

Product Solutions

FOR BETTER LIVING





Because our plastic and chemical products are all around you,
we take utmost care in every step throughout their journey
to deliver only the best for you.



About GC

PTT Global Chemical Public Company Limited (GC) is PTT Group's petrochemical flagship. We are committed to strengthening our leading position in the chemicals business by combining environmentally-friendly innovations with advanced technologies to develop products for people's better living.

GC comprises diversified and comprehensive petrochemical businesses, including manufacturing and distribution of upstream, intermediate, and downstream petrochemical products.

These products can be converted into other chemical products and serve as basic feedstock for downstream industries such as packaging, apparel, communications and electronic equipment, electrical appliances, vehicles, construction materials, engineering-based plastics, agricultural equipment, and much more. These products are not only part of our daily lives but they also enhance the way we live.



Shareholder

We deliver the best business performance through trustworthiness to create fair and sustainable value for shareholders.

Business Partner

We provide superior solutions from innovative and sustainable products and services to be the best choice for our business partners.

Mission

Vision

To be a Leading
Global Chemical Company
for Better Living



Society

We integrate social and environmental responsibility into our business practices to achieve sustainable development.

Employee

We build an organization that is prepared for dynamic change and learning by providing a happy working environment promoting the development of employees' capabilities and enabling them to meet new challenges with dedication to the organization and to professional excellence.

Product Overview & Certificate



InnoPlus by GC is a registered trademark of PTT Global Chemical Public Company Limited (GC). GC manufactures Polyethylene (PE), nameplate capacity at 1,850,000 MTA and Polyethylene Terephthalate (PET) nameplate capacity at 200,000 MTA



HDPE

InnoPlus by GC High Density Polyethylene (HDPE) has a total production capacity at 850,000 MTA. InnoPlus HDPE is made from the low-pressure polymerization using the slurry process of Mitsui Technology. InnoPlus HDPE offers high certainty of specific properties to meet all particular needs and complies with international standards regulations.

LLDPE

InnoPlus by GC Linear Low Density Polyethylene (LLDPE) is produced within a combined LLDPE & mPE production capacity of 800,000 MTA, using gas phase Unipol Process technology under the license of Univation Technology, a leading global technology licensor. This technology can provide a wide range of LLDPE products.

LDPE

InnoPlus by GC Low Density Polyethylene (LDPE) has a total production capacity of 300,000 MTA. InnoPlus LDPE is produced by a high pressure tubular process, a technology licensed by LyondellBasell.

Certificate of HDPE, LDPE, LLDPE



ISO 9001
Quality Management System by MASCI



ISO 50001
Energy Management System by MASCI



GHPs
Good Manufacturing Practice System by MASCI



mPE

InnoPlus by GC
Metalocene Polyethylene (mPE) is produced within a combined LLDPE & mPE production capacity of 800,000 MTA, using low-pressure polymerization via gas-phase Unipol Process technology under the license of Univation Technology, a leading global technology licensor of proven metallocene PE technology.

This advanced catalyst technology provides superior puncture and dart impact resistance, excellent sealability, and outstanding optical properties.
InnoPlus mPE is widely used for cast and blown film applications.

PET

InnoPlus by GC
Polyethylene Terephthalate (PET)
has total production capacity at 219,000 MTA
InnoPlus PET is produced by the leading technological know-how of T.EN Zimmer GmbH (Germany) and Polymetrix AG (Switzerland)



ISO 14001
Environment
Management
System by MASCI



ISO45001
Occupational
Health and Safety
Assessment
Series by MASCI



HACCP
Hazard Analysis
Critical Control
Point System
by MASCI

GC Product Brand of Other Polymers



PlastMate by GC is registered trademark of PTT Global Chemical Public Company Limited (GC) for various type of compound resin such as PE compound, PP compound, PS compound, PC compound, ABS compound and Bioplastics Compound.



InnoEco by GC is registered trademark of PTT Global Chemical Public Company Limited (GC) for high quality recycled plastic resin products. (Post-consumer recycled: PCR) of the GC group.

Maximum production capacity of 45,000 MTA of recycled plastic resins. Consisting of 30,000 MTA of PCR PET resin and 15,000 MTA of PCR HDPE resin.



DIAREX by GC is a registered trademark of PTT Global Chemical Public Company Limited (GC) for Polystyrene

The capacity of HIPS is 30,000 MTA. We offer a wide range of Diarex grades with various properties for using in injection.



X PURGE by GC is registered trademark of PTT Global Chemical Public Company Limited (GC) for Purging compound.

X PURGE by GC is a high efficiency ready-to-use purging compound which provides fast and effective color, material change and contaminant removal in the machine without disassembly. X PURGE by GC will reduce machine downtime and/or maximize productivity. This product is designed for cleaning various types of the machines i.e., injection molding machines, blow molding machine, blown film machine, sheet casting machine.



InnoSis is a registered trademark of GC Marketing Solutions Company Limited, a subsidiary of PTT Global Chemical Public Company Limited (GC) for polyethylene trading.

Trading polyethylene of InnoSis is the product under the concept of being a leading distributor of plastic resin who is developing products to meet customer needs and create better quality products.

GC Product Label

Bioplastics are plastics derived from agricultural raw materials (Biobased) or petroleum (Petrobased). Bioplastics have a plastic-like quality and characteristics. They can be melted and formed by general processes with general machines; only slight adjustments may be needed. For bioplastics made from agricultural raw materials, they are produced by a fermentation process that converts agricultural raw materials into monomers, which are then used to produce plastic pellets. Currently, the raw materials used in bioplastics production are corn, sugarcane, and cassava.









Solutions

For Every Product Applications

GC commits to continually develop plastic resins covering all applications various market to support all needs, reinforce efficiency including adding value to products for all industries such as packaging, agriculture, home goods and personal care, construction, electrical appliances, automotive and others.

Film and Flexible Packaging

Flexible packaging is commonly used in consumer products and industrial packaging application. The purpose of these packaging are for storing, protecting, and distributing a vast array of products. It is normally composed of easily yielding materials such as HDPE, LLDPE, LDPE, mPE, PCR. When it's filled and closed, the shape of the container can be easily altered.

International Standard Compliances

	RoHS Restriction of Hazardous Substances EU Directive 2011/65/EU		TIS 816-2565 (มอก.816) Polyethylene industrial standard		Halal Islamic law for food relate goods/product		US FDA Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©
	JCII* Japan Chemical Innovation and Inspection Institute.		GB9685 - 2016* (China FDA) The Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials* under GB31603- 2015				

*Application to Selected Grades



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. To promote sustainability trend, lamination film can produce from mono-material Polyethylene with acceptable packaging performance by the combination of high performance resin and special formulation.



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 : LD2420D, LD2420F, LD2426F, LD2420H,LD2426H, LD2420K, LD2420K, LD1826L
	LLDPE	InnoPlus : LL7410A, LL7410D, LL7410D1, LL7410G1, LL7410D2, LL7610A, LL7610D1
	mPE	InnoPlus : LL7810A,LL7810A-S, LL7810D, LL7810D-S, LL7820D, LL7910A,LL7910A-S, LL7910D, LL7910D-S, LL7903A, LL7903A-S, LL7905AM, LL7905AM-S, LL7905AO, LL7810D2V, LL7810AV, LL7810AW, LL7838AV
	HDPE	InnoPlus : HD3355F, HD4000F

General Film

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 : LD2420D, LD2420F, LD2426F, LD2420H, LD2426H, LD2420K, LD2420K, LD1826L
	LLDPE	InnoPlus : LL7410A, LL7410D, LL7410D1, LL7410G1, LL7410D2, LL7420A, LL7420D, LL7420D1, LL7610A, LL7610D1
	mPE	InnoPlus : LL7810A, LL7810A-S, LL7810D, LL7810D-S, LL7910A, LL7910A-S, LL7910D, LL7910D-S, LL7903A, LL7903A-S, LL7905AM, LL7905AM-S, LL7905AO
	HDPE	InnoPlus : HD6000F, HD7000F, HD3355F, HD4000F

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.

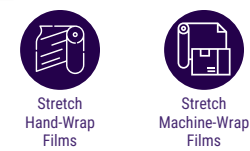


Recommendation

	LDPE	InnoPlus : LD2420D, LD2420F,LD2426F, LD2420H, LD2426H
	LLDPE	InnoPlus : LL7410A, LL7410D, LL7410D1, LL7610A, LL7610D1
	mPE	InnoPlus : LL7903A, LL7903A-S, LL7905AO
	HDPE	InnoPlus : HD7000F, HD4000F

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.



Recommendation

	LLDPE	InnoPlus : LL7420A, LL7625A
	mPE	InnoPlus : LL7835A, LL7910A, LL7910A-S, LL7838AV

Coating

PE Coating Grade is designed for high-quality extrusion coating and lamination applications. It offers excellent adhesion, and strong moisture resistance. With good heat-sealability and consistent processing performance, this grade is ideal for food packaging, lamination, and coated paper.



Recommendation

(Polymer Type - Brand: Grades)

	LDPE	InnoPlus : LD2420K
	HDPE	InnoPlus : HD2000F

Squeeze Tube

Squeeze 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.



Squeeze Tube



Recommendation

LDPE	InnoPlus : LD2420D, LD2420F
LLDPE	InnoPlus : LL7410A
mPE	InnoPlus : LL7905AO, LL7905AM, LL7905AM-S
HDPE	InnoPlus : HD3355F, HD4000F
PCR-HDPE	InnoEco : HN035NB

Foam

PE Foam is a lightweight, closed-cell cushioning material that provides excellent shock absorption, flexibility, and moisture resistance. PE foam offers clean appearance, durable protection, and easy customization for packaging.



