



EP440L

Heterophasic copolymer

Description: " EP440L " is a medium flow heterophasic polypropylene copolymer with improved balance of mechanical properties. The product features high stiffness and outstanding impact strength at low temperatures and is specifically designed for injection molding applications. In comparison with conventional copolymers with the same MFR and same rigidity, " EP440L ", exhibits 35 % higher toughness.

" EP440L " is suitable for a wide range of applications in the packaging, automotive and consumer goods industries. Typical applications include luggage, paint pails, buckets, containers, crates, batteries and large toys.

Processing Method: Injection molding

Features:
 High impact strength
 High stiffness
 Heterophasic copolymer

Typical Applications:
 Packaging, automotive and consumer goods industries
 Luggage, paint pails, buckets
 Containers, crates, batteries and large toys

TYPICAL PROPERTIES	VALUE	UNIT	METHOD
Physical			
Melt Flow Rate (230 °C, 2.16kg)	6.0	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
Mechanical			
Flexural Modulus	1300	MPa	ASTM D790
Tensile Strength at Yield	25	MPa	ASTM D638
Tensile Elongation at Yield	6	%	ASTM D638
Izod Impact Strength (notched) at 23 °C	200	J/m	ASTM D256
Izod Impact Strength (notched) at -20 °C	60	J/m	ASTM D256
Thermal			
Vicat softening point (10N)	150	°C	ASTM D1525
H.D.T. (0.46 MPa)	90	°C	ASTM D648
Accelerated oven ageing in air at 150 °C	360	hours	ASTM D3012

This data and information is considered to be correct and offered in good faith as a guide. But we do not warrant or otherwise guarantee the merchantability, fitness for a particular purpose or suitability of this information, products or processes described



HP550J

Homopolymer

Description:

" HP550J " is a polypropylene homopolymer particularly suitable for the extrusion of sheet for thermoforming, film yarn and monofilament. This grade combines suitable processability with good mechanical properties.

HP550J " is designed for the production of films that can be converted into stretched tapes for weaving applications. Textile film yarns with a denier count of not more than 1100 to 1200 are used for the production of carpet backings, bags, industrial fabrics, mats and artificial grass. Film yarn with a denier count ranging from 3000 to 28000 is used for baler twines, packaging twines and ropes.

" HP550J " is suitable for food contact.

Processing Method:

Extrusion (film, yarn, monofilament, sheet)
Thermoforming

Features:

Good processability
Good mechanical properties
Homopolymer

Typical Applications:

Stiff sheet for high quality thermoformings such as vending cups, packaging for dairy products and trays for fruit, biscuits and chocolates
Film yarn, raffia, tapes, strapping
Carpet backings, bags, industrial fabrics, mats
Artificial grass
Baler twines, packaging twines and ropes
Brush and broom filling and technical applications
Nets for various purposes

Approval:

Food

TYPICAL PROPERTIES	VALUE	UNIT	METHOD
Physical			
Melt Flow Rate (230 °C, 2.16kg)	3.2	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
Mechanical			
Flexural Modulus	1400	MPa	ASTM D790
Tensile Strength at Yield	32	MPa	ASTM D638
Tensile Elongation at Yield	9	%	ASTM D638
Izod Impact Strength (notched) at 23 °C	50	J/m	ASTM D256
Thermal			
Vicat softening point (10N)	152	°C	ASTM D1525
H.D.T. (0.46 MPa)	84	°C	ASTM D648
Accelerated oven ageing in air at 150 °C	360	hours	ASTM D3012

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HP552R

Homopolymer

Description:

" HP552R " is a high melt flow homopolymer for the production of CF, BCF and fine denier staple fibers at medium to high spinning speeds and exhibits excellent antigasfading properties.

" HP552R " is suitable for nonwoven fabrics for diapers, medical-sanitary applications and wipes. Another typical application is high tenacity continuous filament for straps for backpacks, sport bags, bulk bags and safety belts. Continuous filament with medium tenacity is used for upholstery and sportswear. " HP552R " is also suited for the production of bulked continuous filament for carpets.

" HP552R " is suitable for food contact.

