mLLDPE

Metallocene Linear Low Density Polyethylene

InnoPlus: mLLDPE							
Properties	**Test Method**	**Unit**	**C6-Metallocene LLDPE Grade**				
			LL7810A(1)	**LL7810D(1)**	**LL7820D(1)**	**LL7835A(1)**	**LL7835A(2)**
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	1	1	2	3.5	3.5
Density	ASTM D792	g/cm3	0.918	0.920	0.920	0.920	0.920
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	MPa	50	54	43	45	61
Tensile Strength at Break (TD)	ASTM D882	MPa	50	54	45	40	43
Elongation at Break (MD)	ASTM D882	%	700	600	650	850	610
Elongation at Break (TD)	ASTM D882	%	800	710	670	900	630
1% Secant Modulus (MD)	ASTM D882	MPa	200	230	265	230	185
1% Secant Modulus (TD)	ASTM D882	MPa	230	290	295	250	200
Dart Impact Strength	ASTM D1709	g	>423	>423	>423	140	200
Tear Strength (MD)	ASTM D1922	g	300	300	300	300	210
Tear Strength (TD)	ASTM D1922	g	400	400	450	400	400
Vicat Softening Point	ASTM D1525	°C	106	107	105	105	105
Gloss (45 °)	ASTM D2457	-	35	49	50	27	81
Haze	ASTM D1003	%	13	15	15	19	3.9
Additive		-	-	High Slip & Antiblock	High Slip & Antiblock	-	-
End Product			Heavy duty films, Liners, Lamination films, Food packaging, Multi-layer packaging films and freezer packaging films		Stretch films, Cast films Liners, Lamination films, Food packaging, Multi-layer packaging films and Freezer Agricultural films		Stretch films, Cast films, Food packaging and Multi-layer packaging films

InnoPlus: mLLDPE							
Properties	**Test Method**	**Unit**	**C6-Metallocene LLDPE Grade**				
			LL7903A[(1)]	**LL7910A(1)**	**LL7910D(1)**	**LL7905AM**	**LL7905AO**
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.3	1	1.0	0.5	0.5
Density	ASTM D792	g/cm3	0.927	0.918	0.920	0.927	0.935
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	MPa	40	60	40	35	45
Tensile Strength at Break (TD)	ASTM D882	MPa	44	53	50	50	50
Elongation at Break (MD)	ASTM D882	%	500	490	575	545	660
Elongation at Break (TD)	ASTM D882	%	700	675	710	725	810
1% Secant Modulus (MD)	ASTM D882	MPa	310	191	200	300	510
1% Secant Modulus (TD)	ASTM D882	MPa	370	224	225	315	550
Dart Impact Strength	ASTM D1709	g	140	206	245	180	110
Tear Strength (MD)	ASTM D1922	g	90	250	280	150	20
Tear Strength (TD)	ASTM D1922	g	600	450	450	410	160
Vicat Softening Point	ASTM D1525	°C	114	106	104	112	119
Gloss (45 °)	ASTM D2457	-	20	62	60	56	42
Haze	ASTM D1003	%	20	8	9	11	15
Additive		-	-	-	High Slip & Antiblock	-	-
End Product			Shrink film, Heavy duty films, Stand-up pouches, and freezer packaging films	Stretch films, Shrink film, Liners, Food packaging, Multi-layer packaging films, and freezer packaging films	Heavy duty films, Liners, Lamination films, Food packaging, Multi-layer packaging films and freezer packaging films		