Protective Foam



Insulation Foam



Foam Net



Recommendation

(Polymer Type - Brand: Grades)

LDPE	InnoPlus : LD2420K
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Agricultural Film

Agricultural film has been designed to be durable and has many qualifications such as reflection of UV and heat. Currently, the manufacturing technology for agricultural film and tools have been significantly developed. Agricultural film has been manufactured to support variety of usage such green house film, pond liner, nursery bags, plant tray and etc. by focusing on incresing productivity, convenience, easiness and durability.



Greenhouse Film



Mulch Film



Liner



Silage



Grow Bags

Recommendation

(Polymer Type - Brand: Grades)

LDPE	InnoPlus : LD2420D, LD2420F
LLDPE	InnoPlus : LL7610A, LL7610D1, LL7625A
mPE	InnoPlus : LL7810A, LL7810A-S, LL7810D, LL7810D-S, LL7820D, LL7835A, LL7910A, LL7910A-S,LL7910D, LL7910D-S, LL7903A, LL7903A-S, LL7905AO





HDPE

High Density Polyethylene

InnoPlus : HDPE					
Properties	Test Method	Unit	Grade		
			HD6000F	HD7000F	HD3355F
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.16	0.05	1.1
Density	ASTM D1505	g/cm³	0.956	0.956	0.951
Melting Temperature	ASTM D3418	°C	135	135	131
Tensile Strength at Yield	ASTM D638	kg/cm²	260	300	240
Tensile Strength at Break	ASTM D638	kg/cm²	370	390	370
	ASTM D882	MPa (MD/TD)	-	-	-
Elongation at Break	ASTM D638	%	950	820	>1,000
	ASTM D882	% (MD/TD)	-	-	-
Flexural Modulus	ASTM D790	kg/cm²	11,000	12,000	11,000
Tensile Modulus, 1% Secant	ASTM D882	MPa	-	-	-
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	27 (NB*)	30 (NB*)	14
Durometer Hardness	ASTM D2240	shore D	65	64	62
Vicat Softening Point	ASTM D1525	°C	125	125	122
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	>500	>2,000	25
Dart Impact Strength	ASTM D1709	g	-	-	-
Tear Strength (MD/TD)	PEG 701	g	-	-	-
Haze	ASTM D1003	%	-	-	-
Gloss (45 °)	ASTM D2457	-	-	-	-
End Product			General purpose bags, Shopping bags, Linear Films, Bags on roll, Garbage bags, Industrial films		Laminated films, Laminated Tubes, General purpose films

Note: *NB = Non Break



HDPE

High Density Polyethylene

InnoPlus : HDPE				
Properties	Test Method	Unit	Grade	
			HD4000F ⁽¹⁾	HD2000F ⁽²⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.7	8
Density	ASTM D1505	g/cm³	0.966	0.962
Melting Temperature	ASTM D3418	°C	135	135
Tensile Strength at Yield	ASTM D638	kg/cm²	-	-
Tensile Strength at Break	ASTM D638	kg/cm²	-	-
	ASTM D882	MPa (MD/TD)	55/34	39/22
Elongation at Break	ASTM D638	%	-	-
	ASTM D882	% (MD/TD)	515/3	900/560
Flexural Modulus	ASTM D790	kg/cm²	-	-
Tensile Modulus, 2% Secant	ASTM D882	Mpa	690/520	580/700
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	-	-
Durometer Hardness	ASTM D2240	shore D	-	-
Vicat Softening Point	ASTM D1525	°C	125	127
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	-	-
Dart Impact Strength	ASTM D1709	g	<63	-
Tear Strength (MD/TD)	ASTM D1922	g	10/800	20/130
Haze	ASTM D1003	%	64	16
Gloss (45°)	ASTM D2457	-	8	-
End Product			Laminated film, General propose film, Shrink film, Mono-material solution	Paper coating, Food carton, Laminated film, Cast film

Note: (1) Film made on blown film line at blow up ratio 5.0. film properties obtained from 25 microns film.
 (2) Film made on internal laboratory casting line. Typical film properties obtained from 25 micron film.

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LLDPE

Linear Low Density Polyethylene

InnoPlus : LLDPE							
Properties	Test Method	Unit	Grade				
			LL7410A ⁽¹⁾	LL7410D1 ⁽¹⁾	LL7410G1 ⁽¹⁾	LL7410D ⁽¹⁾	LL7410D2 ⁽¹⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	1	1	1	1	1
Density	ASTM D792	g/cm³	0.918	0.920	0.920	0.921	0.921
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	Mpa	50	35	35	35	35
Tensile Strength at Break (TD)	ASTM D882	Mpa	45	30	30	30	30
Elongation at Break (MD)	ASTM D882	%	710	700	700	700	700
Elongation at Break (TD)	ASTM D882	%	850	850	850	850	850
1% Secant Modulus (MD)	ASTM D882	Mpa	225	225	225	225	225
1% Secant Modulus (TD)	ASTM D882	Mpa	240	240	240	240	240
Dart Impact Strength	ASTM D1709	g	100	110	105	105	105
Tear Strength (MD)	ASTM D1922	g	150	150	150	150	150
Tear Strength (TD)	ASTM D1922	g	300	300	300	300	300
Vicat Softening Point	ASTM D1525	°C	100	101	101	100	100
Gloss (45 °)	ASTM D2457	-	38	38	38	30	30
Haze	ASTM D1003	%	14	16	15	20	20
Additive			-	Low Slip & Antiblock	Low Slip & Antiblock	High Slip & Antiblock	Very High Slip & Antiblock
End Product			General purpose films, Lamination films, Liners, Food packaging, Heavy duty and Agricultural films				



LLDPE

Linear Low Density Polyethylene

InnoPlus : LLDPE						
Properties	Test Method	Unit	Grade			
			LL7420A ⁽¹⁾	LL7420A ⁽²⁾	LL7420D1 ⁽¹⁾	LL7420D ⁽¹⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	2	2	2	2
Density	ASTM D792	g/cm³	0.918	0.918	0.920	0.921
Film Properties						
Tensile Strength at Break (MD)	ASTM D882	Mpa	31	40	31	31
Tensile Strength at Break (TD)	ASTM D882	Mpa	28	25	28	28
Elongation at Break (MD)	ASTM D882	%	790	490	790	790
Elongation at Break (TD)	ASTM D882	%	885	720	885	885
1% Secant Modulus (MD)	ASTM D882	Mpa	230	190	230	230
1% Secant Modulus (TD)	ASTM D882	Mpa	270	200	270	270
Dart Impact Strength	ASTM D1709	g	88	79	88	88
Tear Strength (MD)	ASTM D1922	g	120	60	120	120
Tear Strength (TD)	ASTM D1922	g	280	340	280	280
Vicat Softening Point	ASTM D1525	°C	97	97	97	97
Gloss (45 °)	ASTM D2457	-	31	92	31	30
Haze	ASTM D1003	%	17	2	18	20
Additive			-	-	Low Slip & Antiblock	High Slip & Antiblock
End Product			Stretch films, Liners, Industrial bags, General purpose films, Food packaging, Refuse sacks and Garbage bags			

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.

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LLDPE

Linear Low Density Polyethylene

InnoPlus : LLDPE						
Properties	Test Method	Unit	Grade			
			LL7610A ⁽¹⁾	LL7610D1 ⁽¹⁾	LL7625A ⁽¹⁾	LL7625A ⁽²⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	1	1	2.5	2.5
Density	ASTM D792	g/cm³	0.918	0.920	0.919	0.919
Film Properties						
Tensile Strength at Break (MD)	ASTM D882	Mpa	50	50	40	40
Tensile Strength at Break (TD)	ASTM D882	Mpa	45	45	35	30
Elongation at Break (MD)	ASTM D882	%	650	710	885	480
Elongation at Break (TD)	ASTM D882	%	750	850	950	680
1% Secant Modulus (MD)	ASTM D882	Mpa	270	270	250	215
1% Secant Modulus (TD)	ASTM D882	Mpa	320	320	300	230
Dart Impact Strength	ASTM D1709	g	200	200	125	110
Tear Strength (MD)	ASTM D1922	g	350	350	300	255
Tear Strength (TD)	ASTM D1922	g	520	520	550	555
Vicat Softening Point	ASTM D1525	°C	100	100	100	100
Gloss (45 °)	ASTM D2457	-	35	35	25	91
Haze	ASTM D1003	%	14	16	20	2
Additive			-	Low Slip & Antiblock	-	-
End Product			General purpose films, Liners, Food packaging, Heavy duty and Agricultural films		Stretch films, Cast films. Food packaging and Multi-layer packaging films	



mPE

Metallocene Polyethylene

InnoPlus : mPE							
Properties	Test Method	Unit	C6-Metallocene PE Grade				
			LL7810A ⁽¹⁾ / LL7810A-S ⁽³⁾	LL7810D ⁽¹⁾ / LL7810D-S ⁽³⁾	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/cm ³	0.918	0.918	0.920	0.920	0.920
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	Mpa	50	50	55	45	60
Tensile Strength at Break (TD)	ASTM D882	Mpa	50	50	50	40	45
Elongation at Break (MD)	ASTM D882	%	660	660	740	770	580
Elongation at Break (TD)	ASTM D882	%	660	660	760	730	620
1% Secant Modulus (MD)	ASTM D882	Mpa	240	240	250	230	180
1% Secant Modulus (TD)	ASTM D882	Mpa	250	250	260	250	195
Dart Impact Strength	ASTM D1709	g	1330	1330	700	350	180
Tear Strength (MD)	ASTM D1922	g	280	280	360	360	340
Tear Strength (TD)	ASTM D1922	g	330	330	430	340	430
Vicat Softening Point	ASTM D1525	°C	106	106	105	105	105
Gloss (45 °)	ASTM D2457	-	26	26	25	30	79
Haze	ASTM D1003	%	24	24	30	30	4.3
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		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	

