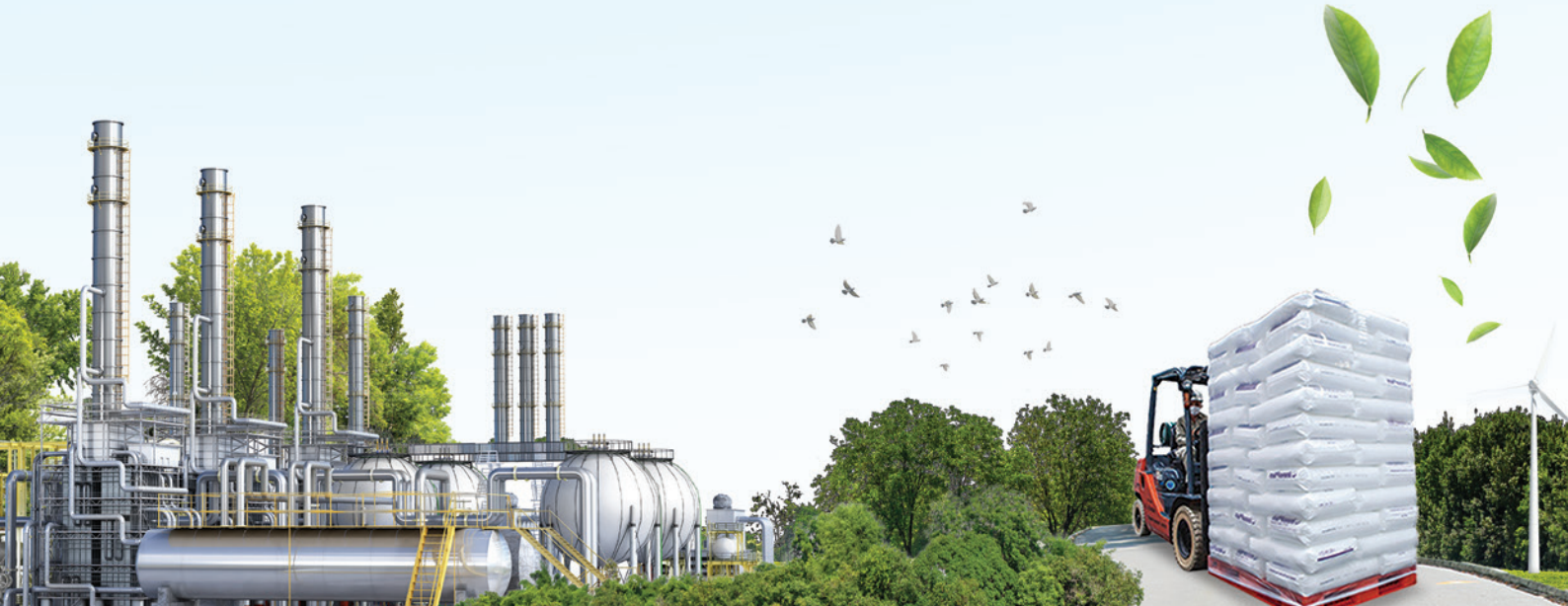
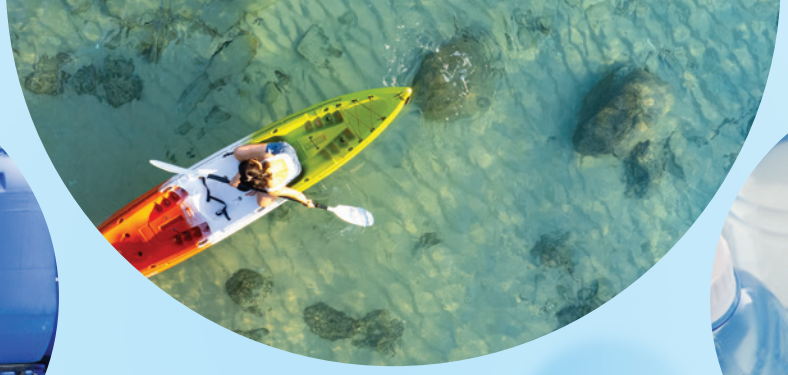
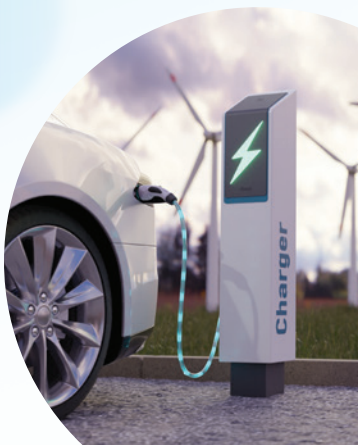
Product Solutions