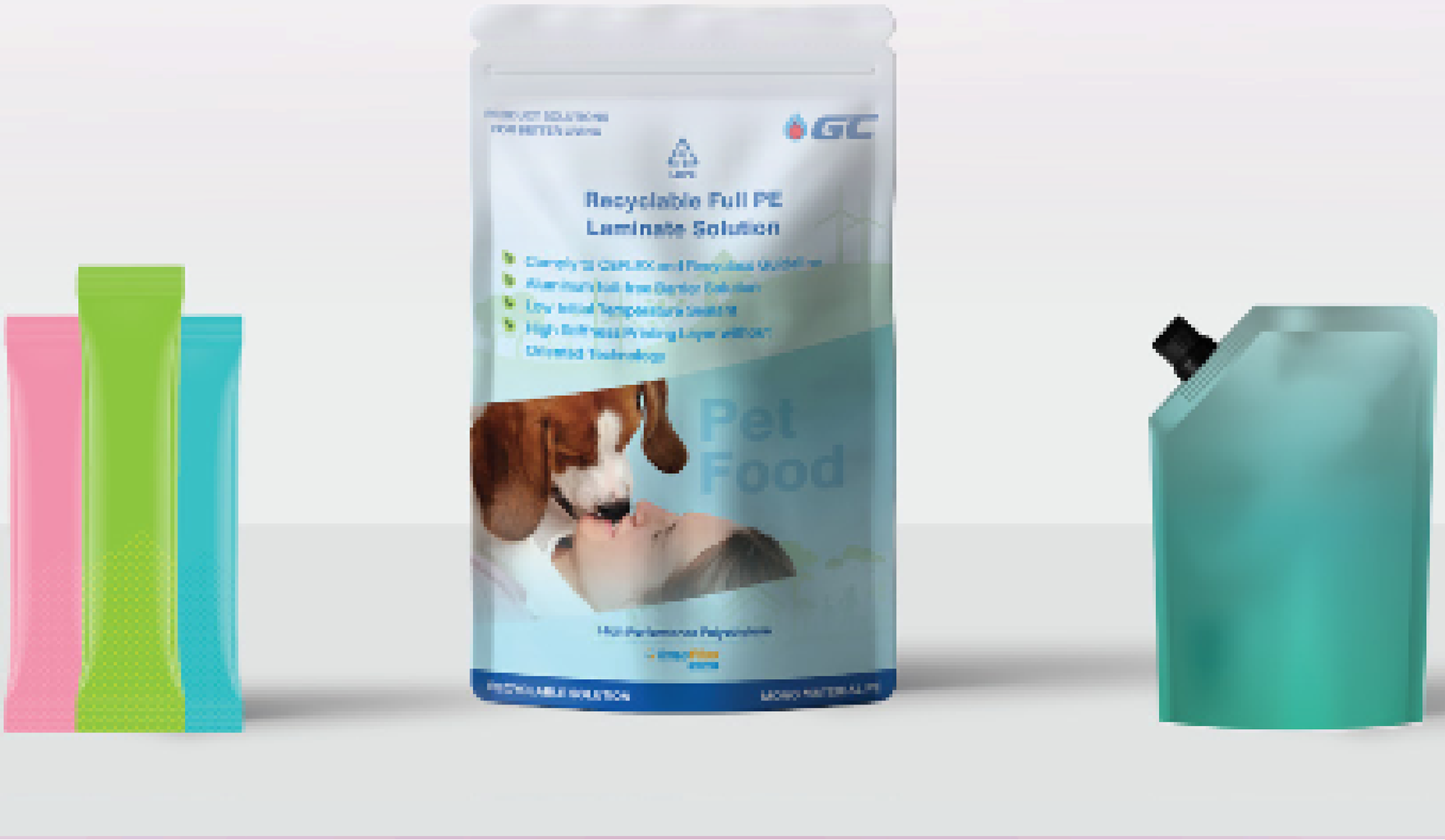
Note: (1) Film properties obtained from 25 microns film which was blown film extruded at blow up ratio 2.5.
(2) Film properties obtained from 25 microns film which was casted film.

mLLDPE

Metallocene Linear Low Density Polyethylene

InnoPlus: mLLDPE							
Properties	**Test Method**	**Unit**	**Grade**				
			LL7838AV (1)	**LL7838AV (2)**	**LL7810AV (1)**	**LL7810D2V (1)**	**LL7810AW (1)**
Melt Index (190 °C, 2.16 kg)	ASTM D1238		3.8	3.8	1	1	1
Density	ASTM D792		0.912	0.912	0.912	0.915	0.915
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	MPa	50	35	60	45	55
Tensile Strength at Break (TD)	ASTM D882	MPa	50	30	50	45	45
Elongation at Break (MD)	ASTM D882	%	710	430	620	570	630
Elongation at Break (TD)	ASTM D882	%	740	500	600	580	620
1% Secant Modulus (MD)	ASTM D882	MPa	190	35	200	230	230
1% Secant Modulus (TD)	ASTM D882	MPa	175	30	200	200	240
Dart Impact Strength	ASTM D1709	g	760	620	980	540	1000
Tear Strength (MD)	ASTM D1922	g	160	110	95	100	90
Tear Strength (TD)	ASTM D1922	g	160	185	100	100	110
Vicat Softening Point	ASTM D1525	°C	95	95	95	95	104
Gloss (45°)	ASTM D2457	-	48	92	45	60	30
Haze	ASTM D1003	%	13	2.1	15	10	20
Additive			-	-	-	High slip and antiblock	-
End Product			Cast film, cast stretch film, form fill & seal packaging, heavy duty films and liners		Lamination films, food packaging, multilayer packaging film, stand up pouches		