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.
 (3) PFAS Free Grade

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mPE

Metallocene Polyethylene

InnoPlus : mPE							
Properties	Test Method	Unit	C6-Metallocene PE Grade				
			LL7810AV ⁽¹⁾	LL7810D2V ⁽¹⁾	LL7810AW ⁽¹⁾	LL7838AV ⁽¹⁾	LL7838AV ⁽²⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	1	1	2	3.8	3.8
Density	ASTM D792	g/cm3	0.912	0.912	0.92	0.912	0.912
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	Mpa	60	60	55	50	35
Tensile Strength at Break (TD)	ASTM D882	Mpa	50	50	45	50	30
Elongation at Break (MD)	ASTM D882	%	620	620	630	700	430
Elongation at Break (TD)	ASTM D882	%	600	600	620	730	500
1% Secant Modulus (MD)	ASTM D882	Mpa	180	180	230	180	35
1% Secant Modulus (TD)	ASTM D882	Mpa	180	180	240	175	30
Dart Impact Strength	ASTM D1709	g	1500	1500	1000	760	620
Tear Strength (MD)	ASTM D1922	g	280	280	240	380	280
Tear Strength (TD)	ASTM D1922	g	330	330	290	440	480
Vicat Softening Point	ASTM D1525	°C	95	95	104	95	95
Gloss (45 °)	ASTM D2457	-	45	45	30	50	92
Haze	ASTM D1003	%	17	17	20	14	2.1
Additive			-	High Slip & Antiblock	-	-	-
End Product			Lamination films, food packaging, multilayer packaging film, stand up pouches.			Cast film, cast stretch film, form fill & seal packaging, heavy duty films and liners.	



mPE

Metallocene Polyethylene

InnoPlus : mPE							
Properties	Test Method	Unit	C6-Metallocene PE Grade				
			LL7903A ⁽¹⁾ / LL7903A-S ⁽³⁾	LL7905AM/ LL7905AM-S ⁽³⁾	LL7905AO	LL7910A ⁽¹⁾ / LL7910A-S ⁽³⁾	LL7910D ⁽¹⁾ / LL7910D-S ⁽³⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.3	0.5	0.5	1	1
Density	ASTM D792	g/cm ³	0.927	0.927	0.935	0.918	0.918
Film Properties							
Tensile Strength at Break (MD)	ASTM D882	Mpa	40	45	45	50	50
Tensile Strength at Break (TD)	ASTM D882	Mpa	40	50	50	50	50
Elongation at Break (MD)	ASTM D882	%	620	600	660	630	630
Elongation at Break (TD)	ASTM D882	%	700	730	810	700	700
1% Secant Modulus (MD)	ASTM D882	Mpa	330	325	510	230	230
1% Secant Modulus (TD)	ASTM D882	Mpa	360	340	550	250	250
Dart Impact Strength	ASTM D1709	g	200	190	110	320	320
Tear Strength (MD)	ASTM D1922	g	140	155	20	230	230
Tear Strength (TD)	ASTM D1922	g	500	500	160	445	445
Vicat Softening Point	ASTM D1525	°C	114	112	119	106	106
Gloss (45 °)	ASTM D2457	-	40	40	42	60	60
Haze	ASTM D1003	%	14	14	15	8	8
Additive			-	-	-	-	High Slip & Antiblock
End Product			Shrink film, Heavy duty films, Stand-up pouches, and freezer packaging films	Heavy-duty films, lamination films, shrink film, agricultural film, food packaging, multi-layer packaging films and freezer packaging films.	Food and non-food packaging, shrink films, heavy duty bag, agricultural films and extrusion tube.	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.
 (3) PFAS Free Grade

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LDPE

Low Density Polyethylene

InnoPlus : LDPE							
Physical Properties*	Test Method	Unit	Grade				
			LD2420D ⁽¹⁾	LD2420F ⁽²⁾	LD2426F ⁽²⁾	LD2420H ⁽²⁾	LD2426H ⁽²⁾
MFR (190 °C, 2.16 kg)	ISO 1133	g/10 min	0.25	0.75	0.75	1.9	1.9
Density	ISO 1183	g/cm ³	0.922	0.922	0.922	0.924	0.924
Melting Temperature	ISO 11357	°C	111	112	112	112	112
Vicat Softening Point	ASTM D1525	°C	94	95	95	94	94
Film Properties**							
Haze	ASTM D1003	%	7	6	6	6	6
Gloss (20 °)	ASTM D2457	-	40	60	60	85	80
Dart Drop Impact	ASTM D1709	g	210	120	120	110	110
Max. Tensile Strength (MD)	ISO 527	Mpa	24	23	23	20	20
Max. Tensile Strength (TD)	ISO 527	Mpa	22	18	18	18	18
Ultimate Elongation (MD)	ISO 527	%	440	350	350	460	460
Ultimate Elongation (TD)	ISO 527	%	670	630	630	660	660
Additive			-	-	Slip & Antiblock	-	Slip & Antiblock
End Product			Heavy duty films, Agriculture films, Shrink films, Tubes and small extrusion blow molding containers			general purpose films, surface protection film, lamination film, food packaging films, foam sheets and air bubble films.	

LDPE

Low Density Polyethylene

InnoPlus : LDPE						
Physical Properties*	Test Method	Unit	Grade			
			LD2420K ⁽²⁾	LD2426K ⁽²⁾	LD2026K ⁽²⁾	LD1826L ⁽²⁾
MFR (190 °C, 2.16 kg)	ISO 1133	g/10 min	4	4	4	5
Density	ISO 1183	g/cm³	0.924	0.924	0.920	0.918
Melting Temperature	ISO 11357	°C	112	112	109	108
Vicat Softening Point	ASTM D1525	°C	92	92	87	85
Film Properties**						
Haze	ASTM D1003	%	7	7	6	6
Gloss (20 °)	ASTM D2457	-	90	80	90	90
Dart Drop Impact	ASTM D1709	g	100	100	100	100
Max. Tensile Strength (MD)	ISO 527	Mpa	17	17	18	18
Max. Tensile Strength (TD)	ISO 527	Mpa	15	15	16	16
Ultimate Elongation (MD)	ISO 527	%	490	490	470	470
Ultimate Elongation (TD)	ISO 527	%	600	600	680	680
Additive			-	Slip & Antiblock	Slip & Antiblock	Slip & Antiblock
End Product			General Purpose Film, Zip Bags, PE Foam Sheet and Air Bubble Films			

* Data based on pellets and press-molded sheet.
 ** Data based on blown film;
 MD: Machine Direction.
 TD: Transverse Direction.

Note: (1) Film properties obtained from 70 microns film which was blown film extruded at blow up ratio of 2.0 and 35 kg/hr output rate.
 (2) Film properties tested using 50 microns thickness blown film extruded at blow-up ratio of 2.0 and 35 kg/hr output rate.
 Typical values; not to be construed as specification.

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Rigid Packaging



Caps and Closures^(*)

Caps and Closures application is innovated under the concept of Connected Packaging Development to deliver an identical proposition of brand owners, or conversion players and to experience on closure functions for supporting consumers trend such as lightweight, easy opening, complicated closure design for niche. GC offers wide range of product grades to serve packaging trend and carbon reduction goal with caring environmental change.



Large Blow Molding

Large blow molding application is commonly used in the packaging containers of household and industrial sectors. GC products can serve from 20 up to 3,000 liters covering jerry cans, chemical and industrial drums, intermediate bulk container (IBC) with product durability and various design. By the durability performance of the material, consumers can gain the benefit from extending of the product lifetime which can be engaged in supporting the environmental care and sustainability aspects.



Small Blow Molding

Blow molding is typically used to produce containers or bottles in the liquid bottle segment. The market for HDPE blow-molded products uses machines and materials that deliver faster cycle times and lightweight products. HDPE blow-molded products require a balance of easy processing and good mechanical strength to enhance the combination of productivity, cost-effectiveness, and bottle-strength performance. GC's blow molding product portfolio offers a comprehensive range of grades to meet a wide variety of performance requirements.



Injection Molding

Injection moulding (IM) is widely known as a common manufacturing process for producing identical parts in large volumes by injecting molten material into a mold cavity where it cools and solidifies. It is used across many industries to produce a wide array of products, including: automotive parts, E&E industries, packaging lid and enclosure, toys, pallet, household items like garbage bin, medical devices, etc. Raw materials for the finished part are the foundational components, which are generally chosen based on the function and specifications of the final product part. GC's consumer goods product portfolio offers a wide range of product grades in a broad processing window in order to support versatile product performance and needed design.



Injection Blow Molding

Injection blow molding (IBM) involves injecting the molten plastic into a mold to create a parison or preform, which is a hollow tube with a fully formed neck finish. It is excellent for the products with high-tolerance, precise parts with a neck finish that requires exact dimensions as well as high-volume production runs of small- to medium-sized containers, like food & beverage bottles, water bottles, pharmaceuticals, and other precision household containers. Apart from polyolefins like high-density polyethylene (HDPE) and polypropylene (PP), polyethylene terephthalate (PET) is most common material and widely wellknown for IBM process of this segment.

International Standard Compliances

	RoHS Restriction of Hazardous Substances EU Directive 2011/65/EU		TIS 816-2565 (มอก.816) Polyethylene industrial standard		Halal Islamic law for food relate goods/product		US FDA Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©
	EU FDA Plastic Materials and Articles intended to Come into contact with food		Phthalate Content According to ASTM D3421-1975		GB4806.1-2016 GB4806.7-2023 (Chinese FDA) The Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials* under GB31603-2015		JCII Japan Chemical Innovation and Inspection Institute.