Processing Method: Fiber Extrusion (CF, BCF, staple)
Injection molding

Features:
High melt flow
Excellent antigasfading properties
Good processability
Homopolymer

Typical Applications:
Wipes and tissues
Straps for backpacks, sport bags, bulk bags and for safety belts
Upholstery and sportswear
Bulk continuous filament for carpets
Nonwoven staple fiber
Injection molded articles, housewares, etc

Approval: Food

TYPICAL PROPERTIES	VALUE	UNIT	METHOD
Physical			
Melt Flow Rate (230 °C, 2.16kg)	25	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
Mechanical			
Flexural Modulus	1400	MPa	ASTM D790
Tensile Strength at Yield	32	MPa	ASTM D638
Tensile Elongation at Yield	8	%	ASTM D638
Izod Impact Strength (notched) at 23 °C	20	J/m	ASTM D256
Thermal			
Vicat softening point (10N)	152	°C	ASTM D1525
H.D.T. (0.46 MPa)	84	°C	ASTM D648
Accelerated oven ageing in air at 150 °C	150	hours	ASTM D3012

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RP345S

Random Copolymer

Description:

" RP345S " is a polypropylene random copolymer with high fluidity and outstanding transparency and optical properties.

" RP345S " is the material of choice for applications where transparency and aesthetics are primary requirements. This grade is designed for injection molding and injection stretch blow molding (ISBM) applications. Thanks to its high fluidity, one can experience reduced cycle times and energy savings compared to conventional grades.

" RP345S " is suitable for the packaging of non-oxygen sensitive products; hence, it counts as an effective alternative for PVC and PET in ISBM.

Processing Method:

Injection molding
Injection stretch blow molding

Features:

High fluidity
Excellent Optical properties
Unspecified antistatic properties
Suitable organoleptic properties
Excellent processability and reduced cycle times
Random Copolymer

Typical Applications:

Household containers, housewares
Packaging for food, cosmetics and pharmaceutical products
TWIM
Lids, caps and closures
Medical sector such as syringes, test tubes and vials
Sports, leisure and toys
CD and DVD boxes
Bottles and containers produced with ISBM

Approval:

Food

TYPICAL PROPERTIES	VALUE	UNIT	METHOD
Physical			
Melt Flow Rate (230 °C, 2.16kg)	40	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
Mechanical			
Flexural Modulus	1100	MPa	ASTM D790
Tensile Strength at Yield	28	MPa	ASTM D638
Tensile Elongation at Yield	9	%	ASTM D638
Izod Impact Strength (notched) at 23 °C	55	J/m	ASTM D256
Thermal			
Vicat softening point (10N)	128	°C	ASTM D1525
H.D.T. (0.46 Mpa)	82	°C	ASTM D648
Accelerated oven ageing in air at 150 °C	360	hours	ASTM D3012
Optical			
Haze (1 mm)	11	%	ASTM D1003
Gloss	90	---	ASTM D2457

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HP564S

Homopolymer

Description:

" HP564S " is a high melt flow rate homopolymer with a narrow molecular weight distribution for the high speed production of low denier continuous filament for spunbonded, nonwoven fabrics with an excellent balance of mechanical properties and softness. This grade is formulated with an anti-gasfading stabilization package and characterized by consistent high speed and low nonwoven weights. The major applications for spunbonded fabrics made of " HP564S " are diapers, medical and sanitary tissues, protective fabrics for agricultural, industrial and medical applications, backings and linings for the furniture and carpet industries. This grade can also be used for the production of partially oriented yarn and bulked continuous filament. " HP564S " is suitable for food contact.

Processing Method:

Extrusion (Filament)
Fiber Spinning

Features:

High melt flow
Narrow molecular weight distribution
Easy processability
Gasfading resistant
Homopolymer

Typical Applications:

Spunbonded, nonwoven fabrics
Fabrics for diapers, feminine care, medical and sanitary tissues
Protective fabrics for agricultural, industrial and medical applications
Backings and linings for the furniture and carpet industries
Oriented yarn and bulked continuous filament
Wipe and Tissues

Approval:

