products that are key to advancing solutions to modern challenges like enhancing food safety through lightweight and flexible packaging, protecting the purity of water supplies through stronger and more versatile pipes, improving the safety, comfort and fuel efficiency of many of the cars and trucks on the road, and ensuring the safe and effective functionality in electronics and appliances. LyondellBasell sells products into more than 100 countries and is the world's largest producer of polymer compounds and the largest licensor of polyolefin technologies. In 2019, LyondellBasell was named to Fortune magazine's list of the "World's Most Admired Companies."

More information about LyondellBasell can be found at www.LyondellBasell.com.

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