Certified only for^(*)

Organoleptic	Organoleptic German Food Articles of Daily Use and Feed Code of September 1,2005 (LFGB), Section 31- Sensory Examination Odour and Taste Test
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Caps & Closures

Rigid Packaging



Bottled Water



Carbonated
Soft Drinks
(CSD)



Non- Carbonated
Soft Drinks
(Non-CSD)



Food



Home and
Personal Care
(HPC)

InnoPlus by GC: HDPE								
Properties	Test Method	Unit	Caps & Closures					
			HD1010J	HD1600JP	HD2401C	HD2200JP	HD2502C	HD3200C
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	20	12	6.5	3.5	0.86	2.3
Density	ASTM D1505	g/cm³	0.956	0.958	0.962	0.961	0.962	0.967
Melting Temperature	ASTM D3418	°C	130	132	135	135	132	132
Tensile Strength at Yield	ASTM D638	kg/cm²	290	290	313	310	305	310
Tensile Strength at Break	ASTM D638	kg/cm²	140	200	252	210	262	200
Elongation at Break	ASTM D638	%	200	230	>1,000	>1,000	>1,000	600
Flexural Modulus	ASTM D790	kg/cm²	12,000	12,500	15,800	14,500	15,500	17,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	4 (C*)	3 (C*)	5.3 (C*)	5 (C*)	4.4 (C*)	2.5 (C*)
Durometer Hardness	ASTM D2240	shore D	64	64	67	66	65.5	67
Vicat Softening Point	ASTM D1525	°C	122	120	127.5	126	126	123
ESCR; 10% Igepal, F ₅₀	ASTM D1693	Hours	Initial	3	7	4	74	15
Slip Agent			No	No	No	No	No	No
End Product			Non-CSD/Food/ HPC	Bottled Water/ Non-CSD				
Product Highlight			Over caps, Screw spout caps, Flip spout caps. Excellent processability for high complexity mold design with organoleptic property.	Beverage caps and closures for mineral and still water, juice, tea or liquid dairy with organoleptic property. Compatible with injection and compression processings.				

Note : *C = Complete Break *P = Partial Break *NB = Non Break

InnoPlus by GC: HDPE							
Properties	Test Method	Unit	Caps & Closures				
			HD3000C	HD3001C	HD3500C	HD3502C	HD4502C
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	2	2	1	1	0.5
Density	ASTM D1505	g/cm³	0.954	0.954	0.956	0.956	0.957
Melting Temperature	ASTM D3418	°C	132	132	130	130	130
Tensile Strength at Yield	ASTM D638	kg/cm²	260	260	240	240	270
Tensile Strength at Break	ASTM D638	kg/cm²	320	320	270	270	300
Elongation at Break	ASTM D638	%	900	900	>1,000	>1,000	900
Flexural Modulus	ASTM D790	kg/cm²	11,300	11,300	11,500	11,500	11,800
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	5 (P*)	5 (P*)	6 (NB*)	6 (NB*)	6.8 (NB*)
Durometer Hardness	ASTM D2240	shore D	62	62	62	62	62
Vicat Softening Point	ASTM D1525	°C	122	122	120	120	120
ESCR; 10% Igepal, F ₅₀	ASTM D1693	Hours	24	24	460	460	>1,000
Slip Agent			Yes	No	Yes	No	No
End Product			Bottled Water/Non-CSD		CSD		
Product Highlight			Beverage caps and closures for drinking mineral water, tea and fruit juice with organoleptic property. Compatible with injection and compression processing.		Beverage caps and closures for CSD and Functional Sparking with organoleptic property. Compatible with injection and compression processing.		Lightweight CSD caps and closures with organoleptic property, superior stress cracking resistance. Compatible with injection and compression processings.

Note : *C = Complete Break *P = Partial Break *NB = Non Break

InnoPlus by GC: LLDPE			
Properties	Test Method	Unit	Caps & Closures
			LL8420A
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	20
Density	ASTM D792	g/cm ³	0.924
Molded Plague Properties			
Tensile Strength at Yield	ASTM D638	Mpa	14
Tensile Strength at Break	ASTM D638	Mpa	10
Elongation at Break	ASTM D638	%	700
Vicat Softening Point	ASTM D1525	MPa	92
Durometer Hardness	ASTM D2240	Shore D	52
Slip Agent			No
End Product			Food/HPC
Product Highlight			Flip top caps, Lids, Pull Ring caps for Edible Oils, Dairy etc., Hinge caps. Excellent processability.

InnoPlus: LDPE				
Physical Properties	Test Method	Unit	Caps & Closures	
			LD2026K	LD2426K
MFR (190 °C, 2.16 kg)	ISO 1133	g/10 min	4	4
Density	ISO 1183	g/cm ³	0.920	0.924
Melting Temperature	ISO 11357	°C	109	112
Vicat Softening Point	ASTM D1525	°C	88	92
Slip Agent			Yes	Yes
End Product			Food/HPC	
Product Highlight			Flip top caps, Lids, Pull Ring caps for Edible Oils, Dairy etc., Hinge caps. Excellent processability.	

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Large Blow Molding

Rigid Packaging



< 200L Drum



IBC



≥ 200L Drum



Floating Solar
Pontoon

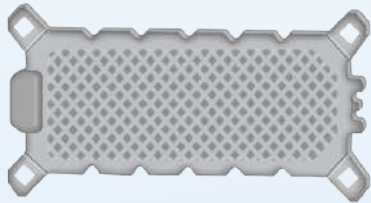


Others



InnoPlus by GC: HDPE						
Properties	Test Method	Unit	Large Blow Molding			
			HD7200B	HD7808B	HD8200B	HD9100B
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.05	0.04	0.03	0.01
MFR (190 °C, 21.6 kg)	ASTM D1238	g/10 min	8.5	6	4	2.5
Density	ASTM D1505	g/cm³	0.956	0.950	0.955	0.952
Melting Temperature	ASTM D3418	°C	134	130	134	134
Tensile Strength at Yield	ASTM D638	kg/cm²	300	300	300	250
Tensile Strength at Break	ASTM D638	kg/cm²	350	370	370	400
Elongation at Break	ASTM D638	%	800	850	850	720
Flexural Modulus	ASTM D790	kg/cm²	12,000	12,000	12,000	10,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	25 (NB*)	72 (NB*)	64 (NB*)	85 (NB*)
Durometer Hardness	ASTM D2240	shore D	63	61	64	62
Vicat Softening Point	ASTM D1525	°C	124	125	128	126
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	>1,000	>1,000	>1,000	>1,000
UV Stabilizer			No	Yes	No	No
End Product			< 200L Drum	IBC	≥ 200L Drum and Floating Pontoon	
Product Highlight			Excellent Processability, Extremely High Stacking Performance, High Impact Strength, where Recommended Applications for Large Blow Molding Products e.g. Drums, Jerry Cans, Water Tanks, etc.	UV Added Grade with Excellent Processability, Extremely High Impact Strength and Good Stacking Performance, suitable for Large Blow Molding Product e.g. Intermediate Bulk Containers (IBC), Liner for 200L-Drum, Pontoons, and Outdoor Applications, etc.	Excellent Processability, Extremely High Impact Strength and Stacking Performance, where Recommended Applications for Large Blow Molding Products e.g. 200 L-Drums, Pontoon and Heavy Duty Applications, etc.	

Note: *C = Complete Break *P = Partial Break *NB = Non Break



Small Blow Molding

Rigid Packaging



Personal Care Bottle



Food & Beverage Bottle



Lubricant Container



Home & Household Cares



InnoPlus by GC: HDPE							
Properties	Test Method	Unit	Blow Molding				
			HD4200B	HD5200B	HD6200B	HD6600B	HD6900B ⁽¹⁾
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.67	0.45	0.45	0.40	0.21
Density	ASTM D1505	g/cm³	0.966	0.966	0.962	0.957	0.966
Melting Temperature	ASTM D3418	°C	135	135	135	135	135
Tensile Strength at Yield	ASTM D638	kg/cm²	310	320	330	320	320
Tensile Strength at Break	ASTM D638	kg/cm²	230	350	350	400	330
Elongation at Break	ASTM D638	%	>1,000	>1,000	>1,000	>1,000	>1,000
Flexural Modulus	ASTM D790	kg/cm²	18,000	17,500	15,000	14,000	16,500
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	13 (P*)	15 (P*)	12 (P*)	10 (P*)	12 (P*)
Durometer Hardness	ASTM D2240	shore D	65	66	65	65	66
Vicat Softening Point	ASTM D1525	°C	125	127	125	125	127
ESCR; 25% Igepal, F50	ASTM D1693	Hours	25	30	60	400	60
End Product			Food Bottle, Drinking Water Bottle and Milk Bottle		Food Bottle, Drinking Water Bottle, Milk Bottle, Personal Cares and Lubricant Container		

Note : *C = Complete Break *P = Partial Break *NB = Non Break
⁽¹⁾ Downgauging & Lightweight

InnoPlus by GC: LDPE			
Properties	Test Method	Unit	Blow Molding
			LD2420F
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.75
Density	ASTM D792	g/cm³	0.922
Melting Temperature	ASTM D3418	°C	112
Vicat Softening Point	ASTM D1525	°C	95
Slip Agent			No
End Product			Small Containers e.g. Personal Cares and Squeeze Bottles

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Injection Molding

Rigid Packaging



Pallet



Food Box



Crate

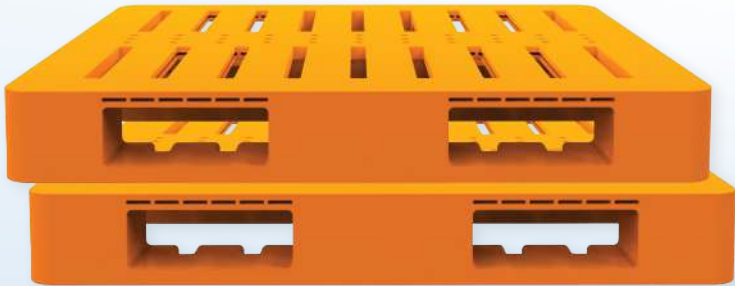


Bin

InnoPlus by GC: HDPE						
Properties	Test Method	Unit	Injection Molding			
			HD1010J	HD1600J	HD2208J	HD2308J
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	20	12	3.7	6
Density	ASTM D1505	g/cm³	0.956	0.958	0.961	0.962
Melting Temperature	ASTM D3418	°C	130	132	134	136
Tensile Strength at Yield	ASTM D638	kg/cm²	290	280	310	300
Tensile Strength at Break	ASTM D638	kg/cm²	140	150	220	170
Elongation at Break	ASTM D638	%	200	210	>1,000	>1,000
Flexural Modulus	ASTM D790	kg/cm²	12,000	12,500	13,000	15,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	4 (C*)	3 (C*)	5 (C*)	4 (C*)
Durometer Hardness	ASTM D2240	shore D	64	64	65	65
Vicat Softening Point	ASTM D1525	°C	122	118	122	125
ESCR; 10% Igepal, F ₅₀	ASTM D1693	Hours	N/A	N/A	N/A	N/A
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	Initial	Initial	6	5
UV Stabilizer			No	No	Yes	Yes
End Product			Small part, Stationery, Household products, Toys		UV added for outdoor applications, Garbage bins, Pallets, Crates	