Food

TYPICAL PROPERTIES	VALUE	UNIT	METHOD
Physical			
Melt Flow Rate (230 °C, 2.16kg)	42	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
Mechanical			
Flexural Modulus	1400	MPa	ASTM D790
Tensile Strength at Yield	32	MPa	ASTM D638
Tensile Elongation at Yield	8	%	ASTM D638
Izod Impact Strength (notched) at 23 °C	30	J/m	ASTM D256
Thermal			
Vicat softening point (10N)	152	°C	ASTM D1525
H.D.T. (0.46 MPa)	84	°C	ASTM D648
Accelerated oven ageing in air at 150 °C	360	hours	ASTM D3012

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RP340R

Random Copolymer

Description:

" RP340R " is a nucleated polypropylene random copolymer with high fluidity and outstanding transparency and gloss and is designed for injection molding applications.

" RP340R " is the material of choice for applications where transparency is a primary requirement. This grade is also suitable for injection stretch blow molded containers and bottles. This product combines good see through clarity and excellent moisture barrier properties with hot fillability. Therefore, " RP340R " offers an effective alternative for PET and PVC for the packaging of non-oxygen sensitive products such as confectionary, herbs, toiletries and cosmetics.

Processing Method:

Injection molding
Injection stretch blow molding

Features:

High melt flow
Excellent transparency
Excellent gloss
Random copolymer

Typical Applications:

Household containers, housewares
Packaging for food, cosmetics and pharmaceutical products
Clear tubs and pots for ice cream, yoghurt and other desserts
Medical sector such as syringes, test tubes and vials
Lids, caps and closures
CD and DVD boxes
Injection stretch blow molded containers and bottles
Sports, leisure and toys

Approval:

Food

TYPICAL PROPERTIES	VALUE	UNIT	METHOD
Physical			
Melt Flow Rate (230 °C, 2.16kg)	25	g/10min	ASTM D1238
Density	0.9	g/cm ³	ASTM D1505
Mechanical			
Flexural Modulus	1100	MPa	ASTM D790
Tensile Strength at Yield	28	MPa	ASTM D638
Tensile Elongation at Yield	10	%	ASTM D638
Izod Impact Strength (notched) at 23 °C	55	J/m	ASTM D256
Thermal			
Vicat softening point (10N)	130	°C	ASTM D1525
H.D.T. (0.46 MPa)	80	°C	ASTM D648
Accelerated oven ageing in air at 150 °C	360	hours	ASTM D3012
Optical			
Haze (1 mm)	13	%	ASTM D1003
Gloss	80	----	ASTM D2457

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Five Star General S.L. Available Polyethylene Grades

Polymer Material	Five Star Grade	Density (Average)	MFI (Average)	Applications
LLDPE 0209AA	FS-LL-F 20009AA	0.920	0.9	Film (Agriculture, Bags, Shopper, Stretch, Liners,...)
LLDPE 235F6	FS-LL-F 22006	0.922	0.6	Mono-Coextrusion, Agricultural Tapes & Films, Industrial film, Frozen food packaging, Shrink film, ...
LDPE 2420D	FS-LD-F 24003	0.924	0.3	Food grade film, Bags & Pouches, Shrink film, Blown film, Bottles for consumer goods, ...
LDPE 2420H	FS-LD-F 24019	0.924	1.9	Food grade film, Bags & Pouches, Shrink film, Blown film, Cast film, ...
LDPE 2420F8	FS-LD-F 24007	0.924	0.75	General purpose, Sanitary film, Shopping bags, Surface protection film, ...
HDPE (BL3)	FS-HD-B 54012	0.954	1.2	Containers from a few mil to 10 Liters, Thermoforming sheets, Packaging of pharmaceuticals & Surfactant, Food grade
HDPE 52518	FS-HD-I 52018	0.952	18	Housewares, High fluidity, Injection molding, ...
HDPE 62N07	FS-HD-I 62060	0.962	6	High Fluidity, Injection molding, Crates, Pallets, Boxes, Containers, Manholes, ...
HDPE-CRP100 (PE100)	FS-HD-P 50002	0.950	0.2	Black & Natural, Top quality PE100 pressure, Pipes for gas & water high pressure, With thinner walls as PE80, ...
HDPE 5000S	FS-HD-S 54009	0.954	0.9	Rope & Net, Woven sacks, Fishing net, Agriculture net, Tarpaulin, ...
HDPE 3840UA	FS-HD-RI 38022	0.938	4	Rotomolding & Injection molding, Large containers, Septic tanks, Food grade, Recycling tanks, ...
HDPE 5030SA	FS-HD-I 50022	0.950	2.2	Food grade, Caps & Closures with torque free property, ...
HDPE 6040	FS-HD-I 60040	0.960	4	Injection Molding, Heavy duty outdoor parts, Pallets, Large dustbins, Shipping containers, Storage cases, Technical parts,
HDPE 6070	FS-HD-I 60070	0.960	7	Injection Molding, Crates, Boxes, Seats, Pallets, Easy processing & High rigidity & High warpage resistance, ...
HDPE EX5	FS-HD-F 45028	0.945	0.28	Film extrusion, Counter & Carrier bags, Wrapping films & sheets, ...

