



## Sales Office

### GC MARKETING SOLUTIONS COMPANY LIMITED

555/1 Energy Complex Building A, 9th Fl, Vibhavadi Rangsit Road, Chatuchak, Bangkok 10900 THAILAND

+66 (0) 2-140-4488  
+66 (0) 2-140-4333

### GC MARKETING SOLUTIONS VIETNAM COMPANY LIMITED

Ho Chi Minh City, Vietnam Unit 5.02, 5.03 and 5.04, 5th Floor, Deutsches Haus Ho Chi Minh-Stadt, No. 33 Le Duan Street, Ben Nghe Ward, District 1, Ho Chi Minh City, Vietnam

+8428 38 233611  
+84-28-3823-3722

### GC MARKETING SOLUTIONS COMPANY LIMITED (GUANGZHOU REPRESENTATIVE OFFICE)

Guangzhou, China  
China Shine Office Building Unit 3803, Building A, No.9 Linhexi Road, Tianhe District, Guangzhou 510620 China

+86-20-8558-9250  
+86-20-8558-9240

### GC MARKETING SOLUTIONS COMPANY LIMITED (SHANGHAI REPRESENTATIVE OFFICE)

Shanghai, China  
Room no. 13-012, 13th floor, HangSeng Bank Tower 1000 Lujiazui Ring Road, Pudong New Area, Shanghai 200120 China

+86-21-2025-2811  
+86-21-2025-2808

### GCM POLYMER TRADING DMCC

Dubai, United Arab Emirate  
Unit 406, Indigo Tower, Plot No. JLT-PH1-D1A, Jumeirah Lakes Towers, Dubai, U.A.E.

+971-4-423-0774  
+971-4-423-0773

### GC MARKETING SOLUTIONS MYANMAR COMPANY LIMITED

192 Kaba Aya Pagoda Road  
Unit 05, 14th Floor, Tower 1, Myanmar Centre Tower Bahan Township, Yangon, Myanmar

+ 95 19345411-2

### PT GCM MARKETING SOLUTIONS INDONESIA

Gold Coast Office, Eiffel Tower Lt. 3 Unit A&T, Jl. Pantai Indah Boulevard, Pantai Indah Kapuk, RT 6/RW 2, Jakarta Utara 14470 Indonesia



[www.gcmgrp-techinfo.com](http://www.gcmgrp-techinfo.com)



# Flexible Packaging Solutions

Updated as of June 2021



# Company Introduction



## PTT Global Chemical Public Company Limited



PTT Global Chemical Public Company Limited, or GC, Thailand's largest integrated petrochemical and refining business and a leading corporation in the Asia-Pacific region, both in size and product variety. GC has a combined olefins and aromatics capacity of 11.28 million tons/year. We committed to creating chemical innovations for a better future. We strongly support technological advances that meet today's lifestyles through products that span several sectors including automobiles, construction, medical products, electric and electronic equipment, agricultural products, environmentally friendly, and safe consumer products that benefit society and improve consumer satisfaction.

[www.pttggroup.com](http://www.pttggroup.com)

## GC Marketing Solutions Company Limited



GC Marketing Solutions Company Limited, or GCM, a subsidiary of PTT Global Chemical Company Limited (GC). GCM is a major polymer sales and marketing company in Thailand. We offer variety of high-quality polymers such as high density polyethylene (HDPE), low density polyethylene (LDPE), linear low density polyethylene (LLDPE), polypropylene (PP), polystyrene (PS) and polyethylene terephthalate (PET). Our products are distributed throughout Thailand as well as being exported to more than 100 countries around the world with the product and services qualities are well accepted by our customers internationally.

[www.gcmgrp.com](http://www.gcmgrp.com)

## GC Logistics Solutions Company Limited



GC Logistics Solutions Company Limited, or GCL, a subsidiary of PTT Global Chemical Public Company Limited (GC). GCL is full logistics service for chemical business and other products. The services is including silo, bagging & packing, warehouse management, transportation, freight forwarding, and customs clearance etc. We are committed to strengthen our client's competitive advantage though high quality services, advanced technology and competitive cost.

[www.gc-logistic.com](http://www.gc-logistic.com)





# Product Introduction

## Business Trends

The trend in flexible packaging is led by growth of e-commerce, rapidly changing customer preferences such as health and wellness trend, increase in convenience, increased price awareness and trend of increasing pressure on sustainable packaging. Therefore, the packaging with maintain food freshness (e.g. shelf life extension bag for vegetable), lightweight, convenience design, down-gauging, more sustainable with high performance, design for recycling (e.g. MDOPE, BOPE), increased recycled content (e.g. PCR material) are popular and high demand growth.