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

InnoPlus is a registered trademark of PTT Global Chemical Public Company Limited (GC). GC manufactures Polyethylene (PE), nameplate capacity at 1,950,000 MTA per year and Polyethylene Terephthalate (PET) nameplate capacity at 200,000 MTA per year.

HDPE

InnoPlus High Density Polyethylene (HDPE) has a total production capacity at 850 KTPA. 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 i.e., U.S FDA 21 CFR 177.1520 and EU 10/2011. InnoPlus HDPE also meet the Restriction of Hazardous Substances (RoHS) according to 2002/95/EC

LLDPE

InnoPlus Linear Low Density Polyethylene (LLDPE) has a total production capacity at 400 KTPA. This technology can provide a wide range of LLDPE products.

LDPE

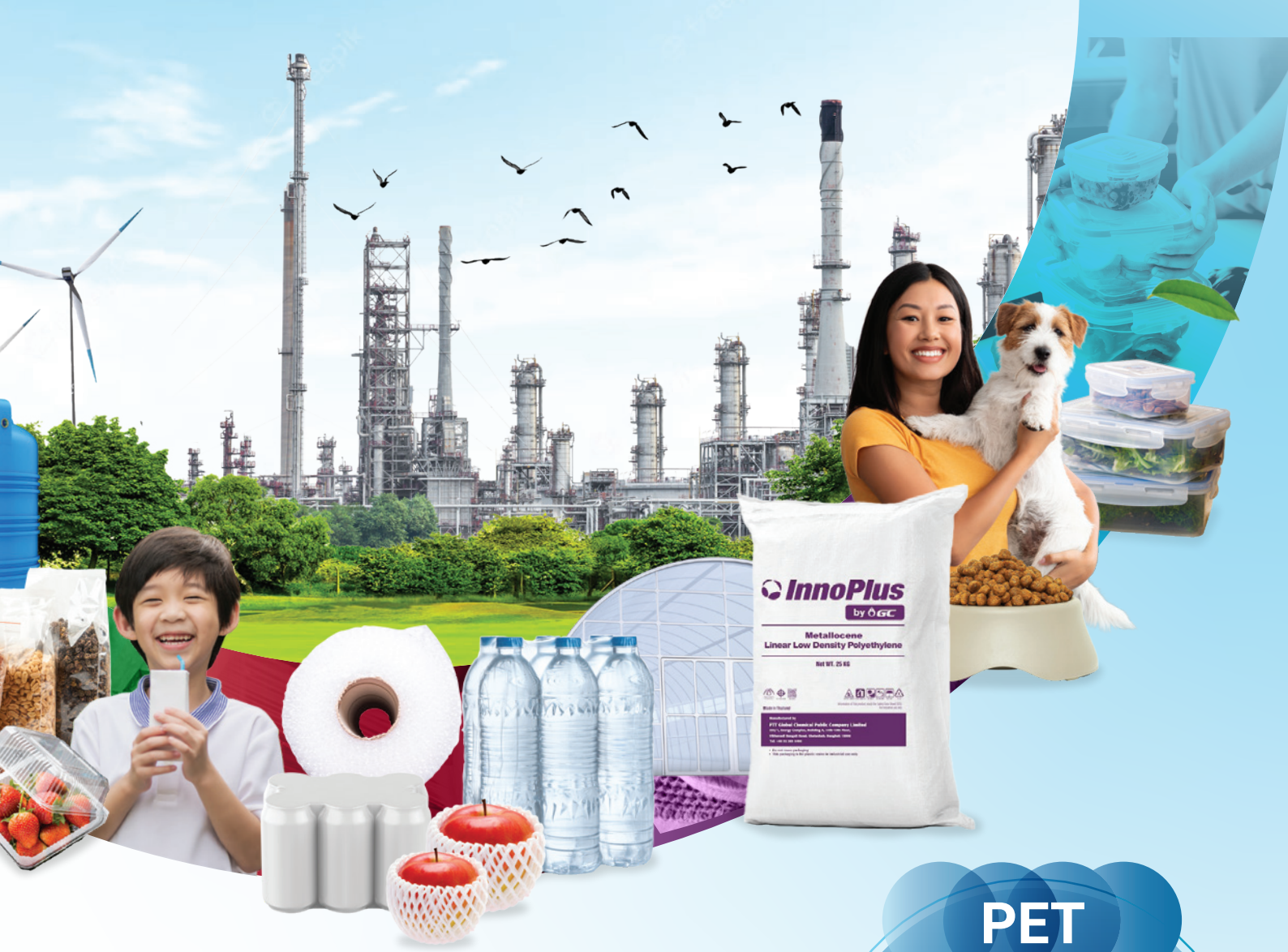
InnoPlus Low Density Polyethylene (LDPE) has a total production capacity of 300 KTPA. InnoPlus LDPE is produced by a high pressure tubular process, a technology licensed by LyondellBasell.

