

SAMYANG CORPORATION

ADVANCED MATERIALS

INGREDIENTS THAT ADD VALUE TO LIFE

Samyang helps you
design a life worth smiling about

"Adding quality to your life" - this is what we are called to do in a way as natural as breathing.

Over the last 100 years, Samyang has been working to make our life more abundant and convenient thus improving the standard of living.

Guided by both traditional values and the growth mindset,

Samyang is now preparing for another great 100 years.

Samyang aims to grow into a global company by strengthening the core business

that involves several interrelated sectors spanning chemicals, food, biopharmaceuticals and packaging,

and advancement of our business structure. Dedicated to creating a more abundant and convenient lifestyle,

Samyang is looking forward to the next 100 years of even greater achievements.

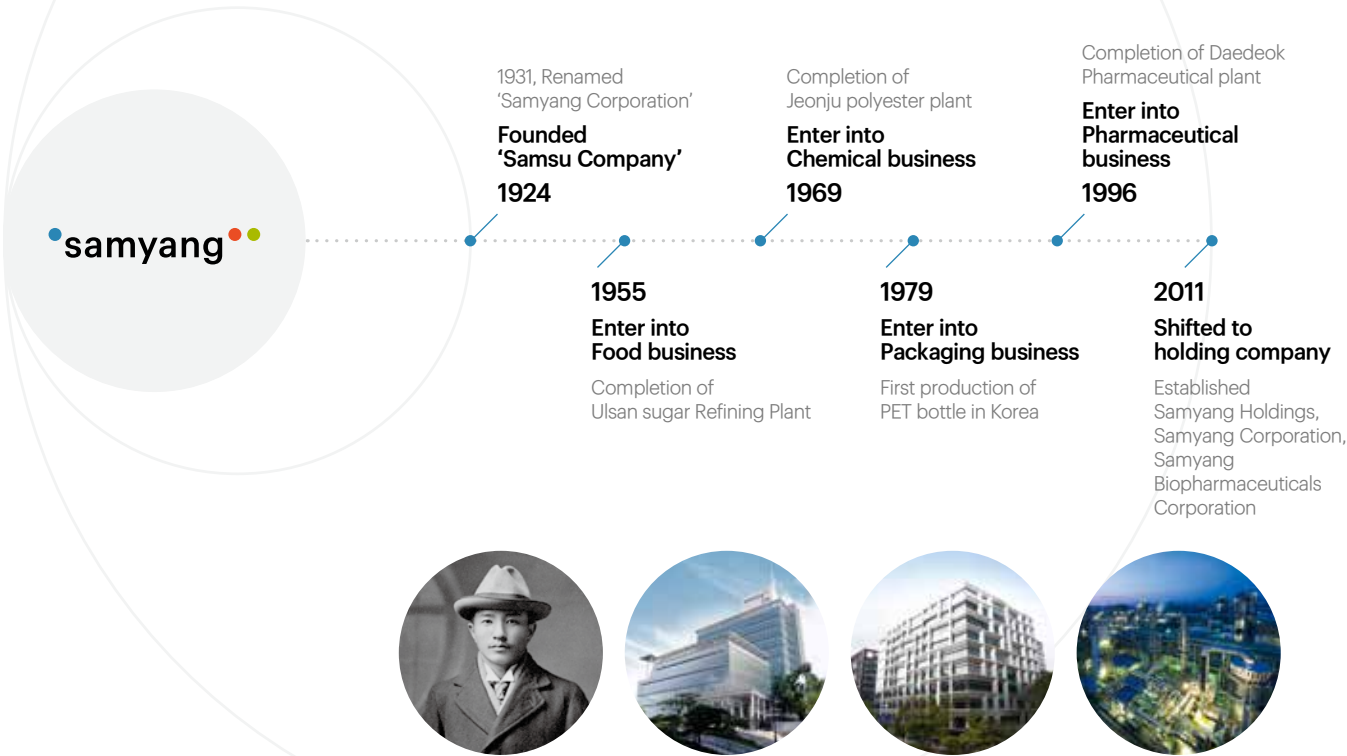
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Samyang at a glance

Samyang is dedicated to creating a healthy and abundant future for all humanity

Since our founding in 1924 by Kim Yeon-su, also known under the pseudonym Sudang, Samyang Group has entered into the markets of sugar manufacturing, integrated synthetic fiber and flour milling based on upright, trustworthy management and greatly contributed to both increasing the country's living standards through the provision of essentials and the development of the national economy. Upon entering the 21st century, Samyang Group defined its vision of becoming a company creating an abundant and convenient living, empowered by our core businesses of chemicals, food, biopharmaceuticals and packaging. Having utilized our competitive edge, especially in these sectors, we have dedicated ourselves to the pursuit of change and innovation in order to become an R&D-based global company offering specialized products and services while exploring new business growth engines. In November 2011, Samyang Group was launched as a holding company to set apart the manufacturing and investment businesses to essentially promote corporate governance transparency and increase our brand name value. Samyang Holdings Corporation has various subsidiaries that operate main businesses, including Samyang Corporation, Samyang Biopharmaceuticals Corporation and Samyang Packaging Corporation, and currently practices expedient decision-making and responsibility in management tailored to the traits of each business sector.



Samyang AM BU

1988. 04	Established Jeonju EP Plant
1989. 03	Established Samyang Kasei Co., Ltd.
1993. 08	Opened Samyang Group R&D Center (Daedeok)
2004. 05	Founded Shanghai Engineering Plastics (Shanghai) Co., Ltd. (China)
2005. 10	Increased PC production of Samyang Kaisei (100 thousand tons per year)
2007. 04	Opened an office in San Diego, US
2008. 10	Increased PC production of Samyang Kasei (120 thousand tons per year)
2010. 03	Established Samyang EP Hungary
2010. 12	Achieved sale of 100 thousand tons per year
2013. 01	Provided Korea's first commercial production of silicone polycarbonates
2016. 07	Acquired Creachem Co. Ltd

Capacity

Samyang Kasei	120,000 ton / Year
Jeonju EP Plant	40,000 ton / Year
Shanghai EP Plant	20,000 ton / Year
Hungary EP Plant	15,000 ton / Year
Vietnam EP Plant	15,000 ton / Year

Certifications

May. 1994	ISO9001 (certification authority: LRQA Korea)
Dec. 1997	ISO14001 (certification authority: LRQA Korea)
May. 2005	SAMSUNG ECO PARTNER (certification authority: Samsung)
May. 2007	SONY GREEN PARTNER (certification authority: SONY)
Dec. 2007	ISO/TS16949 (certification authority: LRQA Korea)
Dec. 2017	IATF 16949: 2016

Samyang
AM BU

Engineering
Plastics



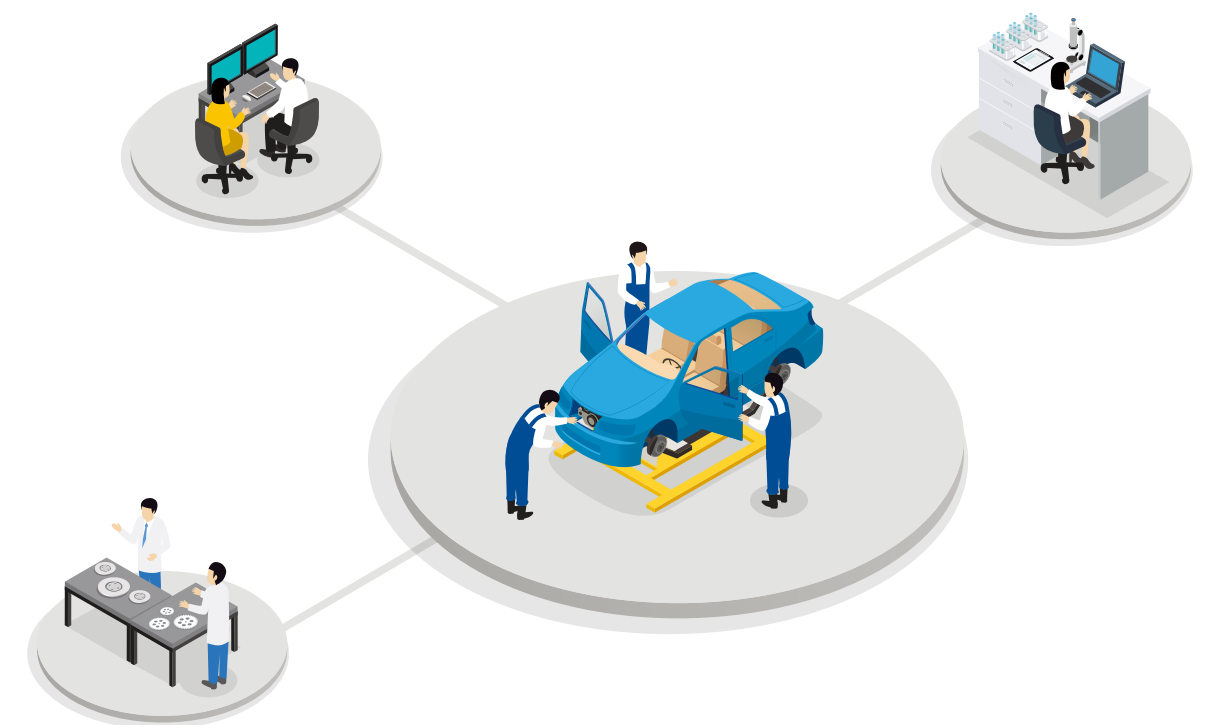


ADVANCE MATERIALS SOLUTIONS CHEMICAL BUSINESS

Samyang is not only producing polycarbonate(PC), Si-PC, TPEE based on its indigenous polymer synthesis technology but also various engineering plastic(EP) based compounds with its own polymer processing technology.

Samyang's EP is excellent in transparency, heat-resistance & mechanical property compared to commodity plastics and widely used in electronics, automotive and mechanical parts.

Moreover, Samang Chemical R&D Center is expanding its field of research to automotive lightweight materials, metal replacement materials, eco-friendly materials and high-functional materials in order to meet customers' demands.