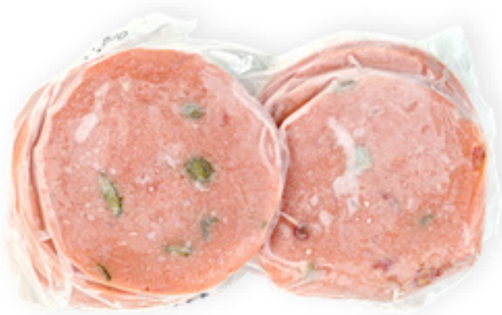
Note: (1) Film made on blown film line at blow up ratio 2.5. Gloss (45°) obtained from 40 microns film while other film properties obtained from 25 microns film.
(2) Film made on cast film line. Film properties obtained from 25 microns film.

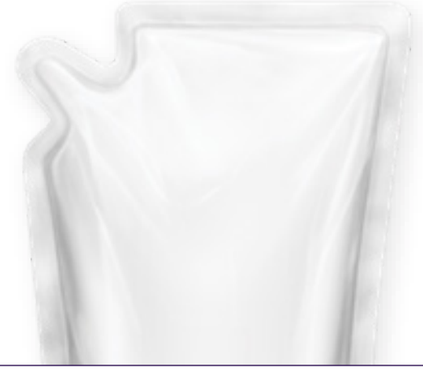


Lamination Film

The multilayer films which produced by lamination process are combined between at least 2 substrates to promote the film functions e.g., mechanical properties, barrier properties and seal ability. Lamination film are comprised of LDPE, LLDPE and HDPE which suitable for food, personal care and home care packaging.

Personal Care Packaging
Home Care Packaging
Frozen & Chilled Foods Packaging
Dry Foods Packaging
Instant Foods Packaging
Foods & Beverages Pouch
Seasoning & Sauce Sachet



Recommendation

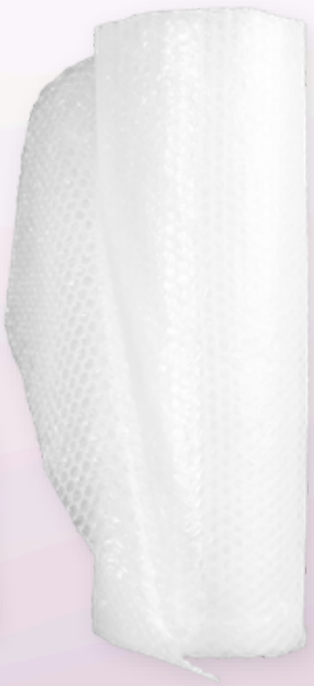
	LDPE	InnoPlus: LD2420H, LD2426H, LD2420K, LD2426K
	LLDPE	InnoPlus: LL7410A, LL7410D, LL7410D1, LL7410G1, LL7410D2, LL7610A, LL7610D1
	mLLDPE	InnoPlus: LL7810A, LL7810D, LL7820D, LL7910A, LL7910D, LL7903A, LL7905AM, LL7905AO, LL7810D2V, LL7810AV, LL7810AW
	HDPE	InnoPlus: HD3355F, HD4000F

General Film Packaging (Non-Lamination)

General purpose film are comprised of LDPE, LLDPE, HDPE and Bioplastics and suitable for general packing products such as Zipper bags, Bubble film, Garbage bags, Shopping bags, Frozen & Chilled bags and Dry food packaging.

Frozen & Chilled Foods Packaging
Dry Foods Packaging
Zipper Bags
Bubble Film
Garbage Bags
Glove PE
Shopping Bags
Liner Bags





Recommendation

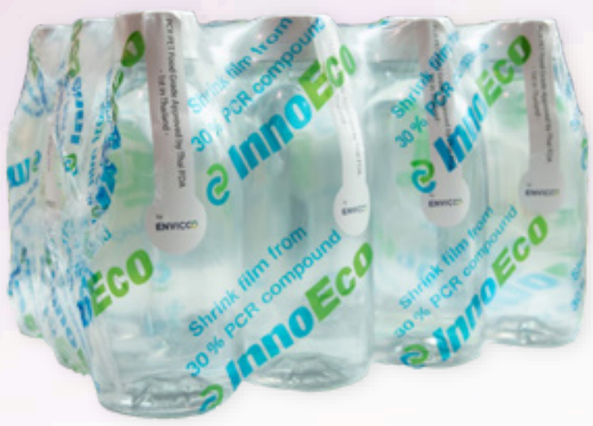
	LDPE	InnoPlus: LD2420H, LD2426H, LD2420K, LD2426K
	LLDPE	InnoPlus: LL7410A, LL7410D, LL7410D1, LL7410G1, LL7410D2, LL7420A, LL7420D, LL7420D1, LL7610A, LL7610D1
	mLLDPE	InnoPlus: LL7810A, LL7810D, LL7910A, LL7910D, LL7903A, LL7905AM, LL7905AO, LL7810D2V, LL7810AV, LL7810AW
	HDPE	InnoPlus: HD6000F, HD7000F, HD3355F, HD4000F
	PCR-LDPE	InnoEco: D021NF-50
	Bioplastics Compound	PlastMate: PB05001F