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



mLLDPE

InnoPlus Metallocene Low Density Polyethylene (mLLDPE) has a total production capacity at 400 KTPA. InnoPlus mLLDPE is produced by low pressure polymerization, using gasphase of Unipol Process under the license of Univation Technolog who is leading global technology licensor of proven metallocene PE technology. These unconventional mLLDPE from variety of catalyst offer a superior puncture and draft impact resistance, good seal ability and excellent optical property. InnoPlus mLLDE is widely used for cast and blown film applications.

PET

InnoPlus Polyethylene Terephthalate (PET) has total production capacity at 200 KTPA. InnoPlus PET is produced by the leading technological know-how of Lurgi Zimmer GMBH (Germany) and Bühler 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 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 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 tons of recycled plastic resins each year.

Consisting of 30,000 tons of PCR PET resin and 15,000 tons of PCR HDPE resin.

DIAREX is a registered trademark of PTT Global Chemical Public Company Limited for Polystyrene (GPPS and HIPS).

The capacity of GPPS and HIPS are 60,000 MTA and 30,000 MTA, totally 90,000 MTA. Furthermore, we offer a wide range of Diarex grade with various properties for using in injection molding or extrusion process.

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

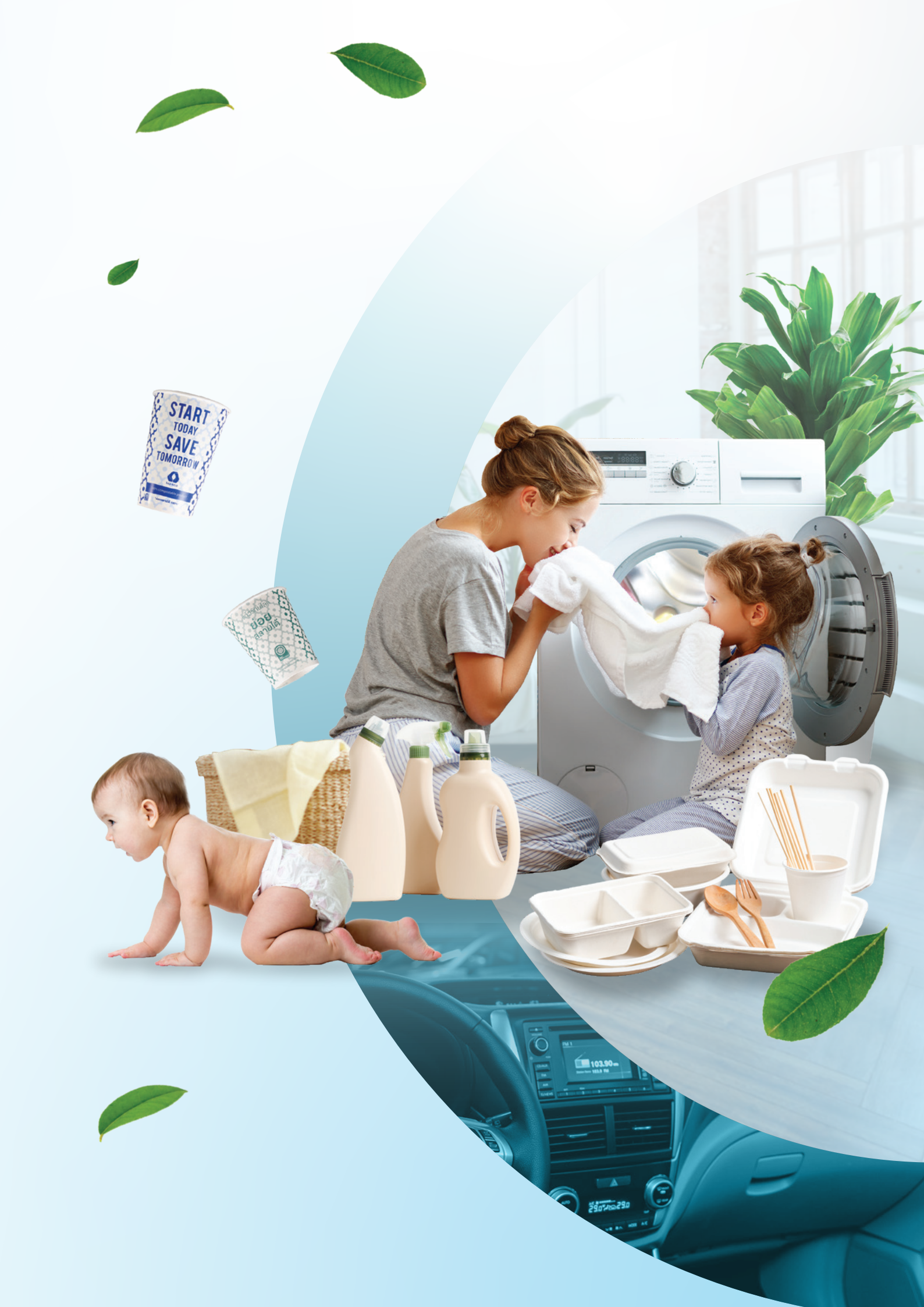
X PURGE is a high efficiency ready-to-use purging compound which provides fast and effective color, material change and contaminant removal in the machine without disassembly. X PURGE will reduce machine downtime and/or maximize productivity. This product is designed for cleaning various types of the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

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.