Network

● Head Quarters

● Sales Office

● Plant

Samyang Engineering Plastics[Hungary] Co.,Ltd.
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1 Song Hanh Road, Nhon Trach 6 Industrial Zone, Long Tho Commune, Nhon Trach District, Dong Nai Province, Vietnam
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Head office

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T. 02 740 7747 F. 02 740 7700

Advanced Materials R&D Center

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T. 042 865 8114 F. 042 865 8099

Jeonju Engineering Plastic Plant

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Samyang Kasei

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T. 063 210 1114 F. 063 211 1240

Samyang Innochem

133, Jayumuyeok-gil #1, Gunsan, North Jeolla Province
T. 063 440 7114 F. 063 464 1509

Daegu Office

495, Dongdaegu-ro, Dong-gu, Daegu
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| Samyang Kasei

| Jeonju Engineering Plastic Plant

| Samyang Engineering Plastics [Shanghai] Co.,Ltd.

| Samyang Engineering Plastics [Hungary] Co.,Ltd.

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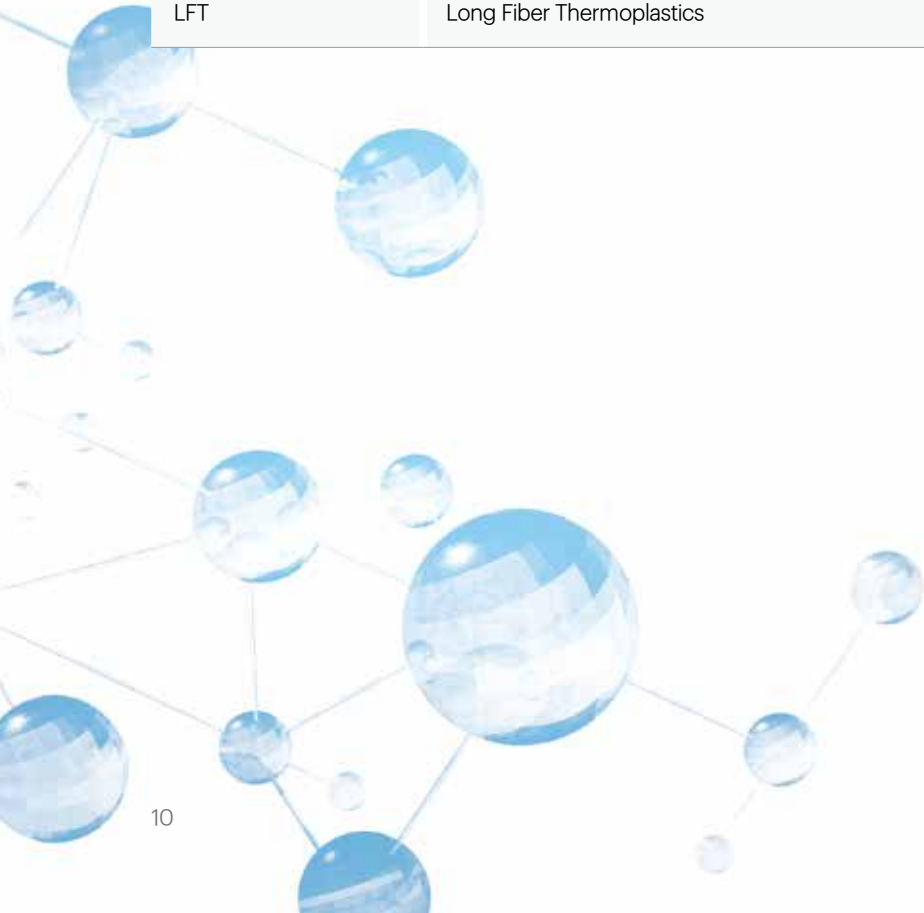
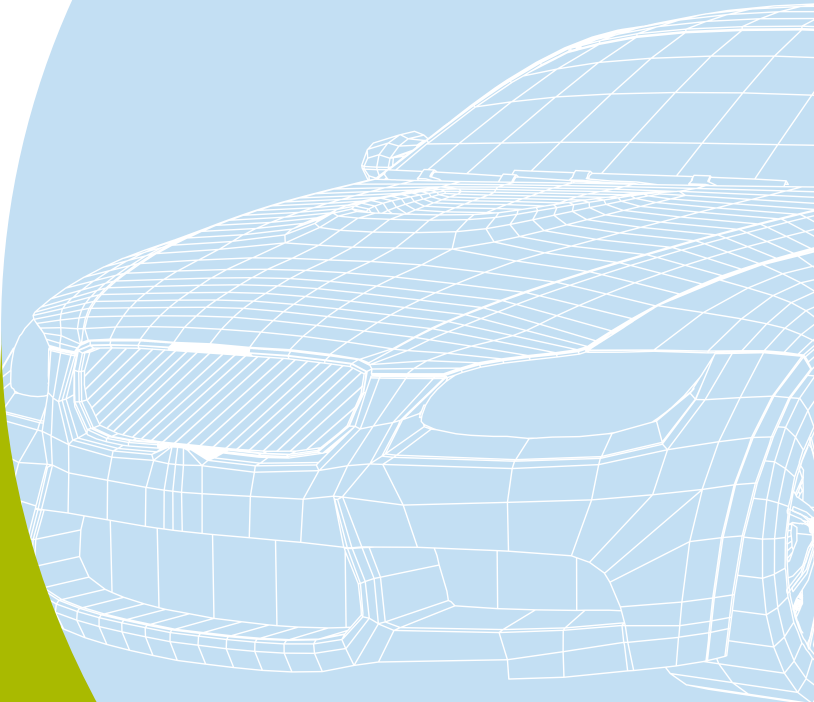
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Product portfolio

Product Line-Up

PC	PC, PC Compound, Si-PC, Si-PC Compound, HT-PC	TRIEX
PBT	PBT, PBT Compound	TRIBIT
Polymer Alloy	PC/ABS, PC/PBT, PC/PET, PC/PCTG	TRILOY
PET	PET, PET Compound	TRIPET
TPEE	TPEE, TPEE Compound	TRIEL
PMMA	PMMA Compound	TRIMMA
HIPS	HIPS Compound	TRIHIP
PA	PA6, PA66 Compound	TRAMID
M-PPE	PPE Compound	TRIPPE
ABS	ABS Compound	TRIBS
PLA	PLA Compound	TRIPLA
PPS	PPS Compound	TRIPPS
PP	PP Compound	TRILEN
LFT	Long Fiber Thermoplastics	TRILFT

Application
Engineering Plastics



Automotive



Center Fascia
TRILOY 220, 250, 220L
TIREX 3025U, 3022R, 3022L1



Rear Bumper Beam
TRILOY 150



Rear Camera
TRIPET 2550G30LW
TRIBIT 1550G30

Front Panel
TIREX HI3017UI,
TRILOY LU170, TRILOY HG180P



Center Console Frame



Door Module
TRILFT LF9051G20



Power Window Switch
TIREX 3025U, 3022R
TIREX S01-3025LD



Connector
TRIBIT 1503, 1503S, 1501N,
1500G15, 1500G30
TRAMID 923G25, 4210G15,
4210G30, 4210G50, 4210GN30