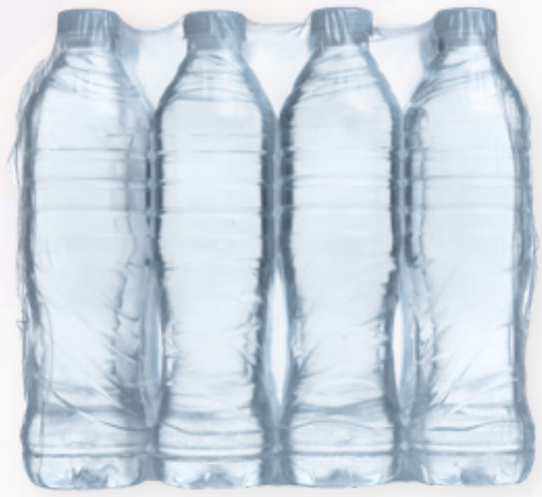
Shrink Film

Shrink film is used for wrap single products or several products together by heating the film. Majority of Polyethylene shrink film made from LDPE combine with LLDPE and HDPE. Potential products for shrink film include packaging of foods, beverages and home & personal cares.

Food & Beverage Bundle Packaging

Home & Personal Care Bundle Packaging





Recommendation

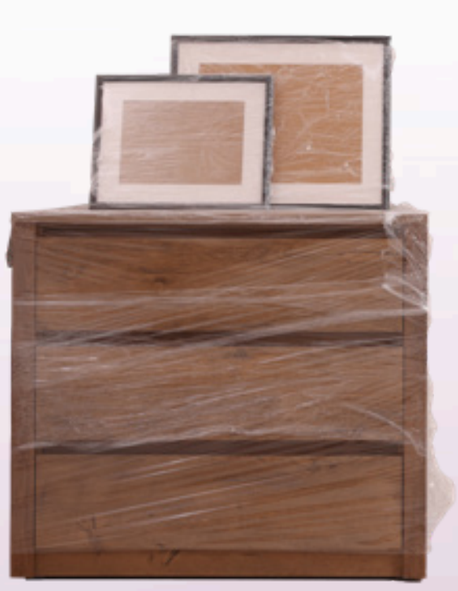
	LDPE	InnoPlus: LD2420D, LD2420F
	LLDPE	InnoPlus: LL7410A, LL7410D, LL7410D1, LL7610A, LL7610D1
	mLLDPE	InnoPlus: LL7903A, LL7905AO
	HDPE	InnoPlus: HD7000F, HD3355F
	PCR-LDPE	InnoEco: D021NF-50

Stretch Film

Stretch film is a thin and stretchable plastic film, typically made from Polyethylene LLDPE, that protect products, cartons, and packages stay clean and in place while being transported and stored.

Stretch Hand-Wrap Films

Stretch Machine-Wrap Films

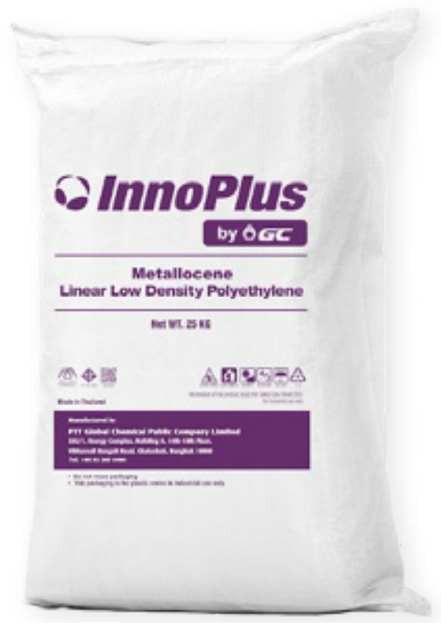


Recommendation

	LLDPE	InnoPlus: LL7420A, LL7625A
	mLLDPE	InnoPlus: LL7835A, LL7910A, LL7838AV

Heavy Duty Bags

It is the bag for heavy duty product such as rice or sugar including plastic pellets which its weight starting from 25 kg.