START
TODAY
SAVE
TOMORROW

Solutions

For Every Product Applications

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

Agricultural

Agricultural Film

Monofilament & Yarn

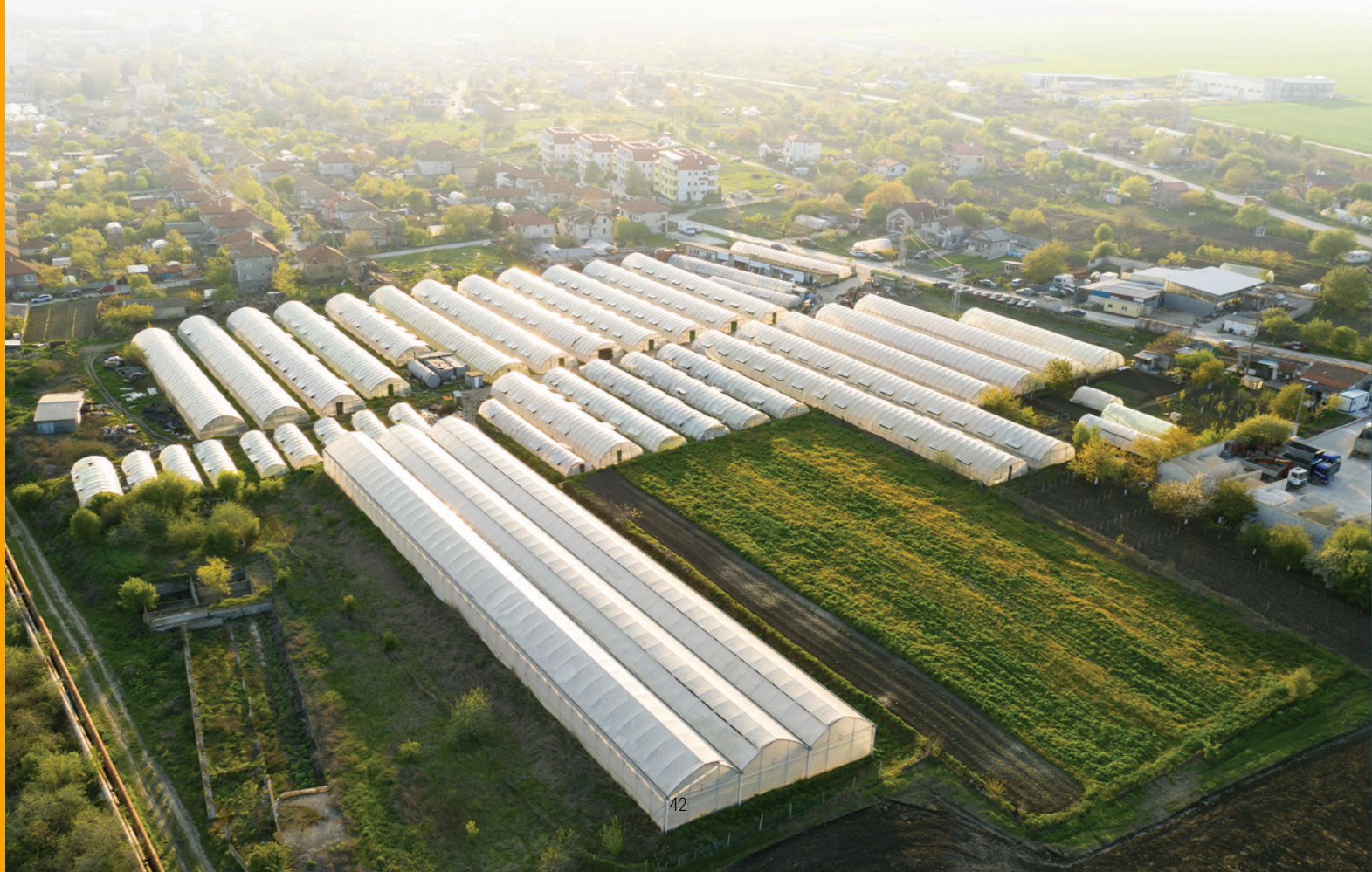
Agricultural film has been designed to be durable and has many qualifications such as reflection of UV and heat.

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, nusery bags, plant tray and etc. by focusing on incresing productivity, convenience, easiness and durability.

International Standard Compliances

RoHS COMPLIANT	**RoHS** Restriction of Hazardous Substances:EU Directive 2011/65/EU
มอก. 816-2556	**TIS 816-2556* (มอก.816)** Polyethylene industrial standard
THE ISLAMIC COMMITTEE OFFICE OF THAILAND	**Halal** Islamic law for food relate goods/product
FDA	**US FDA** Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©
efsa European Food Safety Authority	**EU FDA** Plastic Materials and Articles intended to Come into contact with food
JCII	**JCII** Japan Chemical Innovation and Inspection Institute.