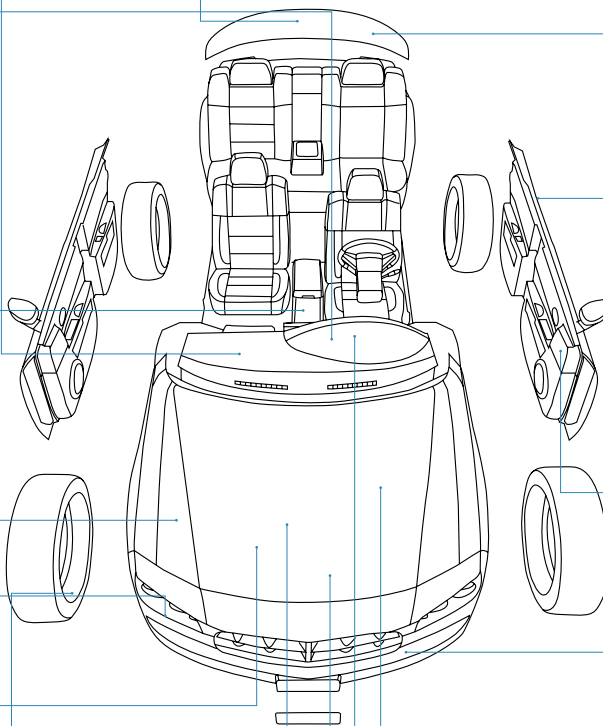
Fan Shroud
TRILFT LF9001G30



Head Lamp Bezel
TIREX 3025U
TRIBIT LM 1503, 1500A15
TRILOY 615



Dust Cover/CVJB/Bellows
TRIEL 5401, 5401BM, 5451BH



Wheel Cover/Cap
TRILOY 200, 215



Instrument Cluster
TIREX 3025U, 3022IR, 3022L1



Air Duct
TRIEL 5551BM, 5581BM



Air Cleaner Housing
TRILFT LF9080G30, LF9080G40
TRILFT LF9080G30



Motor Housing
TRIBIT 1500G30,
TRIPET 2500G45



Wiper
TRIBIT 1500G30
TRIPET 2500G45



Head Lamp Lens
TIREX 3022L1, TIREX 3022L3,
TIREX HT6-3022A, TIREX HT8-3025A



Panoramic Sunroof Frame
TRILFT LF4650C20

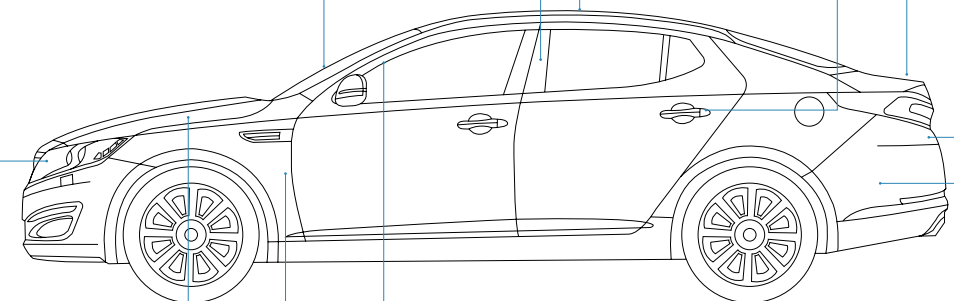


Door Handle
TRILOY 170, SG110



Garnish
TRILOY 220

Pillar Garnish
TRILOY DG170



Valve Body
TRIPET 2503G36



Room Lamp
TIREX 3025U, 3022L1
TRILOY 540



Rear Lamp
TIREX 3025U, TIREX 3022L1



Battery Case
TRILFT LF9001G30

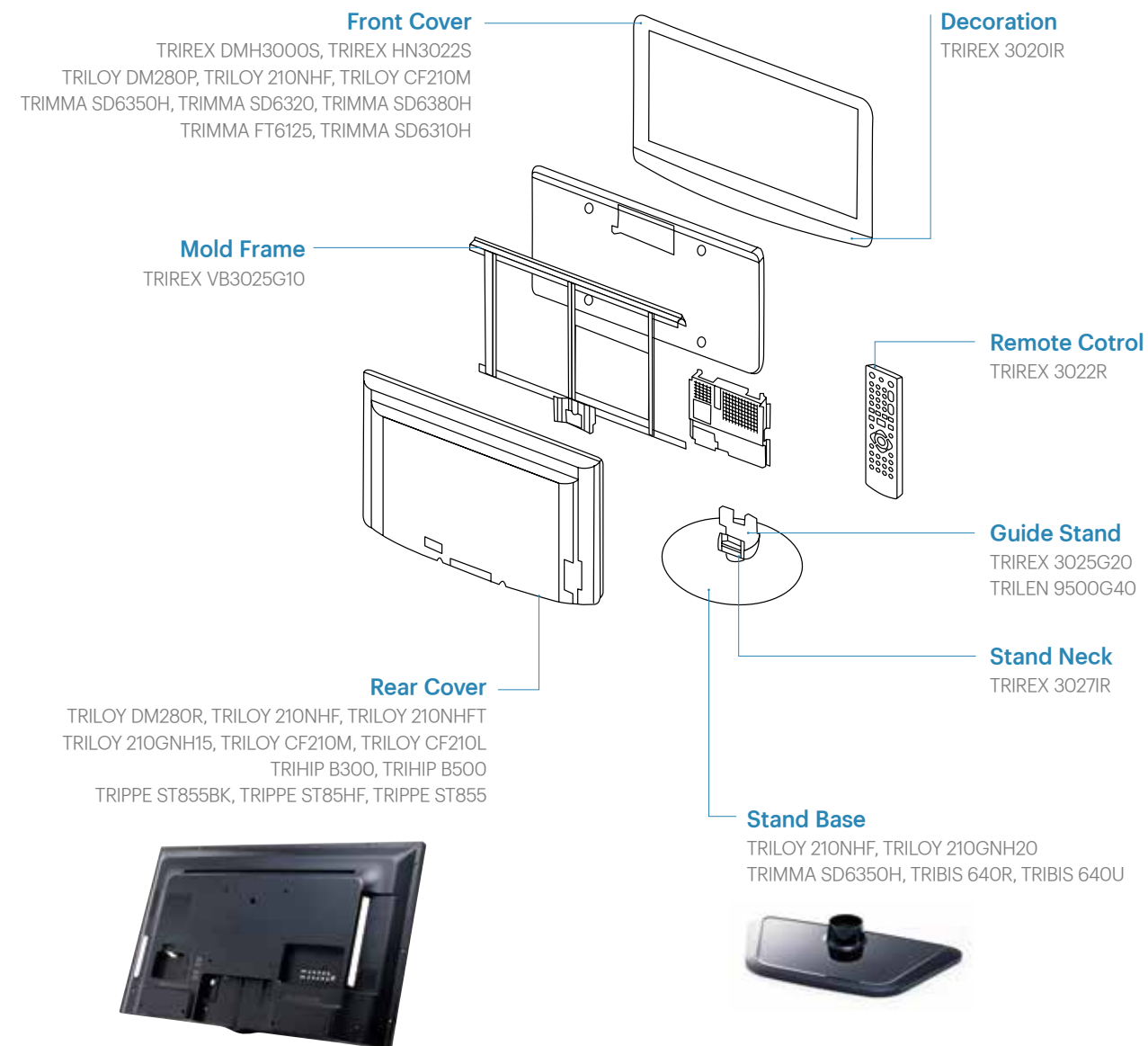


Wire Harness
TRIBIT 1500G15, 1500G30



Trunk Molding

Display TV



Laptop PC



Case Upper, Front, Rear/Strength Reinforced Low Out-Gas, FR

TRILOY MF230T,
 TRILOY EM230W, TRILOY 200FT

Lens DC, Camera LED/Diffusion, Good Flow, Surface Quality

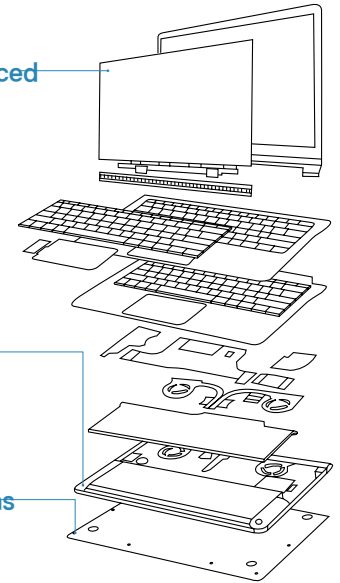
TRIEX 3022U

Case Lower/Thin Wall, High Flow, FR

TRIEX BH3020NH
 TRIEX M3020PN

Cover SD, LCD Lower, Deco Cover Lower, Upper/Good Flow, FR, Low Out-Gas

TRILOY 210NHBL



Mobile Phone

Front Cover

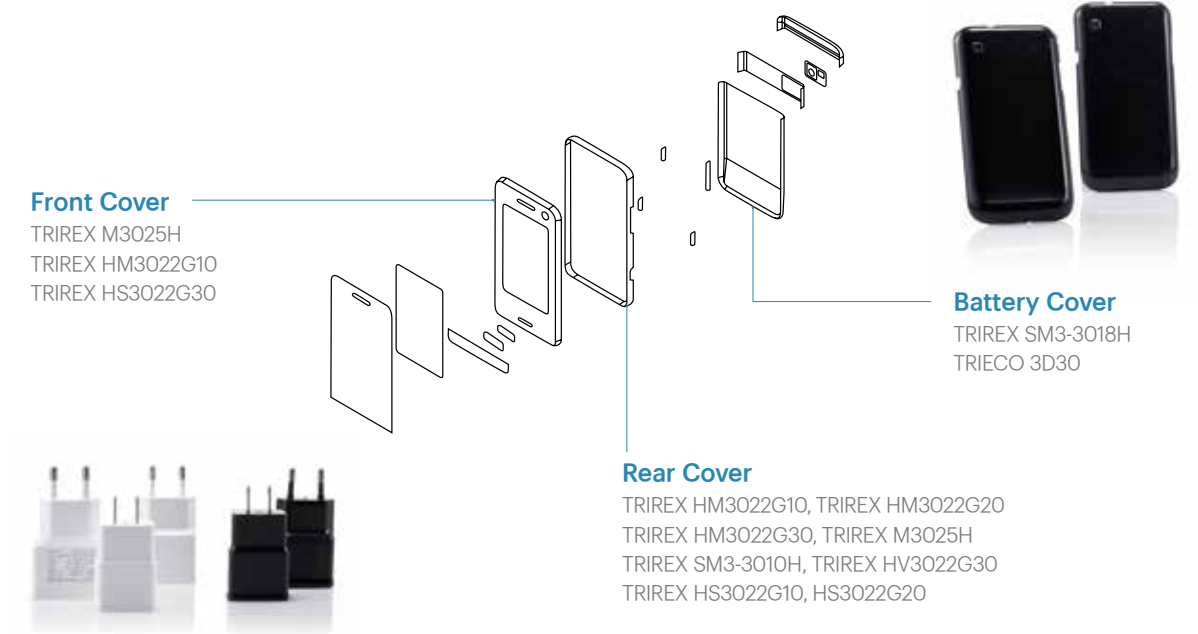
TRIEX M3025H
 TRIEX HM3022G10
 TRIEX HS3022G30

Rear Cover

TRIEX HM3022G10, TRIEX HM3022G20
 TRIEX HM3022G30, TRIEX M3025H
 TRIEX SM3-3010H, TRIEX HV3022G30
 TRIEX HS3022G10, HS3022G20