Note: All data, particularly density and MFI values are typical and average values, and users should confirm by their own tests. For more details and spec, please contact us.

FS-HDI6040UA High Density polyethylene

1) Product Description

FS-HDI6040UA is an ultra-violet light stabilized high density polyethylene injection grade with a narrow molecular weight distribution, specially developed for injection moulding of heavy duty parts for outdoor application. Articles produced from this grade exhibit excellent impact strength and stiffness, low warpage, good weathering resistance.

2) Applications

- Pallet
- Technical parts
- Large dustbins and pails
- Shipping container
- Fish crates
- Storing cases

3) Typical data

Property	Test Method	Unit	Typical Value
			FS-HDI6040UA
MFI(190°C/ 2.16Kg)	ASTM D 1238	gr/10Min	3.6
MFI(190°C / 5.0Kg)			-
Density	ASTM D 1505	gr/cm ³	0.960
Anti Oxidant			√
UV Stabilizer			√
Flexural Modulus	ASTM D 790	MPa	1250
Tensile Strength at yield	ASTM D 638	MPa	31
Elongation at Break	ASTM D 638	%	1000
Charpy Impact Strength	ASTM D 256	Kj/m ²	11
Hardness Shore D	ASTM D 2240	-	68
ESCR, F50, 10% Igepal.	ASTM D1894	hr	12
Vicat Softening Temperature	ASTM D 1525	°C	125
Melting Point	ASTM D2117	°C	132

The above data are typical laboratory average. They are intended to serve as guide only.

Licensor: BP

Packing: 25 Kg plastic bag

FS-HDI6207

High Density Polyethylene. Injection Moulding

► APPLICATION

Injection Moulding Grade for Pallets, Boxes and Crates.

► FEATURE

CHARACTERISTICS: Good Fluidity, Good Impact Strength, Easy Processing, High Density, High Rigidity

COMONOMER: -

ADDITIVES: Antioxidant, Anti-UV Stabilizer*

► PROPERTIES

RESIN PROPERTY	METHOD	CONDITION	UNIT	VALUE
Melt Index	ASTM D1238	190°C/2.16kg	g/10min	7
Density	ASTM D1505	23°C	g/cc	0.962
F/E Ratio	ASTM D1238	-	-	<30
Volatiles	ASTM D1525	-	%wt	<0.05
Tensile Stress @ Yield	ASTM D638	-	Mpa	30
Tensile Stress @ Break	ASTM D638	-	Mpa	12
Elongation @ Break	ASTM D638	-	%	850
Flexural	ASTM D790	-	Mpa	1500
Izod Impact Resistance	ASTM D256	Notched Method	J/m	55
Contamination	BASELL MTM-17064 E	-	Ratio	<40

All above mentioned data are typical values and not to be construed as real specification. Users should confirm results by their own tests.

Guaranteed items: Melt Index, Density, F/E Ratio

F/E : Ratio of MIF (190°C/21.6Kg) / MIE (190°C/2.16Kg)

*Anti-UV stabilizer additive will be added to the polymer according to the customer request.



FS-HDR3840
High Density Polyethylene
Rotomolding & Injection

FS-HDR3840 is high density polyethylene copolymer containing butene-1(C4) as comonomer.

It is suitable for use as rotational moulding applications.