PHTHALATE FREE	**Phthalate Content** According to ASTM D3421-1975
GB	**GB9685 - 2016 (China FDA)** The Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials* under GB31603- 2015

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



Agricultural Film

Agricultural

InnoPlus: LLDPE					
Properties	Test Method	Unit	C6-LLDPE Film		
			LL7610A[1]	LL7610D1[1]	LL7625A[1]
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	1	1	2.5
Density	ASTM D792	g/cm³	0.918	0.920	0.919
Film Properties					
Tensile Strength at Break (MD)	ASTM D882	MPa	40	40	30
Tensile Strength at Break (TD)	ASTM D882	MPa	30	30	30
Elongation at Break (MD)	ASTM D882	%	650	650	750
Elongation at Break (TD)	ASTM D882	%	750	750	800
1% Secant Modulus (MD)	ASTM D882	MPa	250	250	250
1% Secant Modulus (TD)	ASTM D882	MPa	300	300	300
Dart Impact Strength	ASTM D1709	g	180	180	120
Tear Strength (MD)	ASTM D1922	g	350	350	250
Tear Strength (TD)	ASTM D1922	g	500	500	500
Vicat Softening Point	ASTM D1525	°C	100	100	100
Gloss (45 °)	ASTM D2457	-	35	30	20
Haze	ASTM D1003	%	13	13	19
Additive			-	Low Slip & Antiblock	-