Battery Charger

TRIEX 3025GR12, 3025GW10
 TRIEX 3025PN1, TRIEX 3025GR10



Battery Cover

TRIEX SM3-3018H
 TRIECO 3D30

Multifunction Copier



Frame

TRIEX 3025PG20, SF3200GNH20

Photocopier Housing

TRIHIP B300, B500, TRILOY 200A, HF200, 230NH

Inner Part

TRIPET LV2550GN30, LV2550GN45
TRIEX SF3200GNH20, 3025G20, 3025PG20, TRILOY 230NH



Refrigerator

Cover/Frame/Door Handle Cover

TRIMMA FT6120, TRIMMA FM6341UV, TRIMMA FM6381UV

Door Handle

TRILOY 220, TRIBS LU627

Fan

TRIBS 640G10, TRIBS 640G30

PCB Cover

TRIPPE DH860

Case Dispenser for Refrigerator

TRIMMA FM6341HF, TRIBS ML687



Air Conditioner

Cover/Frame/Door Cover

TRIMMA FT6120, TRIMMA FM6341UV, FM6381UV

Fan/PCB Cover

TRIPPE DH860

Air Conditioner Cover

TRIMMA FT6120, FT6125



Washing Machine



Cover/Frame/Door Handle Cover

TRIMMA FT6120, TRIMMA FM6341UV,
TRIMMA FM6381UV, TRIMMA SD6350H
TRIEX 3020HF-IR, TRIBS ML687

Cover/Frame

TRIMMA FM6341UV, TRIMMA FM6381UV, TRIMMA SD6350H

Dust Collector

TRIMMA FM6320

Case Dispenser

TRIBS 640UV

Vacuum Cleaner

Cover/Frame

TRIMMA FM6341UV, TRIMMA FM6381UV, TRIMMA SD6350H
TRIBS ML687, TRIEL 5252SP

Dust Collector




TRIEX 3022R




Brush




TRIBS 640UV, TRIBS ML687, TRIEX M3020PN






Others




Lighting	Navigation	Camera
		
TRIEX 3022U LH55, 70, 85 (V-2 at 0.5mm) 3022UN LH601, 701, 702 (V-O at 1.5mm)	Housing TRILOY 200	Body tube TRIEX 3025GRU10, 3025GRU20, 3025GRU30 Cover TRIEX 3020HF Barrel TRIEX 3025G10, 3025G20, 3025GRU10, 3025GRU20, 3025GRU30 Grip TRIEL 5152

Microwave	Coffee Maker	Connector
		
Interior parts TRIBIT 1500GN15, 1500G15A30, 1500G30, 1503(S) Housing TRIEX 3022R, 3022IR, 3025A, 3025R, 3025U	TRIEX 3025G20	TRIEX 3500G30 TRIBIT 1501N, 1503, 1503(S), 1500G15K, 1500G30K, 1500GN15, 1500GN30, TRIBIT 1550GN10, 1550GN30, 1551GN15 TRILOY 450N, TRILEN 9550AC TRAMID 923G25, 4210G15, 4210G30, 4210G50, 4210GN30

3D Printing	Terminal Box	Helmet
		
TRIEX 3DP-3000HF, 3DP-3000LW, TRIPEEK 3DP-PK8020	TRIEX FB3025G10(4628G), FB3025N2	Shell TRILOY 215 Shield TRIEX 3027U

Straighteners	Goggle	Dishes & Cups
		
Body TRIBIT 1500GN30, TRIPET 2550GN30	Lens TRIEX 3025L1	TRIEX 3022IR, TRILOY 120




Others

PC Sheet	WaterJar	Toothbrush Bristles
		
TRIREX 3027U	TRIREX 3026B	TRIBIT 1500, 1700S

Cylinder Head Cover	Cooling Radiator Module	Fan & Shroud
		
TRAMID 4210G15HU, 4210G30HU, 4210G50HU	TRAMID 4210G15HU, 4210G30HU, 4210G50HU	TRAMID 4110G15, 4110G30, 4110G50

Intake Manifold	Thermostat Houing	ECU Cases
		
TRAMID 4210G15HU, 4210G30HU, 4210G50HU	TRAMID 4210G15HU, 4210G30HU, 4210G50HU	TRAMID 923G25, 4210G15, 4210G30, 4210G50, 4210GN30

Harness Clip	Cable Tie
	
TRAMID 4110, 4210, 4715, 4211, 4215	TRAMID 4110, 4210, 4715, 4211, 4215

Sprinkler	Hose Clip	Connector
		
TRAMID 4110G15, 4110G30, 4110G50	TRAMID 4110U, 4111U, 4115U	TRAMID 923G25, 4210G15, 4210G30, 4210G50, 4210GN30

Hood Stay Clip	Tube	Vacuum Hose
		
TRAMID 4110, 4125, 4210, 4211, 4115	TRAMID 4110, 4210, 4125, 4211U, 4115U	TRAMID 4110, 4115, 4210, 4125, 4211

Fastener	Industrial Ball Valve	Castor Wheel
		
TRAMID 4110, 4210, 4210G15, 4110G15	TRAMID 4210G15, 4210G30, 4210G50	TRAMID 4110A, 4210A, 4115A

Water Pipes	Elastic Threads
	
TRIPPE SP854G20, SP854G30	TRIBIT 1500, 1700S TRIEL 5300, 5350, 5400, 5407

Properties
ASTM
Engineering Plastics

TRIEX

Polycarbonate is the only resin that is transparent among the general-purpose EP, which provides extremely outstanding impact resistance, size stability and thermal resistance.

Characteristics	Test Methods	Unit	3017	3020	3022	3025
Characteristics			Super high flow	High flow	General	General
Sales grade			PJ, IR	PJ, A, HF, IR, R, U	PJ, A, IR, L1, R, U	PJ, A, IR, L1, R, U
Physical properties						
Specific gravity	D792	-	1.2	1.2	1.2	1.2
Absorption rate	D570	%	0.15	0.15	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	650	660	680	700
Tensile elongation	D638	%	130	130	130	130
Flexural strength	D790	kg/cm ²	900	900	900	900
Flexural modulus	D790	kg/cm ²	22500	22000	21500	21000
Izod impact strength	D256	kg cm/cm	70	75	80	80
Rockwell hardness	D785	R scale	120	120	120	120
Thermal properties						
Heat distortion temperature (4.6 kg/cm ²)	D648	°C	143	144	145	146
Heat distortion temperature (18.6 kg/cm ²)	D648	°C	132	133	134	135
Melt Index (300°C, 1.2 kg)	D1238	gr/10min	34	23	14	10
Coefficient of linear expansion	D696	mm/mm/°C	5~7×10 ⁻⁵	5~7×10 ⁻⁵	5~7×10 ⁻⁵	5~7×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶
Dielectric strength	D149	kV/mm	30	30	30	30
Permittivity	D150	-	2.85	2.85	2.85	2.85
Dissipation factor	D150	-	0.0092	0.0092	0.0092	0.0092
Arc resistance	D495	sec	120	120	120	120
Others						
Flame retardancy	UL94	-	V-2(1.5mm)	V-2(1.5mm)	V-2(1.5mm)	V-2(1.5mm)
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7

Characteristics	Test Methods	Unit	3026	3027	3030	ST6-3022PJ(1)
Characteristics			Extruding	Extruding	High viscosity	Si-PC
Sales grade			PJ, B	PJ, IR, U, PU(X)	PJ, I, IR, U	PJ
Physical properties						
Specific gravity	D792	-	1.2	1.2	1.2	1.174
Absorption rate	D570	%	0.15	0.15	0.15	0.12-0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	750	700	700	550
Tensile elongation	D638	%	100	130	130	150 <
Flexural strength	D790	kg/cm ²	880	900	900	800
Flexural modulus	D790	kg/cm ²	20000	22000	20000	17000
Izod impact strength	D256	kg cm/cm	80	85	85	85
Izod impact strength(-30°C)	D256	kg cm/cm				75
Izod impact strength(-50°C)	D256	kg cm/cm				70
Rockwell hardness	D785	R scale	120	120	120	
Thermal properties						
Heat distortion temperature (4.6 kg/cm ²)	D648	°C	137	147	147	
Heat distortion temperature (18.6 kg/cm ²)	D648	°C	132	136	136	127
Melt Index (300°C, 1.2 kg)	D1238	gr/10min	2	6	3	4
Coefficient of linear expansion	D696	mm/mm/°C	5~7×10 ⁻⁵	5~7×10 ⁻⁵	5~7×10 ⁻⁵	
Electrical properties						
Volume resistivity	D257	Ωcm	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶	
Dielectric strength	D149	kV/mm	30	30	30	
Permittivity	D150	-	2.85	2.85	2.85	
Dissipation factor	D150	-	0.0092	0.0092	0.0092	
Arc resistance	D495	sec	120	120	120	
Others						
Flame retardancy	UL94	-	V-2(1.5mm)	V-2(1.5mm)	V-2(1.5mm)	V0
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.4-0.8

* PC General grade section
•A: Heat stabilizers •R: Heat stabilizers + Releasing agent •IR: Heat stabilizers + Releasing agent + Colorless •HF: High flow •U: UV Stable grade •L1: Lens grade

TRIEX

Characteristics	Test Methods	Unit	3025AS	3025GRU30	3025G30	3500G30
Classification			Unreinforced	M/F reinforced	G/F reinforced	G/F reinforced
Features			Anti-static	General	General	High impact
Physical properties						
Specific gravity	D792	-	1.2	1.34	1.43	1.43
Absorption rate	D570	%	0.15	0.12	0.11	0.11
Mechanical properties						
Tensile strength	D638	kg/cm ²	620	500	1100	1300
Tensile elongation	D638	%	150	4	2	2
Flexural strength	D790	kg/cm ²	900	1000	1400	1700
Flexural modulus	D790	kg/cm ²	24500	35000	60000	65000
Izod impact strength	D256	kg cm/cm	45	5	12	21
Rockwell hardness	D785	R scale	120	122	122	122
Thermal properties						
Heat distortion temperature (4.6 kg/cm ²)	D648	℃		150	152	152
Heat distortion temperature (18.6 kg/cm ²)	D648	℃	124	144	145	150
Melt Index (300℃, 1.2 kg)	D1238	gr/10min	25	25	8	4.5
Coefficient of linear expansion	D696	mm/mm/℃		1.9×10 ⁻⁵	1.9×10 ⁻⁵	1.9×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm		4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶
Dielectric strength	D149	kV/mm		31	31	31
Permittivity	D150	-		3.29	3.05	3.29
Dissipation factor	D150	-		0.0097	0.0097	0.0097
Arc resistance	D495	sec		120	120	120
Others						
Flame retardancy	UL94	-	-	HB	HB	HB
Mold shrinkage	D955	%	0.4-0.8	0.3-0.5	0.3-0.5	0.3-0.5