Note : *C = Complete Break *P = Partial Break *NB = Non Break

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Injection Blow Molding

Rigid Packaging



InnoPlus by GC: PET								
Properties	Test Method	Unit	Injection Blow Molding					
			SA125T	SA135T / SA135T(B)	SA135T(H)	SA145T	SA150T	SE030T
Intrinsic Viscosity	MCI Method	dl/g	0.77 ± 0.02	0.82 ± 0.02	0.80 ± 0.02	0.86 ± 0.02	0.90 ± 0.02	0.80 ± 0.05
Acetaldehyde	MCI Method	ppm	2 max	1 max	1 max	1 max	1 max	1 max
Color-L	MCI Method	-	75 min.	75 min.	75 min.	75 min.	75 min.	75 min.
Color-b	MCI Method	-	1.0 max	1.0 max	1.0 max	1.0 max	1.0 max	1.0 max
Diethylene Glycol	MCI Method	%wt	1.10 - 1.60	1.10 - 1.60	1.30 max	1.10 - 1.60	1.10 - 1.60	1.10 - 1.60
Powder	MCI Method	ppm	100 max	100 max	100 max	100 max	100 max	100 max
Appearance	MCI Method	-	Conformity	Conformity	Conformity	Conformity	Conformity	Conformity
Foreign Matters in chip <0.2 mm	MCI Method	pc/100g	5 max	5 max	5 max	5 max	5 max	5 max
Foreign Matters in chip ≥0.2 mm	MCI Method	pc/100g	0 max	0 max	0 max	0 max	0 max	0 max
Metallic Foreign Matters	MCI Method	pc/100g	0 max	0 max	0 max	0 max	0 max	0 max
Moisture	ZIMMER Method	ppm	2,000 max	2,000 max	2,000 max	2,000 max	2,000 max	2,000 max
Metling Point	ASTM D3418	°C	245 - 249	243 - 251	250 - 255	245 - 249	245 - 249	243 - 251
End Product			Water, Cosmetic, Fruit Juice Bottle	Water, Cosmetic, Fruit Juice Bottle, Edible Oil, Sheet, Tray	Hot Fill Bottle	CSD Bottle	5 Gallons	Sheet/Tray

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PCR HDPE

Rigid Packaging



Home and
Personal Care



Chemical and
Lubricant Container



High-quality and 100% PCR resins which comply with global standard to the market under brand InnoEco.

InnoPlus by GC: PCR HDPE							
Properties	Test Method	Unit	Grade				
			HN035NB	HW035NB	HM035NB	HX035NB	HM035NJ
Physical Properties							
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.35	0.46	0.58	0.4	2
Density	ASTM D1505	g/cm³	0.963	>0.970	0.959	0.961	0.957
Mechanical Properties (Based on compression specimens)							
Tensile Strength at Yield	ASTM D638	kg/cm²	300	277	270	300	270
Tensile Strength at Break	ASTM D638	kg/cm²	173	157	160	176	140
Elongation at Break	ASTM D638	%	460	490	330	430	200
Flexural Modulus	ASTM D790	kg/cm²	13,800	13,700	12,600	14,000	12,600
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	9.3	6	6	10	4
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	24	24	-	-	-
Color			 Natural White	 Opaque white	 Purple	 Light Grey	 Grayish-Green
Application			Extrusion blow molding, Home & personal care bottles, Lubricant Container			Personal care containers, Extrusion profile, Detergent containers, Lubricant oil containers	Injection molding applications of household product

Recommendation: Injection Molding Temperature : 170 - 220 °C
Extruder Temperature : 165 - 190 °C
Die Temperature : 180 - 195 °C

PCR PET

Rigid Packaging



Bottled Water



Carbonated
Soft Drinks
(CSD)



Non- Carbonated
Soft Drinks
(Non-CSD)



Personal Care
Bottle



Food Box



High-quality and 100% PCR resins which comply with global standard to the market under brand InnoEco.

InnoPlus by GC: PCR PET					
Properties	Test Method	Unit	Grade		
			TN080FB	TN085FB	TN080FBP
Physical Properties					
Intrinsic Viscosity (IV)	Relative to ASTM D4603	dl/g	0.80±0.03	0.85±0.03	0.80±0.03
Acetaldehyde (AA)	ENV-Method	ppm	Max 1	Max 1	Max 1
Moisture content	ENV-Method	%	Max 0.2	Max 0.2	Max 0.2
Color Properties					
L*	CIELAB	-	Min 63	Min 70	Min 68
b*	CIELAB	-	Max 1.0	Max 1.0	Max 1.0
Application			Food & Beverage, Home & Personal Care Bottles	CSD, Food & Beverage, Home & Personal Care Bottles	Food & Beverage, Home & Personal Care Bottles

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PCR PET Content

Rigid Packaging

25-30% PCR PET content, they are used for bottle applications such as drinking water, beverage, cosmetic bottle applications

InnoPlus by GC: PCR PET				
Properties	Test Method	Unit	Grade	
			TD080FB-30A	TD080FB-25B
Physical Properties			TN080FB	TN080FB
Intrinsic Viscosity (IV)	Relative to ASTM D4603	dl/g	0.80±0.03	0.80±0.03
Acetaldehyde (AA)	ENV-Method	ppm	Max 1.0	Max 1.0
Color Properties				
L*	CIELAB	-	Min 63	Min 63
b*	CIELAB	-	Max 1.0	Max 1.0
Physical Properties			SA135T	SA135T (H)
Intrinsic Viscosity (IV)	MCI-Method	dl/g	0.82±0.02	0.82±0.02
Acetaldehyde (AA)	MCI-Method	ppm	Max 1.0	Max 1.0
Color Properties				
L*	MCI-Method	-	Min 75	Min 75
b*	MCI-Method	-	Max 1.0	Max 1.0
Moisture Content			TD080FB-30A	TD080FB-25B
Moisture Content	Inhouse-Method	%	Max 0.25	Max 0.25
Application			Drinking water, Beverage, Cosmetic Bottle applications	



Construction

InnoPlus
by **GC**

PlastMate
by **GC**

InnoEco
by **GC**



Rotational Molding (*)

Rotational molding is a manufacturing process that relies on gravity and heat to produce parts with exceptional strength.

Advantages of rotational molding with polyethylene resins include design flexibility, durability, low cost tooling and uniform wall thickness. A wide range of sizes and shapes can be molded. Rotational Molding also has many options for colors, material selection and textures. Very little material is wasted during the process, and excess material is often re-used, making it economical and environmentally friendly.

Rotational molding is widely used for producing end-use applications such as creating water tanks, chemical storage tanks, playground, kayaks and other common products, including substituting plastics for traditional materials like stainless steel, concrete and glass-fiber.



Pipe (**)

HDPE pipe resins are produced from InnoPlus and PlastMate HDPE resins which are suitable for pressure (e.g. water and industrial pipes) and non-pressure (e.g. conduit and agriculture pipes) pipe applications. The product is non-corrosive and has excellent mechanical properties. It offers high durability and long life service.

Pipes made from HDPE pipe resins are widely used in construction. These products are used to replace metal and cement pipes which convey and transport portable water, gasses, chemicals, industrial fluids, and wastewater. HDPE pipe is lightweight and offers high durability, coilability and easy installation which can save transportation costs and handling costs. It also offers a low maintenance cost after installation. In addition, HDPE pipe compounds are non-corrosive materials which are suitable for water and chemical transportation. The HDPE pipe is available in a wide range of outer diameters up to 2,000 mm.



Wire and Cable

The growth factors of wire and cable market are the increase of world population, expanding of cities, development of infrastructure, needs of electricity usage at home and in business sectors.

Moreover, the factors are including the increase of investment of smart rigid network and the fast development of cable technology. Southeast Asia market has opportunity in expansion from relevant factors such as household needs including investment from business sectors and government and also environmental concerns.