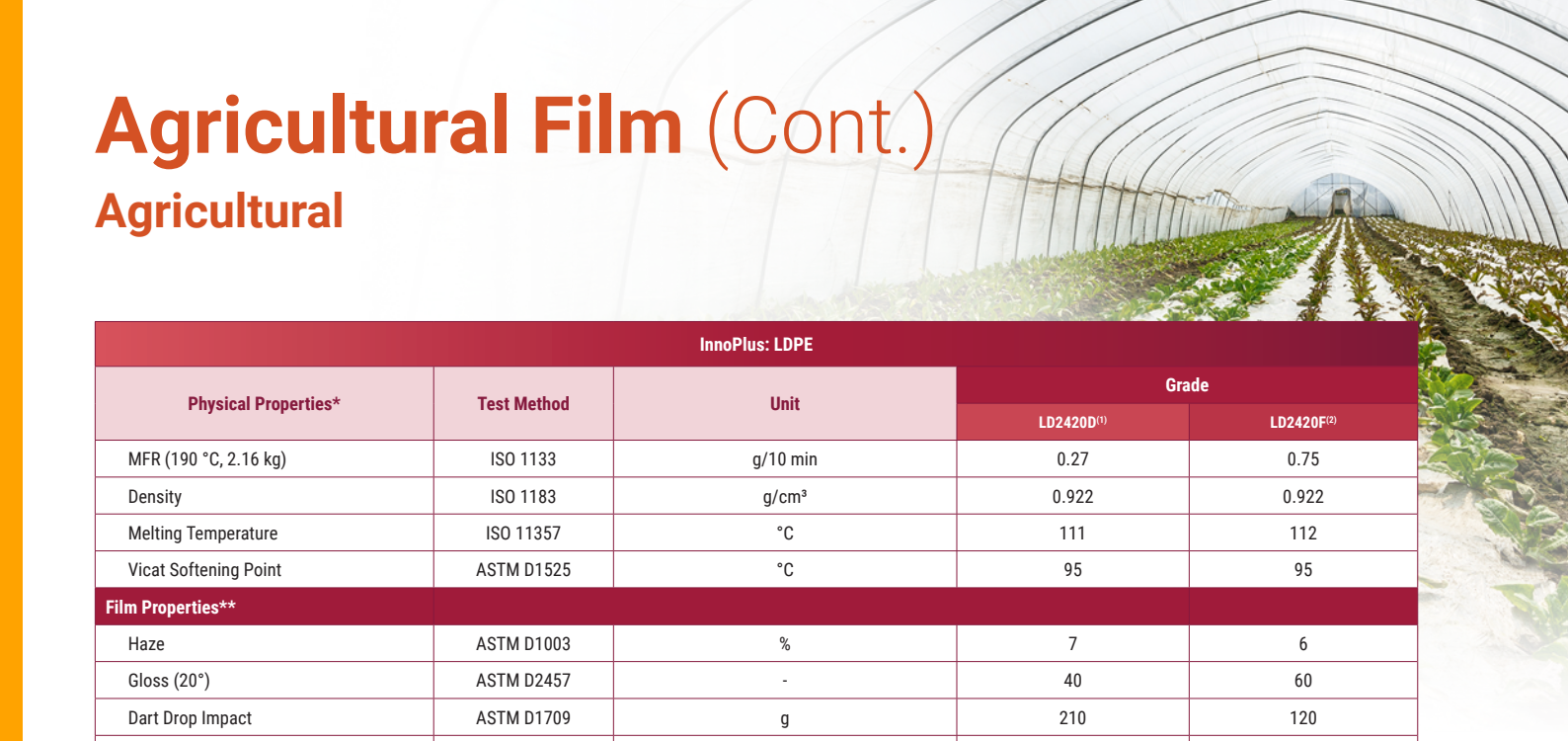
Note :
(1) Flim properties obtained from 25 microns film which was blown film extruded at blow up ration 2.5
(2) Film properties obtained from 25 microns film which was casted film