Characteristics	Test Methods	Unit	HF3000HG30	3025N1	DMH3000S	NH3025NT
Classification			G/F reinforced	Flame resistant	Flame resistant	Flame resistant
Features			High flow/ High impact	General	High flow non-halogen	High impact non-halogen
Physical properties						
Specific gravity	D792	-	1.34	1.2	1.2	1.2
Absorption rate	D570	%	0.11	0.15	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	1050	700	750	620
Tensile elongation	D638	%	3	120	100	120
Flexural strength	D790	kg/cm ²	1560	900	1000	850
Flexural modulus	D790	kg/cm ²	64000	22000	25000	23000
Izod impact strength	D256	kg cm/cm	16	75	5	65
Rockwell hardness	D785	R scale	122	122	120	120
Thermal properties						
Heat distortion temperature (4.6 kg/cm ²)	D648	℃		144		
Heat distortion temperature (18.6 kg/cm ²)	D648	℃	136	133	98	115
Melt Index (300℃, 1.2 kg)	D1238	gr/10min	8	11	30	17
Coefficient of linear expansion	D696	mm/mm/℃	1.9×10 ⁻⁵	5.5×10 ⁻⁵	6.0×10 ⁻⁵	5.6×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶
Dielectric strength	D149	kV/mm	31	30	30	30
Permittivity	D150	-	3.29	2.8	2.9	2.85
Dissipation factor	D150	-	0.0097	0.0082	0.009	0.0092
Arc resistance	D495	sec	120	90	120	120
Others						
	UL94	-		V-0(1.5mm)	V-0(1.5mm) V-0(2.5mm) 5VB(2.5mm)	V-0(1.5mm) 5VB(1.5mm)
Flame retardancy						
Mold shrinkage	D955	%	0.3-0.5	0.5-0.7	0.5-0.7	0.5-0.7

TRIEX(Si-PC)

Si-PC(Siloxane PC) is superior to ordinary PC in terms of low temperature, impact toughness and chemical resistance.

Characteristics	Test Methods	Unit	ST0-3020	ST3-3022	ST5-3025	SO3-3022
Classification			Si-PC(Transparent)	Si-PC(Transparent)	Si-PC(Transparent)	Si-PC(Opaque)
Features			General 0℃ ductile	General -30℃ ductile	General -50℃ ductile	General -30℃ ductile
Sales grade			A, R, U, IR	A, R, U, IR	A, R, U, IR	A, R, U
Physical properties						
Specific gravity	D792	-	1.19	1.19	1.18	1.18
Absorption rate	D570	%	0.15	0.15	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	620	600	580	550
Tensile elongation	D638	%	150 <	150 <	150 <	150 <
Flexural strength	D790	kg/cm ²	900	900	850	880
Flexural modulus	D790	kg/cm ²	19000	20000	20000	20000
Izod impact strength (R.T)	D256	kg cm/cm	67	82	85	70
Izod impact strength (-30℃)	D256	R scale	-	78	75	65
Thermal properties						
Heat distortion temperature (18.6 kg/cm ²)		℃	128	130	130	130
Melt Index (300℃, 1.2 kg)	D1238	gr/10min	25	10	8	10
Coefficient of linear expansion	D696	mm/mm/℃	5.6×10 ⁻⁵	5.6×10 ⁻⁵	5.6×10 ⁻⁵	5.6×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶
Dielectric strength	D149	kV/mm	30	30	30	30
Permittivity	D150	-	2.85	2.85	2.85	2.85
Dissipation factor	D150	-	0.0092	0.0092	0.0092	0.0092
Arc resistance	D495	sec	120	120	120	120
Others						
Mold shrinkage	D955	%	0.4-0.8	0.5-0.7	0.4-0.8	0.4-0.8

Characteristics	Test Methods	Unit	SO4-3022	SE6-3026	SM3-3016	SM3-3022
Classification			Si-PC(Opaque)	Si-PC(Opaque)	Si-PC(Opaque)	Si-PC(Opaque)
Features			General -40℃ ductile	Extrusion -50℃ ductile	High flow -30℃ ductile	High flow -30℃ ductile
Sales grade			A, R, U	A, R, U	A, H	H
Physical properties						
Specific gravity	D792	-	1.18	1.18	1.19	1.19
Absorption rate	D570	%	0.15	0.15	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	550	550	600	580
Tensile elongation	D638	%	150 <	100 <	100 <	100 <
Flexural strength	D790	kg/cm ²	850	800	900	850
Flexural modulus	D790	kg/cm ²	20500	17500	21500	21000
Izod impact strength (R.T)	D256	kg cm/cm	72	85	80	70
Izod impact strength (-30℃)	D256	R scale	65	75	70	60
Thermal properties						
Heat distortion temperature (18.6 kg/cm ²)		℃	130	130	129	128
Melt Index (300℃, 1.2 kg)	D1238	gr/10min	8	3	16	22
Coefficient of linear expansion	D696	mm/mm/℃	5.6×10 ⁻⁵	5.6×10 ⁻⁵	5.6×10 ⁻⁵	5.6×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶
Dielectric strength	D149	kV/mm	30	30	30	30
Permittivity	D150	-	2.85	2.85	2.85	2.85
Dissipation factor	D150	-	0.0092	0.0092	0.0092	0.0092
Arc resistance	D495	sec	120	120	120	120
Others						
Mold shrinkage	D955	%	0.4-0.8	0.4-0.8	0.4-0.8	0.4-0.8

TRIEX(Diffusive PC/HT-PC)

Diffusive PC has good diffusivity appropriate for LED lightings.
HT-PC has good thermal resistance which is suitable for high temperature application such as automotive fog lamp.

Characteristics	Test Methods	Unit	3022U LH55	3022U LH85	3022UN LH601	3022UN LH702
Classification			Diffusive PC	Diffusive PC	Diffusive PC	Diffusive PC
Features			General	General	Flame resistant	Flame resistant
			Permeability 55% 2T	Permeability 85% 2T	Permeability 60% 1T	Permeability 70% 2T
Physical properties						
Specific gravity	D792	-	1.2	1.2	1.2	1.2
Absorption rate	D570	%	0.15	0.15	0.15	0.15
Optical properties						
Transmittance	D1003	%	55 (at 2mm)	85 (at 2mm)	60 (at 1mm)	70 (at 2mm)
Haze	D1003	%	100	50	100	100
Mechanical properties						
Tensile strength	D638	kg/cm ²	650	650	650	650
Tensile elongation	D638	%	120	120	120	120
Flexural strength	D790	kg/cm ²	850	850	850	850
Flexural modulus	D790	kg/cm ²	21,000	21,000	21,000	21,000
Izod impact strength	D256	kg cm/cm	70	70	10	10
Rockwell hardness	D785	R scale	120	120	120	120
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	135	135	130	132
Coefficient of linear expansion	D696	mm/mm/℃	5.6×10 ⁻⁵	5.6×10 ⁻⁵	5.6×10 ⁻⁵	5.6×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶	4×10 ¹⁶
Dielectric strength	D149	kV/mm	30	30	30	30
Permittivity	D150	-	2.85	2.85	2.85	2.85
Dissipation factor	D150	-	0.0092	0.0092	0.0092	0.0092
Arc resistance	D495	sec	120	120	120	120
Others						
Flame retardancy	UL94	-	V-2(0.5mm)	V-2(0.5mm)	V-0(1.5mm)	V-0(1.5mm)
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7

Characteristics	Test Methods	Unit	HT6-3022A	HT8-3025A
Classification			HT-PC	HT-PC
Features			Thermal resistance	Thermal resistance
Physical properties				
Specific gravity	D792	-	1.19	1.19
Mechanical properties				
Tensile strength	D638	kg/cm ²	750	750
Flexural strength	D790	kg/cm ²	1000	1000
Flexural modulus	D790	kg/cm ²	26,000	24,000
Izod impact strength	D256	kg cm/cm	15	15
Thermal properties				
Heat distortion temperature (18.6kg/cm ²)	D648	℃	150	157
Melt Index (330℃, 1.2kg)	D1238	gr/10min	18	15
Others				
Mold shrinkage	D955	%	0.5 - 0.7	0.5 - 0.7

TRIBIT

Major crystalline resin of polyester plastic, crystallizes fast and easy to mold.
Superior in heat resistance, chemical resistance, electric property and wear resistance.

Characteristics	Test Methods	Unit	1500N	1503S	1503M	LM1503
Classification			Unreinforced flame resistant	Unreinforced	Unreinforced	Unreinforced
Features				High impact	General	Direct metalizing
Physical properties						
Specific gravity	D792	-	1.42	1.3	1.3	1.3
Absorption rate	D570	%	0.08	0.1	0.1	0.1
Mechanical properties						
Tensile strength	D638	kg/cm ²	500	500	480	580
Tensile elongation	D638	%	30	150	110	120
Flexural strength	D790	kg/cm ²	750	700	650	800
Flexural modulus	D790	kg/cm ²	23000	20000	20000	24000
Izod impact strength	D256	kg cm/cm	3	13	5	7
Rockwell hardness	D785	R scale	118	118	118	118
Thermal properties						
Melt Index (235℃, 2.16kg)	D1238	gr/10min	18	11	15	30
Heat distortion temperature (4.6kg/cm ²)	D648	℃	152	145	150	155
Heat distortion temperature (18.6kg/cm ²)	D648	℃	55	56	58	58
Coefficient of linear expansion	D696	mm/mm/℃	9×10 ⁻⁵	9×10 ⁻⁵	9×10 ⁻⁵	9×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶
Dielectric strength	D149	kV/mm	21	17	17	17
Permittivity	D150	-	3.2	3.2	3.2	3.2
Dissipation factor	D150	-	0.02	0.02	0.02	0.02
Arc resistance	D495	sec	71	180	180	180
Others						
Flame retardancy	UL94	-	V-0(0.75mm)	HB	HB	HB
Mold shrinkage	D955	%	1.0-1.7	1.4-2.2	1.4-2.2	1.4-2.2