## Value Chain



### Film Producer (Converter)

#### Benefit to Film Producer (Production Perspective) :

Our InnoPlus resin are well controlled in quality to provide an advantage of processability, product stability and product consistency which essential for produce high quality film from blown film and cast film extrusion technique.

### Laminator and Printer

#### Benefit to Film Producer (Film Producer Perspective) :

Our InnoPlus resin are well controlled in quality to provide an advantage of processability, product stability and Product consistency which essential for produce high quality film for use in lamination and printing process.

### Brand Owner

#### Benefit to Brand Owner (Owner Perspective) :

Our InnoPlus resin deliver high quality advantages of good mechanical properties & good film appearance and because of safety is major required for food packaging InnoPlus product strongly committed to producing film grade resin a safe, functional and legal product by obtaining globally recognized certification which strengthen the brand equity.

### End Use Customer

#### Benefit to End Use Customer (User Experience Perspective) :

Our InnoPlus resin obtaining globally recognized certification (such as food-grade regulation etc.) which enhanced customer confident in safe and good product properties.



# Solutions

## Product Quality

Because the quality and safety are major required for beverage packaging, we are strongly committed to producing InnoPlus film grade resin a safe, functional and legal product by obtaining globally recognized certification.



InnoPlus PE for film is manufactured under International ISO 9001 / ISO 14001 / OHSAS 18001 standard and strictly control for Good Manufacturing Practices (GMP) and Hazard Analysis and Critical Control Point (HACCP) standard. They also meet with international standard regulations in contact with food application such as U.S FDA 21 CFR 177.1520 and EC1935/2004, EU10/2011 and its amendments. In particular country, Additionally, they comply with HALAL for Muslim country, JCI for Japan, GB 9685-16 for China and TIS 816-2556 for Thailand.

## Service Quality

We are also strongly committed to handle and deliver flexible packaging resin. We storage the resin in International Distribution Center (IDC) is one of the largest in the Southeast Asian region. It is over 140,000 sq.m. in size and has a capacity to handle the production and delivery of over 1 million tons of polymer per year with most advanced technology under top quality management.

We provide fully logistics with highly effective integrated Transportation Management System (TMS) spanning across transportation network design, routes selection, vehicle scheduling and freight management to ensure the best results.



## How to Handling and Storage

### Handling

- Use good housekeeping for safe handling of the product.
- No smoking, open flames or source of ignition drinking or eating in handling and store area.
- Avoid spilling the product, as this might cause falls.
- Potential toxic/irritating fumes may be evolved from heated material. Provide appropriate ventilation for such processing conditions.
- Take precautionary measures against explosion risks, as all types of polymers may develop dust during transporting or grinding of granules.

### Storage

- Store away from heat, ultraviolet and direct sunlight in a dry, cool and well-ventilated area.
- Take precautionary measures to prevent the formation of static electricity.
- Do not store together with oxidizing and self-igniting products.

## Film Grade by Product Segments

Grade	Food and Beverage	Personal Care and Cosmetics	Home Care	Industrial
HD6000F	●			
HD7000F	●			
HD8000F	●			●
HD3355F	●	●	●	
HD6100F				
LL7410A	●	●	●	●
LL7410D	●	●	●	●
LL7410D1	●	●	●	●
LL7410D2	●	●	●	●
LL7410G1	●	●	●	●
LL7420A		●	●	●
LL7428A		●	●	●
LL7810A	●	●	●	●
LL7810D	●	●	●	●
LL7835A		●	●	●
LL7910A	●	●	●	●
LD2420D	●			●
LD2420F	●			●
LD2420H	●	●	●	●
LD2426H	●	●	●	●
LD2420K	●			
LD2426K	●			
LD2026K	●			

## GRADE Selection : HDPE

Film Properties	Test Method	HD6000F	HD7000F	HD8000F	H3355F	HD6100F
Tensile Strength at Break :kg/cm2	ASTM D638	370	390	320	370	440
Elongation at Break (MD/TD) : %	ASTM D638	950	820	790	>1000	1000
Notched Izod Impact Strength: kg.cm/cm	ASTM D256	27 (NB)*	30	52 (NB)*	14	37 (NB)*
Flexural Modulus: kg/cm2	ASTM D790	11000	12000	12500	11000	12000
Vicat Softening Point: °C	ASTM D1525	125	125	123	122	127

For more information : [www.gcmgrp-techinfo.com](http://www.gcmgrp-techinfo.com)