International Standard Compliances

	RoHS Restriction of Hazardous Substances EU Directive 2011/65/EU		TIS 816-2565 (มอก.816) Polyethylene industrial standard		Halal Islamic law for food relate goods/product		US FDA Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©
	JCII Japan Chemical Innovation and Inspection Institute.		GB9685 - 2016 (China FDA) The Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials* under GB31603-2015				

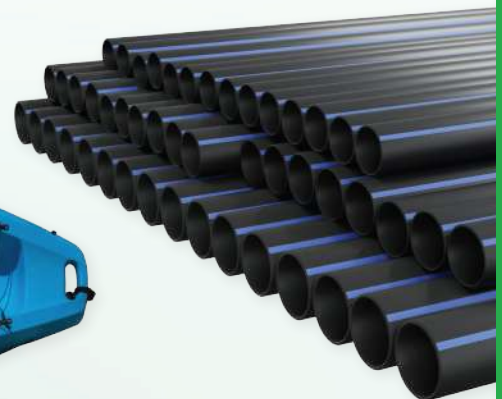
Only for (*)



LL963002/U2P, LL9641U1/U1P are published lists of the available materials for the industry by Supplier members of the Association of Rotational Moulders Australasia (ARMA)

Only for (**)





Rotational Molding Resin

Construction



Tanks



Automotive
& Machinery



Construction
Equipment



Ice box &
Containers



Furniture &
Playground



Marine &
Leisure

InnoPlus: LLDPE										
Properties	Test Method	Unit	Rotational Molding							
			LL9630U2*/ LL9630U2P	LL9630U/ LL9630UP	LL9640U/ LL9640UP	LL9641U/ LL9641UP	LL9641U1*/ LL9641U1P	LL9650U2	LL9450U/ LL9450UP	LL9470U/ LL9470UP
Physical Properties										
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	3.2	3.2	4	4	4	5	5	7
Density	ASTM D792	g/cm³	0.938	0.938	0.932	0.938	0.938	0.935	0.935	0.932
Brittleness Temperature	ASTM D746	°C	<-70	<-70	<-70	<-70	<-70	<-70	<-70	<-70
Vicat Softening Point	ASTM D1525	°C	118	118	110	118	118	112	114	107
Heat Distortion Temperature at 0.455 MPa	ASTM D648	°C	60	60	54	60	60	55	55	50
Mechanical Properties (Compression Specimens)										
Tensile Strength at Yield	ASTM D638	MPa	20	20	15	20	20	17	17	14
Tensile Strength at Break	ASTM D638	MPa	30	30	25	25	25	25	24	19
Elongation at Break	ASTM D638	%	1,000	1,000	1,000	950	950	950	1,000	800
Flexural Modulus	ASTM D790	MPa	750	750	550	750	750	650	600	500
Durometer Hardness	ASTM D2240	Shore D	57	60	56	57	57	57	56	52
ESCR, F ₅₀ (Condition A, 100% Igepal)	ASTM D1693	Hours	> 1,000	> 1,000	> 1,000	> 500	> 500	> 1,000	-	-
Arm Impact Strength at -40 °C (3mm Rotomolded sample)	ARM Method	J	65	67	74	71	71	65	58	59
UV Resistance Level			UV20	UV8	UV8	UV8	UV12	UV20	UV8	UV8

International Standard Compliances (Only for *)



LL963002/U2P, LL9641U1/U1P are published lists of the available materials for the industry by Supplier members of the Association of Rotational Moulders Australasia (ARMA)



PE Foam for Rotational Molding



Tanks



Automotive
& Machinery



Construction
Equipment



Ice box &
Containers



Furniture &
Playground



Marine &
Leisure

PE foam for Rotomolding			
Properties	Test Method	Unit	Plastmate LL321RYP
Physical Properties			
Melt flow rate (190 °C, 2.16 Kg)**	ASTM D1238	g/10 min	3.2
Expansion Ratio	In-house Method	Time	4

** This value based on natural resin

PCR Rotational Molding Construction



Furniture &
Playground



Marine &
Leisure

InnoEco: PCR Rotational Molding			
Properties	Test Method	Unit	InnoEco H040NU-05 Color
Physical Properties			
Melt Flow Rate (2.16 kg/190 °C)	ISO 1133	g/10 min	4.2
Density	ISO 1183	g/cm³	0.944
Vicat Softening Temperature	ASTM D1525	°C	116
Mechanical Properties (Compression Specimens)			
Tensile Strength at Yield (50 mm/min)	ISO 527	MPa	20
Tensile Strength at Break	ISO 527	MPa	25
Elongation at break	ISO 527	%	1,100
Flexural Modulus (1.3 mm/min)	ISO 178	MPa	710
ESCR, F50 (Condition A, 100% Igepal)	ASTM D1693	hrs	24
ESCR, F50 (Condition A, 10% Igepal)	ASTM D1693	hrs	5
Izod Impact Strength	ASTM D256	kg.cm/cm	7

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Pipe Construction



Water Supply



Construction/
Infrastructure



Industrial /
Chemicals



HDPE and Compound Resin					
Properties	Test Method	Unit	Pipe		
			InnoPlus HD8100M	PlastMate HD8100MB	PlastMate HD8110MBLS
MFR (190 °C, 5 kg)	ISO 1133	g/10 min	0.25	0.25	0.21
Density	ISO 1183	g/cm ³	0.952	0.960	0.960
Vicat Softening Point	ASTM D1525	°C	124	-	-
Tensile Strength at Yield	ISO 527	MPa	24	24	24
Tensile Strength at Break	ISO 527	MPa	35	35	35
Elongation at Break	ISO 527	%	750	750	750
Flexural Modulus	ASTM D790	kg/cm ²	10,000	10,500	10,500
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	48 (NB*)	-	-
Durometer Hardness	ASTM D2240	shore D	64	64	64
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	> 1,000	> 2,000	> 2,000
Carbon Black Content	ISO 6964	%	-	2.25	2.25
Oxidative Induction Time (OIT, 200 °C)	ISO 11357-6	min	> 40	-	-
Oxidative Induction Time (OIT, 210 °C)	ISO 11357-6	min	-	> 40	> 50
MRS Classification	ISO 12162 /ISO 9080	MPa	10.0 (PE100)	10.0 (PE100)	10.0 (PE100)
Resistance to crack growth (@ 80 °C)	ISO 13479	Hours	-	> 500	> 500
Rapid crack propagation, Pc, S4	ISO 13477	Bar	-	> 10**	> 10**

Note:

*NB = Non Break

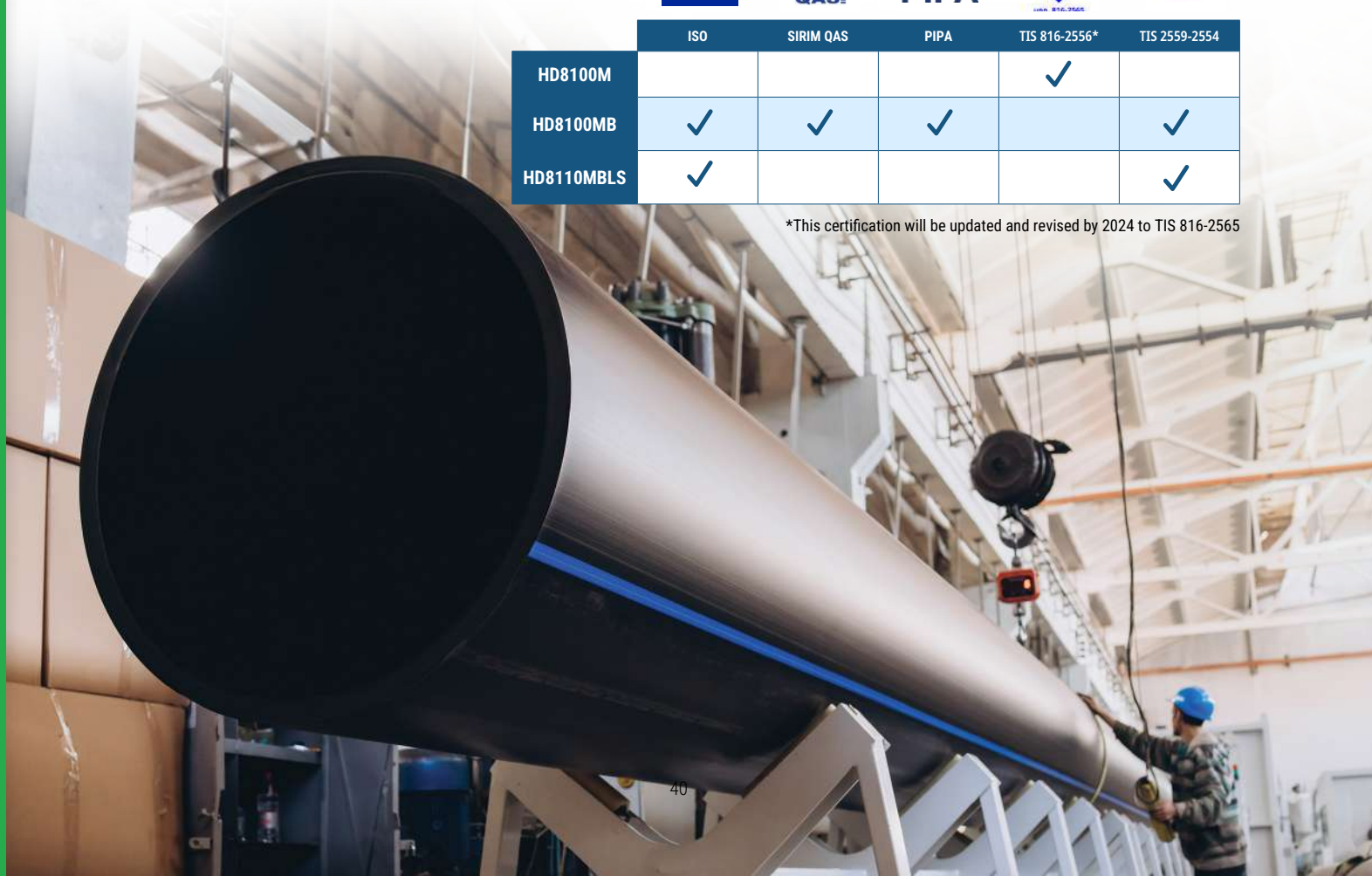
** Tested on 110 mm OD pipe

International Standard Compliances



	ISO	SIRIM QAS	PIPA	TIS 816-2556*	TIS 2559-2554
HD8100M				✓	
HD8100MB	✓	✓	✓		✓
HD8110MBLS	✓				✓

*This certification will be updated and revised by 2024 to TIS 816-2565



Wire and Cable Construction



Power Cable Segment



Fiber Optic Cable

High Density Polyethylene Black Compound Resin				
Properties	Test Method	Unit	PlastMate HD00108WBK	PlastMate HD010WB
Physical and Mechanical Properties				
Melt Index (190 °C, 2.16 Kg)	ISO 1133	g/10 min	0.16	0.13
Density	ISO 1183	g/cm³	0.958	0.958
Carbon Black Content	ISO 6964	%	2.5	2.5
Tensile Strength	ISO 527	MPa	33	33
Elongation at Break	ISO 527	%	900	900
Oxidation Induction Time (210 °C)	ISO 11357	Min	70	60
ESCR, F ₀ (Condition B, 10% Igepal, 50 °C)	ASTM D1693	Hrs	> 5,000	> 5,000
Flexural Modulus	ISO 178	MPa	800	800
Durometer Hardness	ISO 868	Shore D	64	64
Electrical Properties				
Volume Resistivity	ASTM D257	Ohm.cm	10 ¹⁷	10 ¹⁷
Dielectric Strength	ASTM D149	kV/mm	27	17
Dielectric Constant, 1 MHz	ASTM D150	-	2.4	2.5
Dissipation Factor, 1 MHz	ASTM D150	-	0.0003	0.015