Characteristics	Test Methods	Unit	VS1503	1500G30	1500G30K	LW1500G15K
Classification			Unreinforced	G/F reinforced	G/F reinforced	G/F reinforced
Features			Metal appearance	General	High impact	Warpage improvement
Physical properties						
Specific gravity	D792	-	1.3	1.52	1.52	1.38
Absorption rate	D570	%	0.1	0.07	0.07	0.08
Mechanical properties						
Tensile strength	D638	kg/cm ²	540	1400	1000	880
Tensile elongation	D638	%	25	2	2	3
Flexural strength	D790	kg/cm ²	800	2000	1400	1300
Flexural modulus	D790	kg/cm ²	26000	80000	55000	38000
Izod impact strength	D256	kg cm/cm	4	11	8	7
Rockwell hardness	D785	R scale	118	120	120	
Thermal properties						
Melt Index (235℃, 2.16kg)	D1238	gr/10min	25			
Melt Index (250℃, 5kg)	D1238	gr/10min		55	55	
Melt Index (260℃, 5kg)	D1238	gr/10min				16
Heat distortion temperature (4.6kg/cm ²)	D648	℃	145	230	230	
Heat distortion temperature (18.6kg/cm ²)	D648	℃	58	215	215	170
Coefficient of linear expansion	D696	mm/mm/℃	9×10 ⁻⁵	3×10 ⁻⁵	3×10 ⁻⁵	3×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶
Dielectric strength	D149	kV/mm	17	25	25	21
Permittivity	D150	-	3.2	3.2	3.2	3.2
Dissipation factor	D150	-	0.02	0.02	0.02	0.02
Arc resistance	D495	sec	180	130	130	150
Others						
Flame retardancy	UL94	-	HB	HB	-	-
Mold shrinkage	D955	%	1.4-2.2	0.2-1.2	0.2-1.2	0.2-1.2

TRIBIT

Characteristics	Test Methods	Unit	1500GN30	1550GN30	1551GN30	NEP1509GN30
Classification			Reinforced flame resistant	Reinforced flame resistant	Reinforced flame resistant	Eco-Flame resistant
Features			General	Alloy	High impact	Non-halogen
Physical properties						
Specific gravity	D792	-	1.61	1.63	1.61	1.59
Absorption rate	D570	%	0.07	0.07	0.07	0.07
Mechanical properties						
Tensile strength	D638	kg/cm ²	1300	1200	1200	1100
Tensile elongation	D638	%	2	2	2	2
Flexural strength	D790	kg/cm ²	1800	1500	1600	1400
Flexural modulus	D790	kg/cm ²	85000	73000	85000	90000
Izod impact strength	D256	kg cm/cm	7	6	9	6
Rockwell hardness	D785	R scale	120	120	120	120
Thermal properties						
Melt Index (250°C, 5 kg)	D1238	gr/10min	35	48	32	
Heat distortion temperature (4.6 kg/cm ²)	D648	°C	225	225	220	
Heat distortion temperature (18.6 kg/cm ²)	D648	°C	210	210	205	213
Coefficient of linear expansion	D696	mm/mm/°C	3×10 ⁻⁵	3×10 ⁻⁵	3×10 ⁻⁵	3×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶
Dielectric strength	D149	kV/mm	20	20	20	20
Permittivity	D150	-	3.2	3.2	3.2	3.2
Dissipation factor	D150	-	0.016	0.016	0.016	0.016
Arc resistance	D495	sec	110	110	110	110
Others						
Flame retardancy	UL94	-	V-0(0.75mm)	V-0(0.71mm)	V-0(0.75mm)	V-0 (0.75mm)
Mold shrinkage	D955	%	0.2-1.2	0.2-1.2	0.2-1.2	0.2-1.2

Characteristics	Test Methods	Unit	1500A15	1700	1800	1800H
Classification			Reinforcement of inorganic materials	Unreinforced	Unreinforced	Unreinforced
Features			Inorganic filling	Mid viscosity	High viscosity	Extrusion
Physical properties						
Specific gravity	D792	-	1.32	1.31	1.32	1.32
Absorption rate	D570	%	0.1	0.1	0.1	0.1
Mechanical properties						
Tensile strength	D638	kg/cm ²	500	550	550	580
Tensile elongation	D638	%	2	200	200	120
Flexural strength	D790	kg/cm ²	850	780	780	800
Flexural modulus	D790	kg/cm ²	60000	21500	21000	26000
Izod impact strength	D256	kg cm/cm	3	6	7	5
Rockwell hardness	D785	R scale		118	119	119
Thermal properties						
Melt Index (235°C, 2.16 kg)	D1238	gr/10min		17		
Melt Index (250°C, 2.16 kg)	D1238	gr/10min			8	14
Melt Index (270°C, 2.16 kg)	D1238	gr/10min	65			
Heat distortion temperature (4.6 kg/cm ²)	D648	°C		155	155	155
Heat distortion temperature (18.6 kg/cm ²)	D648	°C		60	60	60
Coefficient of linear expansion	D696	mm/mm/°C	3×10 ⁻⁵	9×10 ⁻⁵	9×10 ⁻⁵	9×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶
Dielectric strength	D149	kV/mm	21	17	17	17
Permittivity	D150	-	3.2	3.2	3.2	3.2
Dissipation factor	D150	-	0.02	0.02	0.02	0.02
Arc resistance	D495	sec	150	180	180	180
Others						
Flame retardancy	UL94	-		HB	HB	-
Mold shrinkage	D955	%	0.2-1.2	1.4-2.3	1.4-2.3	1.4-2.3

TRILOY

Classified into PC/ABS, PC/PBT and PC/PET. Strong shock resistance, moldability and durability.

Characteristics	Test Methods	Unit	200	210	215	220
Classification			Unreinforced PC/ABS	Unreinforced PC/ABS	Unreinforced PC/ABS	Unreinforced PC/ABS
Features			General	Thermal resistance	Strong thermal resistance	High impact
Physical properties						
Specific gravity	D792	-	1.08	1.13	1.14	1.13
Absorption rate	D570	%	0.2	0.2	0.2	0.2
Mechanical properties						
Tensile strength	D638	kg/cm ²	450	580	600	530
Tensile elongation	D638	%	50	140	120	120
Flexural strength	D790	kg/cm ²	650	850	850	730
Flexural modulus	D790	kg/cm ²	20000	22000	25000	22000
Izod impact strength	D256	kg cm/cm	50	70	75	70
Rockwell hardness	D785	R scale	100	110	120	118
Thermal properties						
Heat distortion temperature (18.6 kg/cm ²)	D648	°C	100	110	118	105
Melt Index (250°C, 5.0 kg)	D1238	gr/10min	14	12	9	13
Melt Index (260°C, 2.16 kg)	D1238	gr/10min				
Coefficient of linear expansion	D696	mm/mm/°C	7.3×10 ⁻⁵	7.3×10 ⁻⁵	7.3×10 ⁻⁵	7.3×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	5.0×10 ¹⁶	5.0×10 ¹⁶	5.0×10 ¹⁶	5.0×10 ¹⁶
Dielectric strength	D149	kV/mm	25	25	25	25
Permittivity	D150	-	3	3	3	3
Dissipation factor	D150	-	0.009	0.009	0.009	0.009
Arc resistance	D495	sec	123	123	123	123
Others						
Flame retardancy	UL94	-	HB	HB	HB	HB
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7

Characteristics	Test Methods	Unit	225	210N	210NH	210NHF
Classification			Unreinforced PC/ABS	Flame resistant PC/ABS	Flame resistant (Non-halogen) PC/ABS	Flame resistant (Non-halogen) PC/ABS
Features			Low temperature impact	General	General	General
Physical properties						
Specific gravity	D792	-	1.13	1.22	1.17	1.18
Absorption rate	D570	%	0.2	0.2	0.2	0.2
Mechanical properties						
Tensile strength	D638	kg/cm ²	550	600	600	630
Tensile elongation	D638	%	120	50	100	90
Flexural strength	D790	kg/cm ²	800	830	900	850
Flexural modulus	D790	kg/cm ²	20000	24000	27000	23000
Izod impact strength	D256	kg cm/cm	80	60	62	55
Rockwell hardness	D785	R scale	118	115	115	116
Thermal properties						
Heat distortion temperature (18.6 kg/cm ²)	D648	°C	116	113	103	90
Melt Index (250°C, 5.0 kg)	D1238	gr/10min	20	15		
Melt Index (260°C, 2.16 kg)	D1238	gr/10min			30	26
Coefficient of linear expansion	D696	mm/mm/°C	7.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	5.0×10 ¹⁶	5.0×10 ¹⁶	9.0×10 ¹⁶	9.0×10 ¹⁶
Dielectric strength	D149	kV/mm	25	30	30	30
Permittivity	D150	-	3	3	3	3
Dissipation factor	D150	-	0.009	0.009	0.009	0.009
Arc resistance	D495	sec	123	120	120	120
Others						
Flame retardancy	UL94	-	HB	V-0(1.6mm)	V-0(1.7mm)	V-0(1.7mm) 5VB(1.7mm)
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.4-0.6

TRILOY

Characteristics	Test Methods	Unit	210NHFL	210NHFT	230NH	210GNH30
Classification			Flame resistant (Non-halogen) PC/ABS	Flame resistant (Non-halogen) PC/ABS	Flame resistant (Non-halogen) PC/ABS	G/F reinforced PC/ ABS
Features			General	General	General	General
Physical properties						
Specific gravity	D792	-	1.18	1.18	1.17	1.37
Absorption rate	D570	%	0.2	0.2	0.2	0.2
Mechanical properties						
Tensile strength	D638	kg/cm ²	630	540	600	950
Tensile elongation	D638	%	50	80	80	3
Flexural strength	D790	kg/cm ²	930	780	800	1250
Flexural modulus	D790	kg/cm ²	23000	22000	22000	65000
Izod impact strength	D256	kg cm/cm	70	60	40	9
Rockwell hardness	D785	R scale	116	116	115	121
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	86	88	93	90
Melt Index (260℃, 2.16kg)	D1238	gr/10min	16	22	12	8
Coefficient of linear expansion	D696	mm/mm/℃	8.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵	
Electrical properties						
Volume resistivity	D257	Ωcm	9.0×10 ¹⁶	9.0×10 ¹⁶	9.0×10 ¹⁶	
Dielectric strength	D149	kV/mm	30	30	30	
Permittivity	D150	-	3	3	3	
Dissipation factor	D150	-	0.009	0.009	0.009	
Arc resistance	D495	sec	120	120	120	
Others						
Flame retardancy	UL94	-	V-0(1.7mm) 5VB(1.7mm)	V-0(1.7mm) 5VB(1.7mm)	V-0(1.7mm)	V-1(2.0mm)
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.2-0.3

