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.

Construction

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.

Wires and Cables

The growth factors of wires and cables 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 816-2556* (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 ©

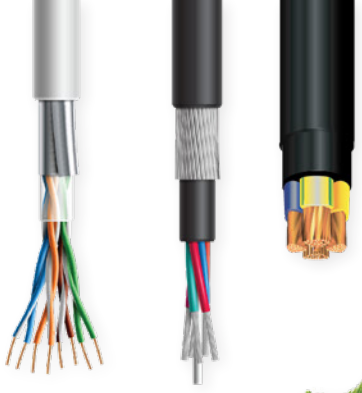
JCII
Japan Chemical Innovation and Inspection Institute.

GB9685 - 2016 (China FDA)
The Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials* under GB31603- 2015

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

Only for (*)

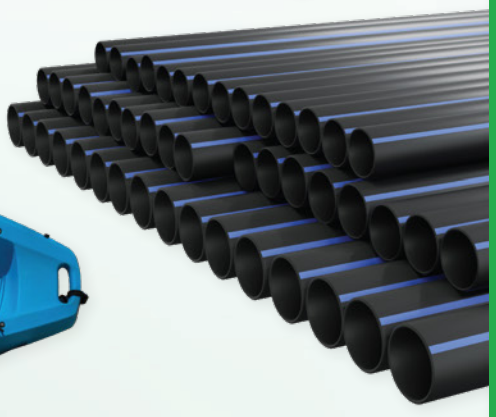










Rotational Molding Resin

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	LL9641U/ LL9641UP	LL9641U1/ LL9641U1P	LL9640U/ LL9640UP	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	7
Density	ASTM D792	g/cm³	0.938	0.938	0.938	0.938	0.932	0.935	0.934
Brittleness Temperature	ASTM D746	°C	<-70	<-70	<-70	<-70	<-70	<-70	<-70
Vicat Softening Point	ASTM D1525	°C	118	118	118	118	110	114	111
Heat Distortion Temperature at 0.455 MPa	ASTM D648	°C	60	60	60	60	54	55	54
Mechanical Properties (Compression Specimens)									
Tensile Strength at Yield	ASTM D638	MPa	20	20	20	20	15	17	18
Tensile Strength at Break	ASTM D638	MPa	30	30	25	25	25	24	16
Elongation at Break	ASTM D638	%	1,000	1,000	950	950	1,000	1,000	700
Flexural Modulus	ASTM D790	MPa	750	750	750	750	550	600	600
Durometer Hardness	ASTM D2240	Shore D	57	60	57	57	56	56	56
ESCR; 25% Igepal, F_{50}	ASTM D1693	Hours	> 1,000	> 1,000	> 500	> 500	> 1,000	-	-
Arm Impact Strength at -40 °C (3mm Rotomolded sample)	ARM Method	J	65	67	71	71	74	58	54
UV Resistance Level			UV20	UV8	UV8	UV12	UV8	UV8	UV8