It has the following characteristics:

good impact strength, easy to demould, uv stabilised, good whiteness, excellent surface finish.

This grade has food contact approval.

Applications:

general purpose rotomolded items, septic tanks, recycling tanks

PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE
MELT FLOW INDEX(2.16KG)	g/10min	ASTM D-1238	4
DENSITY	gr/cm3	ASTM D-1505	0.938
YELLOWNESS INDEX	-	ASTM E-313	-1
WHITENESS INDEX	-	ASTM E-313	60
CONTAMINATION	NO.	BP137	5
VICAT SOFTENING POINT	°C	ASTM D-1525	115
TENSILE STRESS AT YEILD	MPA	ASTM D-638	15
ELONGATION AT BREAK	%	ASTM D-638	900
ESCR(IGEPAL10% F50,23°C)	HR	ASTM D-1693	350
CHARPY IMPACT	KJ/M2	ASTM D-6110	18

*All above mentioned data are typical values and not to be construed as real specifications. Users should confirm results by their own tests.

**Rotomoulded Bucket-23 Liters-3mm Thickness-1.2Kg

Grade Suffix(Additives Indication):

UA:GENERAL ANTIOXIDANT AND LIGHT STABILISER

*** HD3840UA falls into the density range of MDPE. However, in order to observing the nomenclature procedure of PE plant licensor (INEOS), this grade is designated as HDPE; while it can be introduced as MD3840UA as well

**GPPS1540**

GPPS1540 is an easy flowing crystal polystyrene designed for extrusion or injection applications.

It improves extruder output and thermoforming cycle time when mixed with a high impact polystyrene such as HIPS7240. It is particularly suitable for glossy-layer coextrusion.

This grade has food contact approval.

Applications:

packaging articles, petri dishes, office equipments, pen barrels, crisper boxes for refrigerators, cups, food containers
gloss layer coextrusion, anionic styrene butadiene copolymer dilution.

PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE
MELT FLOW INDEX(200°C-5KG)	g/10min	ASTM D-1238	11
STYRENE RESIDUAL MONOMER	PPM	CLG LABPSG004 (ATOFINA TEST METHOD)	<500
VICAT SOFTENING POINT (50 °C/hr 1kg)	°C	ASTM D-1525	91
ROCKWELL HARDNESS	-	ASTM D-1525	L SCALE/ 70
TENSILE STRENGTH AT BREAK	MPA	ASTM D-638	42
ELONGATION AT BREAK	%	ASTM D-638	2
TENSILE MODULUS	MPA	ASTM D-638	3100

*All above mentioned data are typical values and not to be construed as real specifications. Users should confirm results by their own tests. For more information about guaranteed items, please refer to S.S.S. (Standard Sales Specifications)

Density and shrinkage of this grade are approximately around 1.04 kg/lit & (0.4-0.7)%(ASTM D-955) respectively.

All test are carried out at 23°C, unless otherwise stated.

If in grade reference the fourth digit is "1"(1541), indicates an external lubricants is included.

If the injection molding products quality is affected by moisture, granules of GPPS could be dried at 70°C for 2-4 hours.

HD – EX5**License Grade Code HM 9450 F****1) Product Description:**

“EX5 (HM 9450 F)” is a high Density polyethylene with Butene-1 as comonomer. It is a high molar mass for blown film with in comparison to EX4 lower stiffness and increased tenacity. The product has good toughness, low gel level and good tear strength.

2) Applications:

- Blown films with paper like quality.
- Suitable for counter bags.
- Carrier bags.
- Wrapping films and sheets.
- Blending partner.