Characteristics	Test Methods	Unit	120	120H	150	170
Classification			PC/PBT Unreinforced	PC/PBT Unreinforced	PC/PBT Unreinforced	PC/PBT Unreinforced
Features			General	High impact	General	High Tensile Strength
Physical properties						
Specific gravity	D792	-	1.2	1.2	1.21	1.21
Absorption rate	D570	%	0.15	0.15	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	630	540	460	630
Tensile elongation	D638	%	65	150	100	150
Flexural strength	D790	kg/cm ²	900	720	680	900
Flexural modulus	D790	kg/cm ²	23000	19000	22000	23000
Izod impact strength	D256	kg cm/cm	65	75	60	75
Rockwell hardness	D785	R scale	110	110		118
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	95	104	93	115
Melt Index (250℃, 2.16kg)	D1238	gr/10min				14
Melt Index (250℃, 5.0kg)	D1238	gr/10min		20	7	
Melt Index (260℃, 3.8kg)	D1238	gr/10min	7			
Coefficient of linear expansion	D696	mm/mm/℃	8.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	5.0×10 ¹⁶	5.0×10 ¹⁶	5.0×10 ¹⁶	5.0×10 ¹⁶
Dielectric strength	D149	kV/mm	23	23	23	23
Permittivity	D150	-	3	3	3	3
Dissipation factor	D150	-	0.009	0.009	0.009	0.009
Arc resistance	D495	sec	118	118	118	118
Others						
Flame retardancy	UL94	-	HB	HB	HB	HB
Mold shrinkage	D955	%	0.7-1.2	0.7-1.2	0.7-1.2	0.7-1.2

TRILOY

Characteristics	Test Methods	Unit	190	410	450N	L460G10
Classification			PC/PBT Unreinforced	PC/PET Unreinforced	PC/PET Unreinforced	PC/PET Reinforced
Features			High flow	General	Flame resistant	Flame resistant
Physical properties						
Specific gravity	D792	-	1.21	1.23	1.28	1.27
Absorption rate	D570	%	0.15	0.15	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	550	600	600	750
Tensile elongation	D638	%	50	100	60	4
Flexural strength	D790	kg/cm ²	800	700	900	1000
Flexural modulus	D790	kg/cm ²	20000	23000	24000	28000
Izod impact strength	D256	kg cm/cm	13	75	7	5
Rockwell hardness	D785	R scale		118	115	121
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	77	120	115	133
Melt Index (250℃, 3.8kg)	D1238	gr/10min	25			
Melt Index (260℃, 3.8kg)	D1238	gr/10min		9		12
Melt Index (280℃, 2.16kg)	D1238	gr/10min			37	
Coefficient of linear expansion	D696	mm/mm/℃	8.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵	8.3×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	5.0×10 ¹⁶	3.0×10 ¹⁶	3.0×10 ¹⁶	3.0×10 ¹⁶
Dielectric strength	D149	kV/mm	23	23	23	23
Permittivity	D150	-	3	3	3	3
Dissipation factor	D150	-	0.009	0.009	0.009	0.009
Arc resistance	D495	sec	118	121	121	121
Others						
Flame retardancy	UL94	-	HB	HB	V-0(0.8mm)	V-2(0.8mm)
Mold shrinkage	D955	%	0.7-1.2	0.7-1.2	0.7-1.2	0.3-0.5

Characteristics	Test Methods	Unit	S460G15	540	615	740
Classification			PC/PET Reinforced	PC/ASA Unreinforced	Strong thermal resistance PC Unreinforced	PC/PCTG Unreinforced
Features			Flame resistant	General	General	Transparent
Physical properties						
Specific gravity	D792	-	1.3	1.16	1.23	1.21
Absorption rate	D570	%	0.15	0.2	0.15	0.15
Mechanical properties						
Tensile strength	D638	kg/cm ²	900	420	750	550
Tensile elongation	D638	%	3	80	120	200
Flexural strength	D790	kg/cm ²	1300	650	850	820
Flexural modulus	D790	kg/cm ²	36000	19000	24000	21000
Izod impact strength	D256	kg cm/cm	5	30	35	12
Rockwell hardness	D785	R scale	121	117		
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	132	115	153	
Melt Index (250℃, 2.16kg)	D1238	gr/10min		5		
Melt Index (300℃, 1.2kg)	D1238	gr/10min	16			36
Melt Index (315℃, 5.0kg)	D1238	gr/10min			3	
Coefficient of linear expansion	D696	mm/mm/℃	8.3×10 ⁻⁵			
Electrical properties						
Volume resistivity	D257	Ωcm	3.0×10 ¹⁶			
Dielectric strength	D149	kV/mm	23			
Permittivity	D150	-	3			
Dissipation factor	D150	-	0.009			
Arc resistance	D495	sec	121			
Others						
Flame retardancy	UL94	-	V-2(0.8mm)			
Mold shrinkage	D955	%	0.3-0.5	0.5-0.7	0.7-1.2	0.7-1.2

TRIPET

Polyethylene terephthalate mostly used in GF-reinforced types in Engineering Plastics.
Strong heat resistance with good electric property.

Characteristics	Test Methods	Unit	2500G30	2500G45	2550GN15	2550GN30
Classification			G/F reinforced (Non-inflammable)	G/F reinforced (Non-inflammable)	G/F reinforced (Flame resistant)	G/F reinforced (Flame resistant)
Features			General	General	General	General
Physical properties						
Specific gravity	D792	-	1.56	1.7	1.51	1.62
Absorption rate	D570	%	0.1 <	0.1 <	0.1 <	0.1 <
Mechanical properties						
Tensile strength	D638	kg/cm ²	1300	1500	1100	1400
Tensile elongation	D638	%	2	2	3	2
Flexural strength	D790	kg/cm ²	1600	1800	1500	1800
Flexural modulus	D790	kg/cm ²	90000	100000	65000	90000
Izod impact strength	D256	kg cm/cm	10	9	9	8
Rockwell hardness	D785	R scale	122	119	114	114
Thermal properties						
Melt Index (265℃, 5.0kg)	D1238	gr/10min	40	28	42	30
Heat distortion temperature(4.6kg/cm ²)	D648	℃	250	250	240	245
Heat distortion temperature(18.6kg/cm ²)	D648	℃	230	230	220	220
Coefficient of linear expansion	D696	mm/mm/℃	3.0×10 ⁻⁵	3.0×10 ⁻⁵	3.0×10 ⁻⁵	3.0×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶
Dielectric strength	D149	kV/mm	24	25	20	20
Permittivity	D150	-	3.5	3.9	3.8	3.8
Dissipation factor	D150	-	0.013	0.016	0.017	0.017
Arc resistance	D495	sec	125	125	80	80
Others						
Flame retardancy	UL94	-	HB(0.75mm)	HB(0.75mm)	V-0(0.75mm)	V-0(0.75mm)
RTI	UL746B	℃			140℃(3mm)	140℃(3mm)
Mold shrinkage	D955	%	0.2-0.4	0.2-0.4	0.2-0.4	0.2-0.4

Characteristics	Test Methods	Unit	2550GN45	LV2550GN30	NP2559GN30	NP2559GN45
Classification			G/F reinforced (Flame resistant)	G/F reinforced (Flame resistant)	G/F reinforced (Flame resistant)	G/F reinforced (Flame resistant)
Features			General	Low volatile	Non-halogen	Non-halogen
Physical properties						
Specific gravity	D792	-	1.83	1.61	1.58	1.71
Absorption rate	D570	%	0.1 <	0.1 <	0.1 <	0.1 <
Mechanical properties						
Tensile strength	D638	kg/cm ²	1500	1400	1300	1400
Tensile elongation	D638	%	2	3	2	2
Flexural strength	D790	kg/cm ²	1800	1800	1700	1800
Flexural modulus	D790	kg/cm ²	130000	90000	10000	13000
Izod impact strength	D256	kg cm/cm	6	6	6	6
Rockwell hardness	D785	R scale	117	117	118	118
Thermal properties						
Melt Index (265℃, 5.0kg)	D1238	gr/10min	50	60	>60	>60
Heat distortion temperature(4.6kg/cm ²)	D648	℃	250			
Heat distortion temperature(18.6kg/cm ²)	D648	℃	225	220	220	225
Coefficient of linear expansion	D696	mm/mm/℃	3.0×10 ⁻⁵	3.0×10 ⁻⁵	3.0×10 ⁻⁵	3.0×10 ⁻⁵
Electrical properties						
Volume resistivity	D257	Ωcm	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶	1.0×10 ¹⁶
Dielectric strength	D149	kV/mm	20	20	20	20
Permittivity	D150	-	3.8	3.8	3.8	3.8
Dissipation factor	D150	-	0.017	0.017	0.017	0.017
Arc resistance	D495	sec	80	80	80	80
Others						
Flame retardancy	UL94	-	V-0(0.75mm)	V-0(0.75mm) 5VA(1.5mm)	V-0(0.75mm) 5VA(1.5mm)	V-0(0.75mm) 5VA(1.5mm)
RTI	UL746B	℃	140℃(3mm)	150℃(3mm)		
Mold shrinkage	D955	%	0.2-0.4	0.2-0.4	0.2-0.4	0.2-0.4

TRIEL

Ester thermoplastic elastomer with outstanding mechanical characteristics,
elasticity, heat resistance and chemical resistance.