PCR
Rotational Molding
Construction

Furniture &
Playground

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

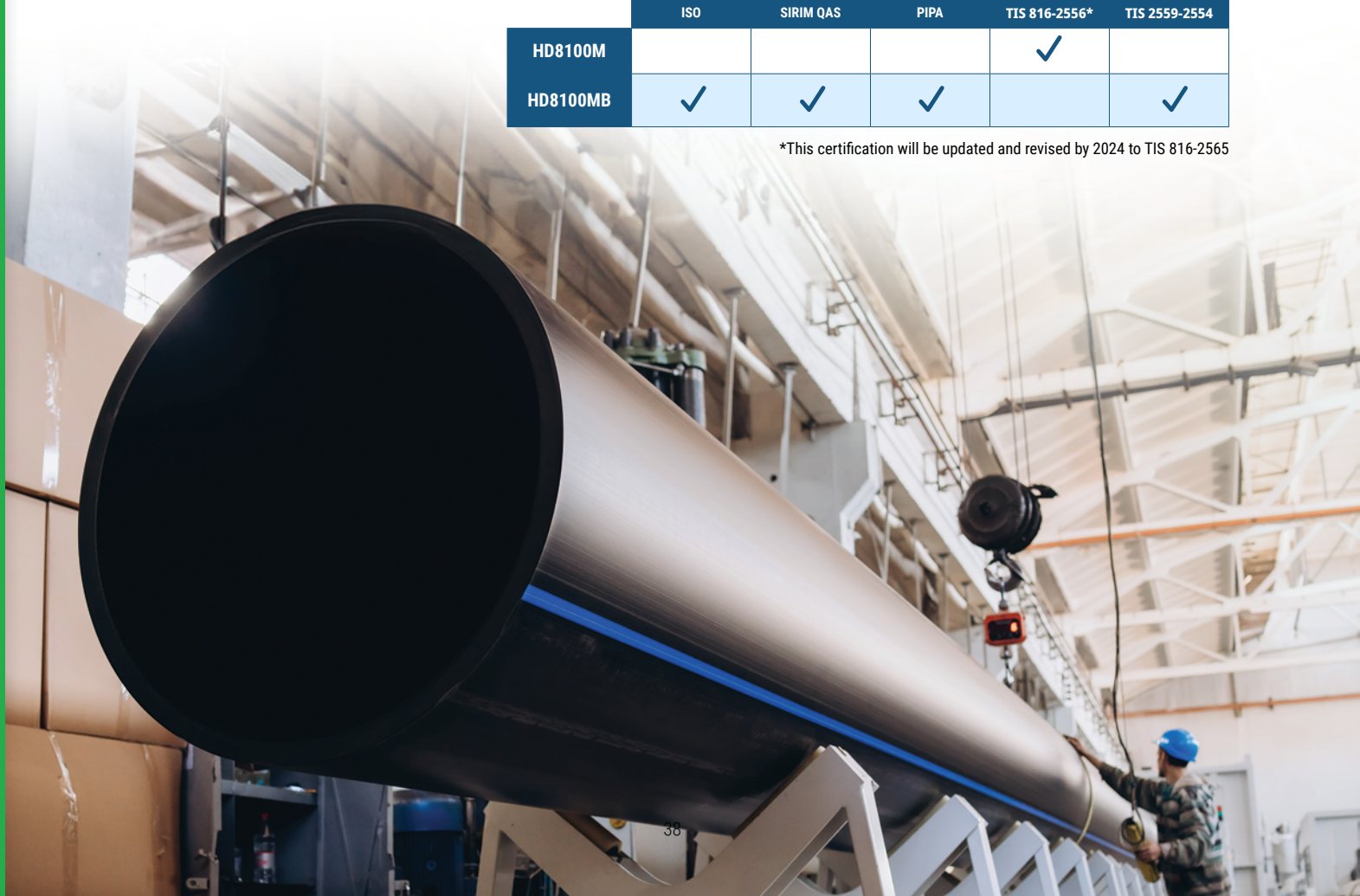
HDPE and Compound Resin				
Properties	Test Method	Unit	Pipe	
			InnoPlus HD8100M	PlastMate HD8100MB
MFR (190 °C, 5 kg)	ISO 1133	g/10 min	0.25	0.25
Density	ISO 1183	g/cm³	0.952	0.960
Melting Temperature	ASTM D3418	°C	133	-
Tensile Strength at Yield	ISO 527	MPa	25	23
Tensile Strength at Break	ISO 527	MPa	33	> 30
Elongation at Break	ISO 527	%	750	> 600
Flexural Modulus	ASTM D790	kg/cm²	10,000	10,500
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	48 (NB*)	50 (NB*)
Durometer Hardness	ASTM D2240	shore D	64	64
Vicat Softening Point	ASTM D1525	°C	124	-
ESCR; 25% Igepal, F_{50}	ASTM D1693	Hours	> 1,000	> 2,000
Carbon Black Content	ISO 6964	%	-	2.25
Oxidative Induction Time (OIT, 200 °C)	ISO 11357-6	min	> 40	-
Oxidative Induction Time (OIT, 210 °C)	ISO 11357-6	min	-	> 40
MRS Classification	ISO 12162 /ISO 9080	MPa	10.0 (PE100)	10.0 (PE100)