InnoPlus: LDPE			
Properties	Test Method	Unit	Grade
			LD1840D
Physical Properties (Based on pellets and press-molded sheet)			
Melt Flow Rate (190 °C, 2.16 kg)	ISO 1133	g/10 min	0.22
Density	ISO 1183	g/cm³	0.92
Melting Point	ISO 11357	°C	111
Vicat softening point	ASTM D1525	°C	93
Film Properties* (Based on blown film)			
Max. Tensile Strength (MD)	ISO 527	MPa	25
Max. Tensile Strength (TD)	ISO 527	MPa	25
Ultimate Elongation (MD)	ISO 527	%	500
Ultimate Elongation (TD)	ISO 527	%	750
Dart Drop Impact	ASTM D1709	g	250
Tear Resistance (MD)	ASTM D1922	gf	280
Tear Resistance (TD)	ASTM D1922	gf	350
Haze	ASTM D1003	%	8
Gloss (20 °)	ASTM D2457	-	37

* film properties obtained from 70 microns film which was blown film extruded at blow up ratio 2.0
Recommendation: The recommended temperature setting is in the range of 170 -220 °C

Agricultural Film (Cont.)

Agricultural



InnoPlus: LDPE				
Physical Properties*	Test Method	Unit	Grade	
			LD2420D[1]	LD2420F[2]
MFR (190 °C, 2.16 kg)	ISO 1133	g/10 min	0.27	0.75
Density	ISO 1183	g/cm³	0.922	0.922
Melting Temperature	ISO 11357	°C	111	112
Vicat Softening Point	ASTM D1525	°C	95	95
Film Properties**				
Haze	ASTM D1003	%	7	6
Gloss (20°)	ASTM D2457	-	40	60
Dart Drop Impact	ASTM D1709	g	210	120
Max. Tensile Strength (MD)	ISO 527	MPa	24	23
Max. Tensile Strength (TD)	ISO 527	MPa	22	18
Ultimate Elongation (MD)	ISO 527	%	440	350
Ultimate Elongation (TD)	ISO 527	%	670	630

* 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.

InnoPlus: mLLDPE										
Properties	Test Method	Unit	Metallocene LLDPE Film							
			LL7810A[1]	LL7810D[1]	LL7820D[1]	LL7835A[1]	LL7835A[2]	LL7903A[1]	LL7910A[1]	LL7910D[1]
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	1	1	2	3.5	3.5	0.3	1	1.0
Density	ASTM D792	g/cm³	0.918	0.920	0.920	0.920	0.920	0.927	0.918	0.920
Film Properties										
Tensile Strength at Break (MD)	ASTM D882	MPa	50	54	43	45	61	40	60	40
Tensile Strength at Break (TD)	ASTM D882	MPa	50	54	45	40	43	44	53	50
Elongation at Break (MD)	ASTM D882	%	700	600	650	850	610	500	490	575
Elongation at Break (TD)	ASTM D882	%	800	710	670	900	630	700	675	710
1% Secant Modulus (MD)	ASTM D882	MPa	200	230	265	230	185	310	191	200
1% Secant Modulus (TD)	ASTM D882	MPa	230	290	295	250	200	370	224	225
Dart Impact Strength	ASTM D1709	g	> 423	> 423	> 423	140	200	140	206	245
Tear Strength (MD)	ASTM D1922	g	300	300	300	300	210	90	250	280
Tear Strength (TD)	ASTM D1922	g	400	400	450	400	400	600	450	450
Vicat Softening Point	ASTM D1525	°C	106	107	105	105	105	114	106	104
Gloss (45 °)	ASTM D2457	-	35	49	50	27	81	55	62	60
Haze	ASTM D1003	%	13	15	15	19	3.9	20	8	9
Additive			-	High Slip & Antiblock	High Slip & Antiblock	-	-	-	-	High Slip & Antiblock