Recommendation: Recommended melt temperature 180-230 °C

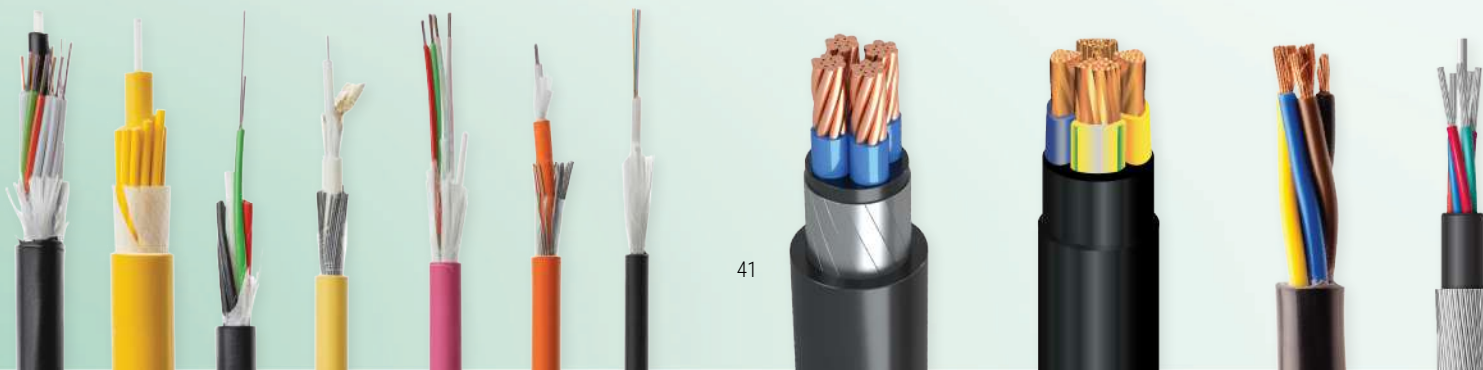
Medium Density Polyethylene Black Compound Resin			
Properties	Test Method	Unit	PlastMate MD501WB
Physical and Mechanical Properties			
MFR (190 °C, 2.16 kg)	ISO 1133	g/10 min	0.8
Density	ISO 1183	g/cm3	0.948
Carbon Black Content	ISO 6964	%	2.5
Tensile Strength	ISO 527	MPa	31
Elongation at Break	ISO 527	%	800
Oxidation Induction Time (210 °C)	ISO 11357	Min	>60
ESCR (50 °C, 10% Igepal)	ASTM D1693	Hrs	> 5,000
Electrical Properties			
DC Volume Resistivity	ASTM D257	Ohm.cm	10 ¹⁵
Dielectric Strength	ASTM D149	kV/mm	20
Dielectric Constant, 1 MHz	ASTM D150	-	2.5
Dissipation Factor, 1 MHz	ASTM D150	-	0.001

Recommendation: Recommended melt temperature 170-230 °C

InnoPlus: LLDPE Natural Resin				
Properties	Test Method	Unit	Wire and Cable	
			LL6420A	LL6428A
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	2	2.8
Density	ASTM D792	g/cm³	0.918	0.918
Tensile Strength at Yield	ASTM D638	MPa	10	10
Tensile Strength at Break	ASTM D638	MPa	25	24
Elongation at Break	ASTM D638	%	900	940
Secant Modulus	ASTM D638	MPa	200	230
Vicat Softening Point	ASTM D1525	°C	97	95
Durometer Hardness	ASTM D2240	Shore D	47	47
Volume Resistivity (500V)	ASTM D257	ohm.cm	2x10 ¹⁵	2x10 ¹⁵
Dielectric Strength (500V/sec)	ASTM D149	kV/mm	25	25
Dielectric Constant (60 Hz)	ASTM D150	-	2.2	2.2
Dielectric Factor (60 Hz)	ASTM D150	-	0.003	0.003

InnoPlus by GC: HDPE Natural Resin			
Properties	Test Method	Unit	Wire and Cable
			HD4010W
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.5
Density	ASTM D1505	g/cm³	0.957
Tensile Strength at Yield	ASTM D638	Kg/cm²	276
Tensile Strength at Break	ASTM D638	Kg/cm²	268
Elongation at Break	ASTM D638	%	900
Durometer Hardness	ASTM D2240	Shore D	62
Volume Resistivity (500V)	ASTM D257	ohm.cm	10 ¹⁵
Dielectric Strength (500V/sec)	ASTM D149	kV/mm	>20
Dielectric Constant (60 Hz)	ASTM D150	-	2.3
Dielectric Factor (60 Hz)	ASTM D150	-	0.0031

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Non-Woven Healthcare



Diapers



Wipes



Feminine
Napkin



Filtration



Face Mask

Non-Woven is fabric that is directly made from fibers. It has not been processed from yarn or knitted before it became a fabric.

Non-Woven can be designed with a variety of characteristics and properties to suit different applications. The variety of characteristics and properties of non-woven is due to the selection of a wide variety of fibers, both natural and artificial fibers, combined with a non-woven forming process that can be performed in many ways. Non-woven also has a fast production process when it is produced in large quantities, therefore, the production cost is low, so it can be used for disposable products. Non-woven can be made into baby or adult diapers, sanitary napkins for women, materials for cleaning medical devices, medical gown and face mask. It is widely used in healthcare, medical, automotive, packaging and other industries as well."

International Standard Compliances

	RoHS Restriction of Hazardous Substances:EU Directive 2011/65/EU		TIS 816-2565 (มอก.816) Polyethylene industrial standard		Halal Islamic law for food relate goods/product		US FDA Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©
	EU FDA Plastic Materials and Articles intended to Come into contact with food		JCII Japan Chemical Innovation and Inspection Institute.				

InnoPlus : HDPE			
Properties	Test Method	Unit	Non-Woven
			HD1010S
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	20
Density	ASTM D1505	g/cm³	0.956
Melting Temperature	ASTM D3418	°C	130
Tensile Strength at Yield	ASTM D638	kg/cm²	270
Tensile Strength at Break	ASTM D638	kg/cm²	140
Elongation at Break	ASTM D638	%	300
Vicat Softening Point	ASTM D1525	°C	122



Monofilament & Yarn



Fishing Net



Rope



Agricultural Net



Tarpaulin



Mosquito Net

InnoPlus : HDPE				
Properties	Test Method	Unit	Monofilament	High Performance Monofilament
			HD5000S	HD5800S
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.8	0.3
Density	ASTM D1505	g/cm ³	0.954	0.954
Melting Temperature	ASTM D3418	°C	134	136
Tensile Strength at Yield	ASTM D638	kg/cm ²	290	290
Tensile Strength at Break	ASTM D638	kg/cm ²	390	480
Elongation at Break	ASTM D638	%	>1,000	>1,000
Flexural Modulus	ASTM D790	kg/cm ²	12,000	11,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	17 (P*)	79 (NB*)
Vicat Softening Point	ASTM D1525	°C	125	127

Note : *C = Complete Break *P = Partial Break *NB = Non Break

Geomembrane



Water Reservoir



Mining



Biogas

InnoPlus : HDPE			
Properties	Test Method	Unit	Geomembrane
			HD6699G
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.11
Density	ASTM D1505	g/cm ³	0.942
Tensile Strength at Yield	ASTM D638	kg/cm ²	190
Tensile Strength at Break	ASTM D638	kg/cm ²	370
Elongation at Break	ASTM D638	%	850
Fluxural Modulus	ASTM D790	kg/cm ²	7,500
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	56 (NB)*
Durometer Hardness	ASTM D2240	Shore D	59
Stress Crack Resistance	ASTM D5397	hrs	>3,000
Vicat Softening Point	ASTM D1525	°C	118

Note : *C = Complete Break *P = Partial Break *NB = Non Break

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Automotive Parts

Because of durability, easy processing, possibly-renewable raw material and ability for design adjustment, plastic materials are commonly used in automotive industry.

The plastics can provide safety and stability with proper design while cheaper than metals. The global growth of plastic demand for automotive will be increasing significantly from some factors such as design ability, weight reduction, pollution emission control and design capability.

Weight reduction of vehicles can make more fuel efficiency and reduce greenhouse gas (GHG) emission in the cost-effective way.