Note : * NB = Non Break

International Standard Compliances

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

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



Wires and Cables

Construction

Power Cable Segment

Fiber Optic Cable

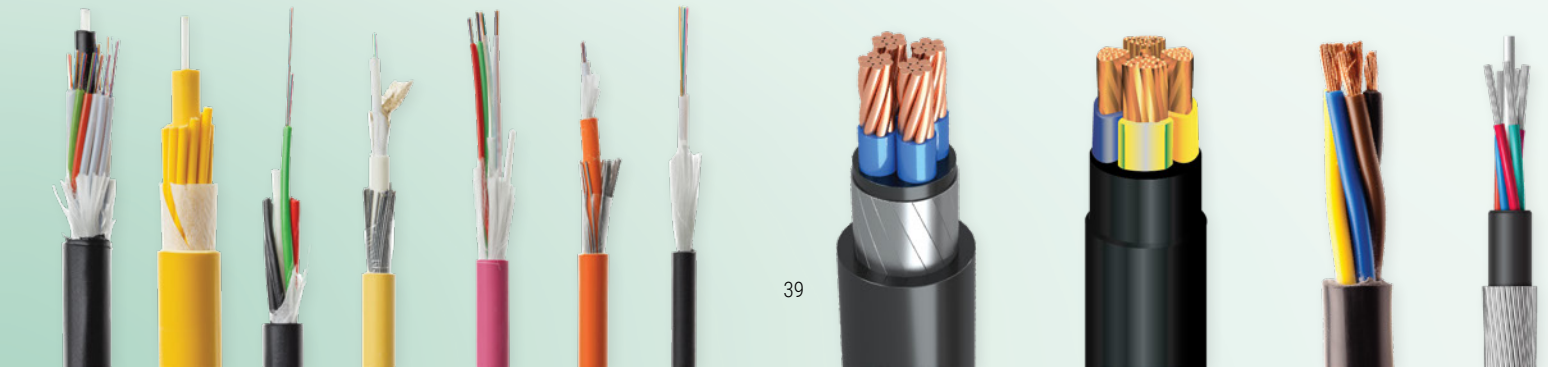
High Density Polyethylene Black Compound Resin			
Properties	**TestMethod**	**Unit**	**Plastmate HD00108WBK**
Physical and Mechanical Properties			
Melt Index (190 °C, 2.16 Kg)	ISO 1133	g/10 min	0.16
Density	ISO 1183	g/cm³	0.958
Carbon Black Content	ISO 6964	%	2.5
Tensile Strength	ISO 527	MPa	33
Elongation at Break	ISO 527	%	900
Oxidation Induction Time (210 °C)	ISO 11357	Min	70
ESCR, F_0 (Condition B, 10% Igepal, 50 °C)	ASTM D1693	Hrs	> 5,000
Flexural Modulus	ISO 178	MPa	800
Durometer Hardness	ISO 868	Shore D	64
Electrical Properties			
Volume Resistivity	ASTM D257	Ohm.cm	1.00E+17
Dielectric Strength	ASTM D149	kV/mm	27
Dielectric Constant, 1 MHz	ASTM D150	-	2.4
Dissipation Factor, 1 MHz	ASTM D150	-	0.0003

Recommendation: Recommended melt temperature 180-230 °C

Medium Density Polyethylene Black Compound Resin			
Properties	**Test Method**	**Unit**	**Plastmate MD00801WBK**
Physical Properties			
Melt Index(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 at Break	ISO 527	MPa	28
Elongation at Break	ISO 527	%	800
Flexural Modulus	ISO 178	MPa	560
Durometer Hardness	ISO 868	Shore D	58
Oxidation Induction Time (210 °C)	ISO 11357	Min	70
ESCR (50 °C, 10% Igepal, FO)	ASTM D1693	Hrs	> 5,000
Electrical Properties			
DC Volume Resistivity	ASTM D257	Ohm.cm	1.00E+16
Dielectric Strength	ASTM D149	kV/mm	36
Dielectric Constant, 1 MHz	ASTM D150	-	2.5
Dissipation Factor, 1 MHz	ASTM D150	-	0.0006

Recommendation: Recommended melt temperature 180-220 °C

InnoPlus: LLDPE Natural Resin				
Properties	**Test Method**	**Unit**	**Wires and Cables**	
			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	2.00E+15	2.00E+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



GC

Chemistry For Better Living

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Technical Document for Polymer Products

LINE Official Account

Disclaimer:

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Date as of December 2023