## GRADE Selection : LLDPE

Film Properties	Test Method	LL7410A	LL7410D	LL7410D1	LL7410D2
Tensile Strength at Break (MD/TD): MPa	ASTM D882	34/26	34/26	34/26	34/26
Elongation at Break (MD/TD) : %	ASTM D882	600/800	600/800	600/800	600/800
1% Secant Modulus (MD/TD):MPa	ASTM D882	190/230	190/230	190/230	190/230
Dart Impact Strength : g	ASTM D1709	100	100	90	90
Tear Strength (MD/TD) : g	ASTM D1922	100/300	100/300	100/300	100/300
Vicat Softening Point (°c)	ASTM D1525	100	100	101	100
Gloss (45°)	ASTM D2457	55	50	50	50
Haze%	ASTM D1003	10	17	13	20
Special Feature	ASTM D1003	-	High Slip & Antiblock	Low Slip & Antiblock	Very high Slip & Antiblock

For more information : [www.gcmgrp-techinfo.com](http://www.gcmgrp-techinfo.com)

## GRADE Selection : LLDPE

Film Properties	Test Method	LL7410G1	LL7420A	LL7420D	LL7420D1	LL7428A	LL7610A	LL7610D1	LL7625A
Tensile Strength at Break (MD/TD): MPa	ASTM D882	34/26	31/23	31/23	31/23	30/23	40/30	40/30	30/30
Elongation at Break (MD/TD) : %	ASTM D882	600/800	600/800	600/800	600/800	600/800	650/750	650/750	750/800
1% Secant Modulus (MD/TD):MPa	ASTM D882	190/230	195/220	195/230	200/200	250/300	250/300	250/300	250/300
Dart Impact Strength : g	ASTM D1709	90	85	85	90	180	180	180	120
Tear Strength (MD/TD) : g	ASTM D1922	100/300	100/300	100/300	100/300	350/500	350/500	350/500	250/500
Vicat Softening Point (°c)	ASTM D1525	101	97	97	95	100	100	100	99
Gloss (45°)	ASTM D2457	50	50	50	45	35	35	30	20
Haze%	ASTM D1003	11	10	20	15	13	13	13	19
Special Feature		Low Slip & Antiblock	-	High Slip & Antiblock	Low Slip & Antiblock	-	-	Low Slip & Antiblock	-

For more information : [www.gcmgrp-techinfo.com](http://www.gcmgrp-techinfo.com)

## GRADE Selection : mLLDPE

Film Properties	Test Method	LL7810A	LL7810D	LL7810D2	LL7820A	LL7820D	LL7835A	LL7903A	LL7905A	LL7910A
Tensile Strength at Break (MD/TD) : MPa	ASTM D882	50/50	54/54	50/50	45/50	43/45	45/40	40/44	45/45	60/53
Elongation at Break (MD/TD) : %	ASTM D882	700/800	600/710	610/650	675/700	675/670	850/900	500/700	500/650	490/675
1% Secant Modulus (MD/TD):MPa	ASTM D882	200/230	230/290	250/290	230/290	265/295	230/250	310/370	230/270	191/224
Dart Impact Strength : g	ASTM D1709	>423	>423	>423	>423	>423	140	140	270	206
Tear Strength (MD/TD) : g	ASTM D1922	300/400	300/400	300/400	300/450	300/450	300/400	90/600	150/450	250/450
Vicat Softening Point (°C)	ASTM D1525	106	107	107	105	105	105	114	106	106
Gloss (45°)	ASTM D2457	35	49	40	45	50	27	55	50	62
Haze%	ASTM D1003	13	15	20	13	15	19	20	15	8
Special Feature		-	Medium Slip & Antiblock	High Slip & Antiblock	-	Medium Slip & Antiblock	-	-	-	-

For more information : [www.gcmgrp-techinfo.com](http://www.gcmgrp-techinfo.com)

## GRADE Selection : LDPE

Film Properties	Test Method	LD2420D	LD2420F	LD2420H	LD2426H	LD2420K	LD2426K	LD2026K
Tensile Strength at Break (MD/TD): MPa	ISO 527	28/27	25/20	23/20	23/20	20/18	20/18	19/17
Elongation at Break (MD/TD) : %	ISO 527	450/700	400/700	500/700	500/700	560/700	500/630	560/700
Dart Impact Strength : g	ASTM D1709	220	170	140	150	130	120	120
Vicat Softening Point (°C)	ASTM D1525	96	94	93	93	93	93	86
Haze%	ASTM D2457	8	6	6	7	7	8	6
Gloss (20°)		50	60	80	80	90	90	70
Special Feature		-	-	-	Slip & Antiblock	-	Slip & Antiblock	Slip & Antiblock

For more information : [www.gcmgrp-techinfo.com](http://www.gcmgrp-techinfo.com)