

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.



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
Metallocene 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.

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				

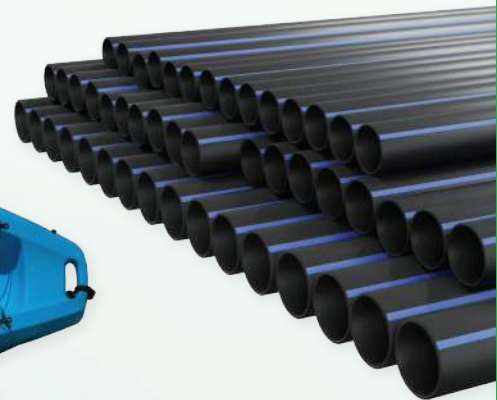
Only for (*)



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/cm ³	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

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose. All above values are typical values, not to be construed as specification.



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

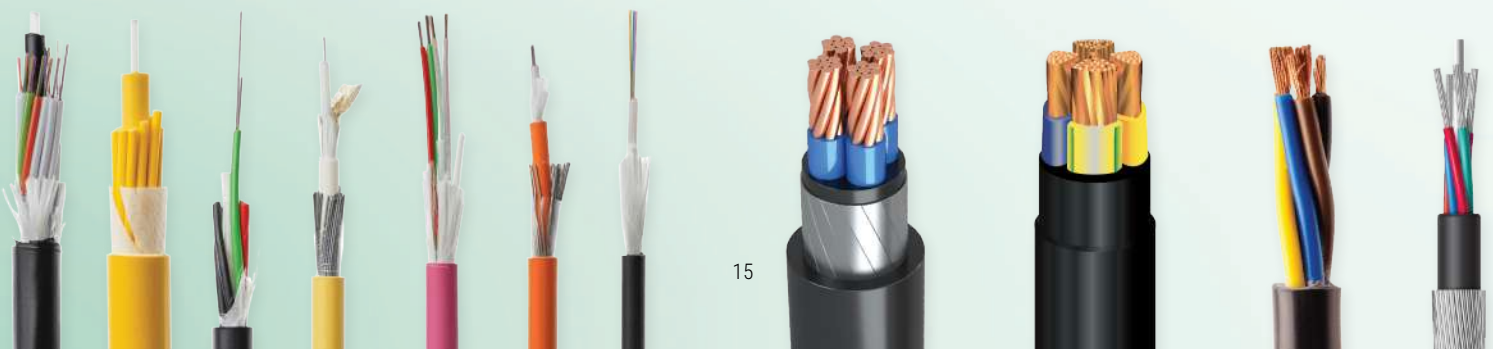
Medium Density Polyethylene Black Compound Resin			
Properties	Test Method	Unit	PlastMate MD501WB
Physical and Mechanical Properties			
MFR (190 °C, 2.16 kg)	ISO 1133	g/10 min	0.8
Density	ISO 1183	g/cm³	0.948
Carbon Black Content	ISO 6964	%	2.5
Tensile Strength	ISO 527	MPa	31
Elongation at Break	ISO 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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Chemistry For Better Living





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for Polymer Products



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Date as of 30 June 2026