International Standard Compliances

	IMDS International Material Data System		GADSL Global Automotive Declarable Substances List		RoHS Restriction of Hazardous Substances EU Directive 2011/65/EU		REACH
	ELV Directive End-of-Life Vehicle Directive						





Automotive Parts



Exterior



Interior



Under
The Hood



Coating



2 Wheels

InnoPlus : HDPE					
Properties	Test Method	Unit	Film	Injection	Thermoform
			HD6000F	HD1600J	HD7000H
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.16	12	0.1
MFR (190 °C, 21.6 kg)	ASTM D1238	g/10 min	-	-	10
Density	ASTM D1505	g/cm ³	0.956	0.958	0.952
Melting Temperature	ASTM D3418	°C	135	132	130
Tensile Strength at Yield	ASTM D638	kg/cm ²	260	280	280
Tensile Strength at Break	ASTM D638	kg/cm ²	370	150	400
Elongation at Break	ASTM D638	%	950	210	900
Flexural Modulus	ASTM D790	kg/cm ²	11,000	12,500	11,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	27 (NB*)	3(C*)	42 (NB*)
Durometer Hardness	ASTM D2240	shore D	65	64	63
Vicat Softening Point	ASTM D1525	°C	125	125	126
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	> 500	Initial	> 1,000
End Product			Fender (wheel arch liner)	Under body shield (Protector)	Automotive bed liner
Product Highlight			• Good processability and drawdown ability • High mechanical strength • Good stiffness • Good heat sealability	• Good processability • Good stiffness	• Outstanding mechanical strength • Good weathering resistance • Excellent product appearance

Note : *C = Complete Break *NB = Non Break

InnoPlus : HDPE					
Properties	Test Method	Unit	Blow Molding		
			HD6600B	HD6200B	
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.4	0.45	
Density	ASTM D1505	g/cm ³	0.957	0.962	
Melting Temperature	ASTM D3418	°C	135	135	
Tensile Strength at Yield	ASTM D638	kg/cm ²	320	330	
Tensile Strength at Break	ASTM D638	kg/cm ²	400	350	
Elongation at Break	ASTM D638	%	1,000	1,000	
Flexural Modulus	ASTM D790	kg/cm ²	14,000	15,000	
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	10 (P*)	12 (P*)	
Durometer Hardness	ASTM D2240	shore D	65	65	
Vicat Softening Point	ASTM D1525	°C	125	125	
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	400	60	
End Product			Reservoir Tank	Air Duct	
Product Highlight			• High environmental stress cracking resistance (ESCR) • High impact strength • Wide variety blow molding applications of small to medium size container	• Optimum balance of processability • High environmental stress cracking resistance (ESCR) • High impact strength • Wide variety blow molding applications of small to medium size container	

Note : *P = Partial Break

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InnoPlus : LLDPE			
Properties	Test Method	Unit	Injection
			LL8420A
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	20
Density	ASTM D792	g/cm³	0.924
Molded Plague Properties			
Tensile Strength at Yield	ASTM D638	MPa	15
Tensile Strength at Break	ASTM D638	MPa	10
Elongation at Break	ASTM D638	%	700
Secant Modulus	ASTM D638	MPa	310
Vicat Softening Point	ASTM D1525	°C	92
Durometer Hardness	ASTM D2240	Shore D	53
End Product			 Fender (Wheel Arch Liner)
Product Highlight			• Designed for injection molding application • Very narrow molecular weight distribution • Excellent impact strength and rigidity • Excellent processibility



Electric and Electronics

(Home Appliances)



Home Appliance



Office Automation



Electronic Packaging

Plastics are the fundamental material used for manufacture of electrical appliance components, and falling into two broad categories: thermoplastics such as polystyrene and polypropylene, which can be repeatedly melted down and remoulded and thermosets such as urea formaldehyde which, once set, cannot be remelted, making them suitable for applications where heat is encountered.

Plastics are easier to process and provide flexibility to design ergonomic devices and easily moulded and have excellent finishing which makes it an ideal choice across several applications.

The competition in the plastics market for electrical appliances is expected to heat up and intensify further with the presence of plethora of players. These players are increasingly investing in new technologies and advanced equipment to fortify their market share. The continued dominance of small and large players over the market share is making a fragmented competitive landscape in the plastics market for electrical appliances. Top players are ramping their investment on the marketing and advertisement of high margin product to increase their revenue.

International Standard Compliances



RoHS

Restriction of Hazardous Substances EU Directive 2011/65/EU



Halal

Islamic law for food relate goods/product



US FDA

Food and Drug Administration (FDA)
Specification according to US FDA 21 code of Federal regulations part 177.1520 ©



EU FDA

Plastic Materials and Articles intended to Come into contact with food



JCII

Japan Chemical Innovation and Inspection Institute.



GB9685 - 2016 (China FDA)

The Hygienic Standards for Uses of Additives in "Food Containers and Packaging Materials" under GB31603- 2015



UL 94

The Standard for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances testing, a plastics flammability standard released by Underwriters Laboratories.



DIAREX : PS						
Properties	Test Method	Unit	Grade			
			H350	H350E	H370	H950
Physical Properties						
MFR (200 °C, 5 kg)	ASTM D1238	g/10 min	3.5	2.6	5	3
Vicat Softening Point (1 kg)*	ASTM D1525	°C	104	101	100	105
Deflection Temperature* (18.56 kg/cm2)	ASTM D648	°C	78	76	74	79
Gloss (60 * Gardner)	ASTM D523	%	-	-	-	95
Mechanical Properties						
Tensile Strength at Yield	ASTM D638	lb/in2	4,250	4,000	4,000	4,900
Tensile Elongation	ASTM D638	%	55	53	40	50
Flexural Strenght	ASTM D790	lb/in2	6,000	5,500	6,500	6,500
Flexural Modulus (x10,000)	ASTM D790	lb/in2	30	30	33	30
Izod Impact Strength	ASTM D256	ft.lb/in	2	2	2	2
Rockwell Hardness	ASTM D785	Scale	R112	R112	R112	R112
Underwriter Laboratory*	UL-94		HB (1.5 mm)	HB (1.5 mm)	HB (1.5 mm)	HB (1.5 mm)
Type			HIPS High Impact	HIPS High Impact	HIPS High Impact	HIPS High Gloss
End Product			 Refrigerator accessories	 E&E tray	 Refrigerator liner and accessories liner	
			 Household appliance		 Household appliance	
			 Office automation apparatus	 Household appliance	 Office automation apparatus	
					 Air condition part	
Product Highlight			- Designed for injection molding application - Good balance between flowability and mechanical properties	- Designed for extrusion and thermoforming applications - Good balance between flowability and mechanical properties	- Designed for injection molding application - Good balance between flowability and mechanical properties	- High gloss - High impact - Good processability and heat resistance

Recommendation:
 DIAREX can be processed with recommended temperature between 190 – 240 °C and mold temperatures between 30 and 70 °C.
 Melt temperature should not exceed 260 °C.
 Note: Modifications of the processing conditions based on the variations of the product design and machine configuration.

*Data based on injection molding test pieces.



Masterbatch Carrier

Masterbatch carrier resins act as base polymers, enabling the addition of colors, fillers, functionalities and specific mechanical properties to products.

Grade	MFR	Density	Form	Application
Unit	g/10min	g/cm ³		
Standard method	ASTM D1238	ASTM D792		
HD1010J	20	0.956	Pellet	HDPE Masterbatch Carrier
LD2420K	4	0.924	Pellet	LDPE Masterbatch Carrier
LL8420A	20	0.924	Pellet	LLDPE Masterbatch Carrier
LL8420AB	20	0.924	Powder	LLDPE Masterbatch Carrier

LL8420AB

was grinded from LL8420A to

- ✓ Higher pigment, filler, additive dosage content
- ✓ Increase compatibility with pigment, filler, additive
- ✓ Well-controlled particle size distribution
- ✓ Smaller particle size of powder enhances pigment wettability
- ✓ No contamination with specific grinding production line
- ✓ Good flowability for good mixing with pigment, filler, additive

PE Wax



PVC



Color/Filler
Masterbatch

Polyethylene homopolymer wax is synthetic wax derived from high-density polyethylene (HDPE), slurry process technology.

Grade	Product Form	Viscosity at 149 °C	Dropping Point	Penetration Index	Type
Unit		cPs	°C	d.mm	
Standard method		ASTM D3236	ASTM D3954	ASTM D1321	
NW1004P	Powder	≤ 40	113	> 3	Polyethylene Homopolymer Wax
NW1030F	Flake	100 - 300	116	> 3	Polyethylene Homopolymer Wax
NW1080F	Flake	301 - 800	116	> 3	Polyethylene Homopolymer Wax

Energy Saving Solution



X PURGE Purging Compound

X PURGE by GC is high efficiency ready-to-use purging compound which provides fast and effective color, material change and contaminant removal in the machine without disassemble. X PURGE by GC will reduce machine downtime and/or maximize productivity. This product is designed for cleaning various types of the machines i.e., injection molding machines, blow molding machine, blown film machine, sheet casting machine, sheet/profile extrusion machine.

International Standard Compliances

	US FDA Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©		RoHS Restriction of Hazardous Substances EU Directive 2011/65/EU		REACH
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X PURGE GRADE	Recommend Temperatural and Material				Type of Machine		Feature
	140-240°C	200-240°C	240-290°C	290-340°C	Injection	Extrusion	
GX168	PVC,TPE, PE				✓	✓	General Grade
EX20T		POM, PP, PS, ABS, PC/ABS PA6, PBT, PA6 +GF		PA66+GF, LCP	✓	✓	High Heat Stability
PX319		PE, PP, PS, ABS, PC/ABS PA6, PBT, PA6 +GF			✓		Low smoke and Smell Superior Efficiency

Comply with US. FDA. RoHS and REACH regulation

GUIDELINE OF X PURGE FOR INJECTION MACHINE

Recommended quantity of  according to the clamping force.

Clamping Force (Ton)	Recommended Quantity (kg)
100	1.5
200	3
550	6
750	8
1,200	15

GUIDELINE OF X PURGE FOR BLOW MOLDING, BLOWN FILM AND EXTRUSION MACHINE

Recommended quantity of  according to screw diameter.

Screw Diameter (mm)	Recommended Quantity (kg)
60	10
80	14
100	20
120	25

Remark:
- Recommended quantity calculated base on single screw extruder with L/D ratio 24.
- Blending with resin at ratio 50:50 is recommended for the best cleaning
- The actual amount required may depending on equipment and material



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Date as of 30 June 2026