3) Typical Data

Property	Unit	Typical Value	Test Method
Physical			
Melt Flow Rate(MFR) (190 °C/2.16Kg) (190 °C/5Kg) (190 °C/21.6Kg)	g/10min	--- 0.28 8	ISO 1133
Density	g/cm ³	0.949	ISO 1183
Film Properties			
Impact Strength	gr	220	ASTM D 1709
Tear Strength TD	mN	450	ISO 6383-2
Tear Strength MD	mN	200	ISO 6383-2
Yield Stress TD	Mpa	20	ISO 527
Yield Stress MD	Mpa	18	ISO 527
Tensile Strength TD	MPa	40	ISO 527
Tensile Strength MD	MPa	45	ISO 527
Elongation at break TD	%	450	ISO 527
Elongation at break MD	%	400	ISO 527
Modulus of elasticity TD	Mpa	500	ISO 527
Modulus of elasticity MD	Mpa	400	ISO 527
Secant Modulus	Mpa		ISO 527
Hardness Shore D	---	60	ISO 868
Gel size	µm	≤120	Internal Method
Gel Number	-	≤3	Internal Method
Thermal Properties			
Vicat Softening Temperature	°C	75	ISO 306
Melting Point	°C	136	ISO 3146

4) Processing Condition:

Recommended melt temperature: 200-230 °C

Film Blowing Machine: Dr.Collin 30M (Extruder) + 180/400(Unit)

Barrel Temperature (°C): 170,240,240

Flange Temperature (°C): 240

Blown Film Line Temperature (°C): 240,240

Screw Speed is set to 60 rpm

Blow up Ratio of 4:1

Recommended Film thickness: 20-200 µm

Die Diameter: 50mm

Die Gap: 0.5mm

High Density Polyethylene

Small Blow Molding

Form: Pellet

HDPE: HD 4760 (BL3)

Density: 0.954 ± 0.002

MFI: 1.2 ± 0.3

Feature:

- Comonomer:butene-1
- high stiffness
- Good flow ability
- Good impact strength
- Good stress cracking resistance
- High Density

Application:

- For containers with capacities ranging from a few ml up to 10 liters also for Production of sheets for thermoforming

Additive:

- Acid scavenger
- Antioxidant

❖ **Material properties** (this data are typical values and shall not be construed as product specifications.)

Resin properties	unit	condition	Typical value	Test method
Melt Mass-Flow Rate (MFR)	g/10 min	190°C/5 kg	1.2±0.3	ISO 1133
Melt Mass-Flow Rate (MFR)	g/10 min	190°C/21.6 kg	23±4	ISO 1133
Density	g/cm ³	23°C	0.954 ± 0.002	ISO 1183
F/E Ratio	-	21.6kg/5kg	19±3	-
Notched impact	mj/mm ²	23°C	9	ISO 179/1 EA
Swell Ratio	-	-	110±15%	-

ZB548R

ZB548R is a nucleated, antistatic formulated, high flow heterophasic copolymer used for injection molding applications.

ZB548R is a nucleated, antistatic formulated, high flow heterophasic copolymer with an excellent balance between easy processing and good impact strength. The main applications of " ZB548R " are caps, closures, furniture, housewares, toys and thin-walled injection molding items.

" ZB548R " is suitable for food contact.

Processing Method:

Injection molding

Features:

High flows
Very good processability
Good dimensional stability
Unspecified antistatic properties
Good stiffness and impact balance
Easy mold filling and short cycle times

Typical Applications:

Furniture
Opaque Containers
Sports, Leisure & Toys
TWIM/IML food containers
Caps, closures
Housewares

Typical properties	Unit	Value	Tolerance	Method
Melt Flow Rate (230°C, 2.16kg)	g/10min	22	± 3	ASTM D1238
Flexural Modulus	MPa	1400	± 100	ASTM D790
Tensile Strength at Yield	MPa	26	± 3	ASTM D638
Tensile Elongation at Yield	%	7	± 1	ASTM D638
Izod impact strength (notched) at 23°C	J/m	120	± 15	ASTM D256
Rockwell Hardness	R-Scale	125	± 10	ASTM D785
Vicat softening point	°C	145	± 10	ASTM D1525
H.D.T. (0.45 MPa)	°C	95	± 10	ASTM D648

* These are typical property values not to be construed as exact product specification.

** All specimens are prepared by injection molding.

Low Density Polyethylene	Film	
LDPE	Density: 0.924±0.002	MFI: 0.8±0.1
Feature: <ul style="list-style-type: none"> • Homo polymer • Food grade • High impact strength 	Application: <ul style="list-style-type: none"> • Freezer films • Lamination films • Shopping bags 	Additives: <ul style="list-style-type: none"> • slip agent • Anti block

Material properties (this data are typical values and shall not be construed as product specifications.)