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

Monofilament & Yarn

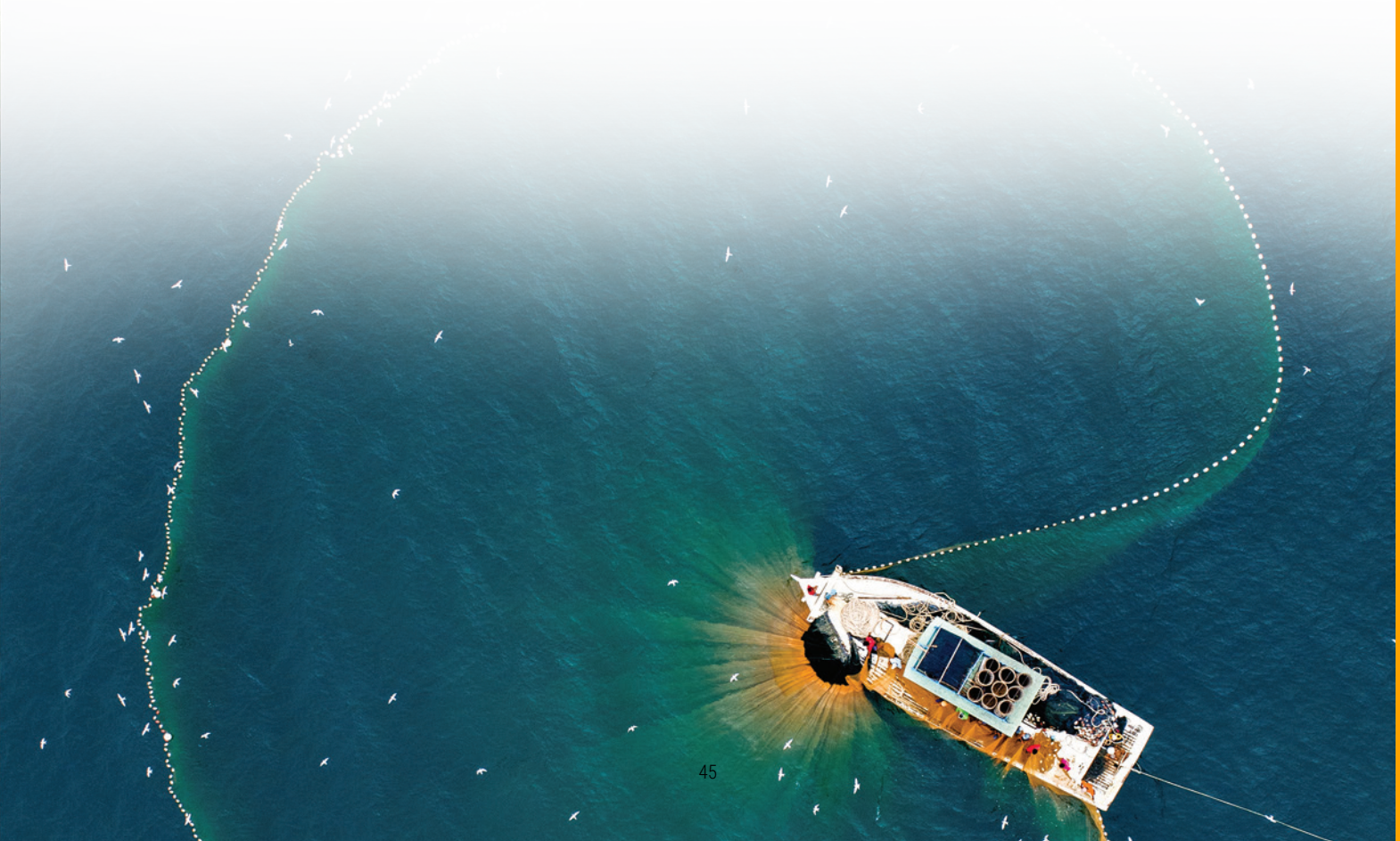
Agricultural

Fishing Net | Rope | Agricultural Net | Tarpaulin

InnoPlus: HDPE			
Properties	Test Method	Unit	Monofilament
			HD5000S
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.8
Density	ASTM D1505	g/cm³	0.954
Melting Temperature	ASTM D3418	°C	134
Tensile Strength at Yield	ASTM D638	kg/cm²	290
Tensile Strength at Break	ASTM D638	kg/cm²	390
Elongation at Break	ASTM D638	%	> 1,000
Flexural Modulus	ASTM D790	kg/cm²	12,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	17 (P*)
Vicat Softening Point	ASTM D1525	°C	125

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

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.



GC

Chemistry For Better Living

Website

Contact Us

Technical Document for Polymer Products

LINE Official Account

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Date as of December 2023