Heavy Duty Bags

Liner Bags

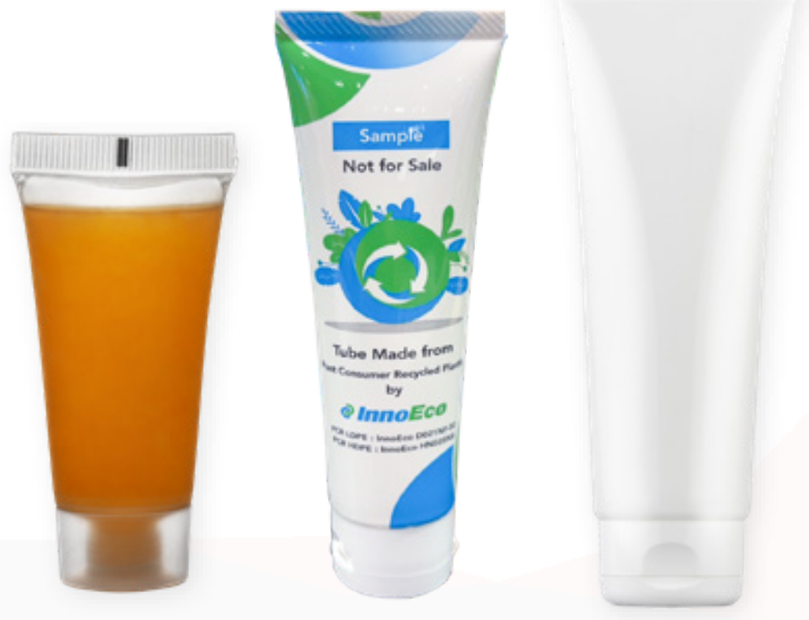
Recommendation

	LDPE	InnoPlus: LD2420D, LD2420F, LD2420H, LD2426H
	LLDPE	InnoPlus: LL7410A, LL7410D, LL7410D1, LL7410G1, LL7410D2, LL7610A, LL7610D1
	mLLDPE	InnoPlus: LL7810A, LL7810D, LL7910A, LL7910D, LL7903A, LL7905AM, LL7905AO
	HDPE	InnoPlus: HD3355F, HD4000F

Others

Squeezable Tube

Squeezable Tube is commonly made of plastic that is cylindrical in shape. It has one end sealed, and the other end is enclosed with a cap which is open to dispose the required quantity of the product without getting deformed.



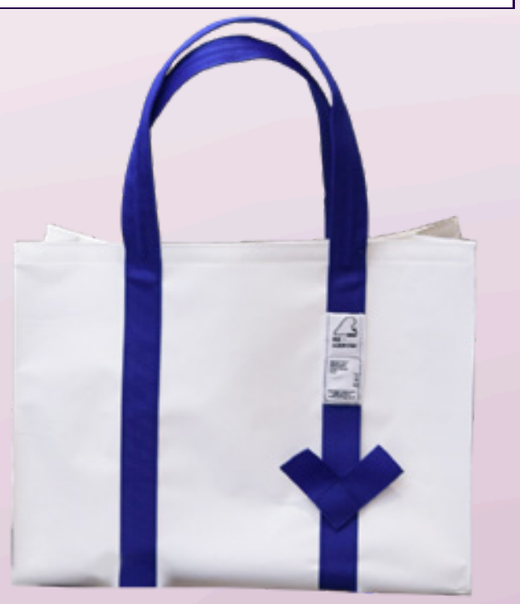
Squeezable Tube

Recommendation

	LDPE	InnoPlus: LD2420D, LD2420F
	mLLDPE	InnoPlus: LL7905AO
	HDPE	InnoPlus: HD3355F, HD4000F
	LLDPE Compound for Extruded Tube	PlastMate: LL70600
	PCR-LDPE	InnoEco: D021NF-50

Paper-Like Film

Paper-Like Film is a type of packaging film that resembles paper in both feel and texture. Masterbatch of polyethylene can be blended with polyethylene to create packaging material that has a texture and feel similar to paper. Applications that are common include blown film, grocery bags, shopping bags, and all-purpose bags.



Paper-like film

Recommendation

	PE Masterbatch Packaging film for paper-like texture and feel	PlastMate: HD00407B