Resin properties	unit	condition	Typical value	Test method
Melt Flow Index	gr/10min	190°C/2.16 kg	0.8±0.1	ISO 1133
Density	gr/ml		0.924±0.002	ISO 1183A
Impact Strength	KJ/ M	23°C	30	ASTM D4272
Tear Strength(TD)	KN/ M		30	ASTM D6383-2
Tear Strength(MD)	KN/ M		30	ASTM D6383-2
Strain at Break(TD)	%		500	ISO 527
Strain at Break(MD)	%		200	ISO 527
Yield Stress (TD)	MPA		11	ISO 527
Yield Stress (MD)	MPA		11	ISO 527
Coefficient of friction	-		1	ASTM D1894
HAZE	%		≤8	ASTM 1003A
Gloss	%		45	ASTM D2457
Dart Drop impact	g		>140	ASTM 1709

Five Star General S.L.					
Available Polystyrene Grades					
No.	Polymer Material	Five Star Grade	Vicat Softening Point (Average)	MFI (Average)	Applications
1	GPPS 1540	FS-GPPS-I 091110	91	11	Food grade, Easy flowing crystal polystyrene for extrusion or injection molding, Glossy-layer coextrusion, Packaging, Petri dishes, Office Equipment, Pen barrels, Crisper boxes of refrigeratoes, Cups, Food containers,...
2	GPPS 1460	FS-GPPS-I 103065	103	6.5	Food grade, High heat resistance, Good for extrusion and thick wall injection molding, Thick sheets by direct injet gassing, Insulation boards, Foam sheet of food & fruits trays.
3	GPPS 1160	FS-GPPS-I 91110	105	2.5	Food grade, high heat resistance for extrusion and bi oriented PS (OPS) industry, Thick sheets by direct inject gassing, Thermoforming, Shower cabinets, Lighting thin films, Insulation boards, Foam sheet of fruits & fruits trays, meat trays, egg boxes
4	HIPS 7240	FS-HIPS-ITh 094045	94	4.5	Very high impact, Extrsion industry, Dilusion with GPPS, Suitable dor deep-draw thermoforming, Extrusion: Darty sheet, Coextrusion with EVOH PE, Containers up to 5L, Thermoforming: Cups, Trays, Egg boxes, General packaging, CD insert, Shoe heels, ...

Note: All data, particularly MFI values are typical and average values, and users should confirm by their own tests. For more details and spec, please contact us.



	TYPICAL DATA SHEET*	ISSUE DATE	Jul-16
	GRADE		
	LL0209AA	AA:GENERAL ANTIOXIDANT	

LL0209AA is linear low density polyethylene copolymer containing butene-1(C4) as comonomer. It is suitable for blending with conventional LDPE.

Film made from pure LL0209AA has the following advantages over LDPE:

better sealing, higher puncture resistance, greater drawdown ability and higher tensile strength.

This grade has food contact approval.

Applications:

green house film, silage film, hand bags and general purpose film applications.

PROPERTY	UNIT	TEST METHOD	TYPICAL VALUE
MELT FLOW INDEX(190°C 2.16KG)	g/10min	ASTM D-1238	0.9
DENSITY	gr/cm3	ASTM D-1505	0.921
VICAT SOFTENING POINT	°C	ASTM D-1525	105

FILM**

PROPERTY	METHOD A	GR	TEST METHOD	TYPICAL VALUE
DART DROP IMPACT			ASTM D-1709	140
TENSILE STRESS AT YEILD	MD/TD	MPA	ASTM D-882	10/11
TENSILE STRESS AT BREAK	MD/TD	MPA	ASTM D-882	41/32
ELONGATION AT BREAK	MD/TD	%	ASTM D-882	620/840
HAZE	-	%	ASTM D-1003	12
GLOSS(45°)	-	%°	ASTM D-2457	56

*All above mentioned data are typical values and not to be construed as real specifications. Users should confirm results by their own tests. For more information about guaranteed items, please refer to S.S.S. (Standard Sales Specifications)

**38µm film, 2.5:1 blow up ratio, 225°C melt temperature, MD: Machine Direction, TD: Transverse Direction