Characteristics	Test Methods	Unit	5280	5300	5350	5400	5500
Classification			B/R	B/R	B/R	B/R	B/R
Features			General	General	General	General	General
Physical properties							
Hardness	ASTM D2240	Shore-D	28	30	35	40	50
Specific gravity	ASTM D792		1.1	1.1	1.12	1.13	1.18
Water absorption rate	ASTM D570	%	0.5	0.5	0.5	0.5	0.5
Mold shrinkage	ASTM D955	%	1.5-1.7	1.5-1.7	1.5-1.7	1.5-1.7	1.5-1.7
Mechanical properties							
Tensile strength 5%	ASTM D638	kg/cm2	30	35	45	50	100
Tensile strength 10%	ASTM D638	kg/cm2	40	50	60	70	130
Tensile strength 50%	ASTM D638	kg/cm2	70	75	85	100	160
Tensile strength max	ASTM D638	kg/cm2	90	130	150	170	250
Tensile elongation	ASTM D638	%	> 400	> 400	> 400	> 400	> 400
Izod impact strength(-40℃)	ASTM D256	kg cm/cm	No break	No break	No break	No break	No break
Izod impact strength	ASTM D256	kg cm/cm	No break	No break	No break	No break	No break
Flexural modulus	ASTM D790	kg/cm2	200	300	450	620	1480
Flexural strength	ASTM D790	kg/cm2	20	20	30	37	80
Thermal properties							
Melting Point	ASTM D2117	℃	158	186	195	199	210
Heat distortion temperature (4.6kg/cm ²)	ASTM D649	℃	49	52	55	57	87
VICAT softening point	ASTM D1525	℃	99	108	123	143	174
Mold shrinkage	ASTM D1238	g/10min	25	28	19	16	15

Characteristics	Test Methods	Unit	5550	5600	5650	5700	5750
Classification			B/R	B/R	B/R	B/R	B/R
Features			General	General	General	General	General
Physical properties							
Hardness	ASTM D2240	Shore-D	55	60	65	70	75
Specific gravity	ASTM D792		1.2	1.22	1.24	1.25	1.27
Water absorption rate	ASTM D570	%	0.5	0.5	0.5	0.5	0.5
Mold shrinkage	ASTM D955	%	1.7-2.0	1.7-2.0	1.7-2.0	1.7-2.0	1.7-2.0
Mechanical properties							
Tensile strength 5%	ASTM D638	kg/cm2	110	145	190	240	265
Tensile strength 10%	ASTM D638	kg/cm2	150	190	235	285	350
Tensile strength 50%	ASTM D638	kg/cm2	180	210	240	258	380
Tensile strength max	ASTM D638	kg/cm2	270	315	350	400	430
Tensile elongation	ASTM D638	%	> 400	> 400	> 400	> 400	350
Izod impact strength(-40℃)	ASTM D256	kg cm/cm	25-28	15-18	9-11	7-9	5
Izod impact strength	ASTM D256	kg cm/cm	No break	No break	No break	10 ~ 12	7
Flexural modulus	ASTM D790	kg/cm2	1810	2650	3650	6200	11000
Flexural strength	ASTM D790	kg/cm2	95	125	165	250	400
Thermal properties							
Melting Point	ASTM D2117	℃	210	209	208	215	219
Heat distortion temperature (4.6kg/cm ²)	ASTM D649	℃	102	108	117	118	132
VICAT softening point	ASTM D1525	℃	185	193	200	204	211
Mold shrinkage	ASTM D1238	g/10min	11	12	10	8	6

TRIEL

Characteristics	Test Methods	Unit	5206SP	5301SP	5752SP	5302FR	5401BM
Classification			Used for injection	Used for injection	Used for injection	Used for injection	Blow molding
Features			Used for double-shot injection	General	General	Non-halogen flame resistant	General
Physical properties							
Hardness	ASTM D2240	Shore-D	20	30	75	30	40
Specific gravity	ASTM D792		1.05	1.1	1.27	1.17	1.15
Water absorption rate	ASTM D570	%	0.5	0.5	0.5	0.5	0.5
Mold shrinkage	ASTM D955	%	1.5-1.7	1.5-1.7	1.7-2.0	1.5-1.7	1.5-1.7
Mechanical properties							
Tensile strength 5%	ASTM D638	kg/cm2	10	35	265	40	40
Tensile strength 10%	ASTM D638	kg/cm2	25	50	310	55	60
Tensile strength 50%	ASTM D638	kg/cm2	40	80	270	90	110
Tensile strength max	ASTM D638	kg/cm2	70	130	425	125	230
Tensile elongation	ASTM D638	%	> 400	> 400	350	> 400	> 400
Izod impact strength(-40℃)	ASTM D256	kg cm/cm	No break	No break	5	No break	No break
Izod impact strength	ASTM D256	kg cm/cm	No break	No break	7	No break	No break
Flexural modulus	ASTM D790	kg/cm2	170	280	10000	280	650
Flexural strength	ASTM D790	kg/cm2	18	23	400	23	40
Thermal properties							
Melting Point	ASTM D2117	℃	170	182	219	180	200
Heat distortion temperature (4.6kg/cm ²)	ASTM D649	℃	43	50	132	90	56
VICAT softening point	ASTM D1525	℃	65	108	211		155
Melt Index (230℃, 2.16kg)	ASTM D1238	g/10min	6-10	24-28	4	30-33	1

Characteristics	Test Methods	Unit	HV5401BH	5551BM	5402EM	5722EM
Classification			Blow molding	Blow molding	Used for extrusion molding	Used for extrusion molding
Features			General	General	General	General
Physical properties						
Hardness	ASTM D2240	Shore-D	45	50	40	72
Specific gravity	ASTM D792		1.16	1.22	1.13	1.25
Water absorption rate	ASTM D570	%	0.5	0.5	0.5	0.5
Mold shrinkage	ASTM D955	%	1.5-1.7	1.7-2.0	1.5-1.7	1.7-2.0
Mechanical properties						
Tensile strength 5%	ASTM D638	kg/cm2	60	40	50	
Tensile strength 10%	ASTM D638	kg/cm2	85	80	70	
Tensile strength 50%	ASTM D638	kg/cm2	130	130	100	
Tensile strength max	ASTM D638	kg/cm2	240	270	170	425
Tensile elongation	ASTM D638	%	> 400	> 400	> 400	> 400
Izod impact strength(-40℃)	ASTM D256	kg cm/cm	No break	No break	No break	10-13
Izod impact strength	ASTM D256	kg cm/cm	No break	No break	No break	20-25
Flexural modulus	ASTM D790	kg/cm2	920	1200	620	10200
Flexural strength	ASTM D790	kg/cm2	60	70	37	370
Thermal properties						
Melting Point	ASTM D2117	℃	205	210	199	216
Heat distortion temperature (4.6kg/cm ²)	ASTM D649	℃	75	86	57	128
VICAT softening point	ASTM D1525	℃	160	174	143	205
Melt Index (230℃, 2.16kg)	ASTM D1238	g/10min	1	0.5	11	6

TRIMMA

High transparency, strong resistance to scratch and full penetration of visible lights.
Stable to weak acid, strong acid, weak alkaline and inorganic salts.

Characteristics	Test Methods	Unit	FT6120	FT6125	FT6130	SD6310H
Classification			HI-PMMA	HI-PMMA	HI-PMMA	PMMA/ABS
Features			High transparency	General	High flow	High hardness
Physical properties						
Specific gravity	D792	-	1.18	1.18	1.18	1.11
Absorption rate	D570	%	0.02	0.02	0.02	0.02
Mechanical properties						
Tensile strength	D638	kg/cm ²	750	650	730	550
Tensile elongation	D638	%	20	15	15	35
Flexural strength	D790	kg/cm ²	970	740	980	650
Flexural modulus	D790	kg/cm ²	24500	24000	27700	24000
Izod impact strength	D256	kg cm/cm	2.4	2.4	2.4	6
Rockwell hardness	D785	R scale	120	118	121	122
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	83	80	76	84
Melt Index (220℃, 10 kg)	D1238	gr/10min	8	22	30	15
Others						
Flame retardancy	UL94	-	HB	HB	HB	HB
Mold shrinkage	D955	%	0.4-0.8	0.4-0.8	0.5-0.7	0.5-0.7

Characteristics	Test Methods	Unit	SD6310S	SD6320	SD6320P	SD6350H
Classification			PMMA/ABS	PMMA/ABS	PMMA/ABS	PMMA/ABS
Features			General	High impact	High flow	High glossy
Physical properties						
Specific gravity	D792	-	1.1	1.1	1.09	1.09
Absorption rate	D570	%	0.02	0.02	0.02	0.02
Mechanical properties						
Tensile strength	D638	kg/cm ²	450	450	500	550
Tensile elongation	D638	%	25	15	10	15
Flexural strength	D790	kg/cm ²	600	500	600	740
Flexural modulus	D790	kg/cm ²	19000	16500	19000	23400
Izod impact strength	D256	kg cm/cm	10	15	8	10
Rockwell hardness	D785	R scale	118			
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	80	78	78	83
Melt Index (220℃, 10 kg)	D1238	gr/10min	23	15	31	14
Others						
Flame retardancy	UL94	-	HB	HB	HB	HB
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7

TRIMMA

Characteristics	Test Methods	Unit	SD6380H	SD6390H	SD6350T
Classification			PMMA/ABS	PMMA/ABS	PMMA/ABS
Features			High transparency	High flow	High hardness
Physical properties					
Specific gravity	D792	-	1.14	1.11	1.12
Absorption rate	D570	%	0.02	0.02	0.02
Mechanical properties					
Tensile strength	D638	kg/cm ²	720	520	500
Tensile elongation	D638	%	10	20	30
Flexural strength	D790	kg/cm ²	960	650	650
Flexural modulus	D790	kg/cm ²	27500	21000	21000
Izod impact strength	D256	kg cm/cm	1.5	9	12
Rockwell hardness	D785	R scale	123		
Thermal properties					
Heat distortion temperature (18.6kg/cm ²)	D648	℃	85	81	86
Melt Index (220℃, 10 kg)	D1238	gr/10min	19	27	9
Others					
Flame retardancy	UL94	-	HB	HB	HB
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7

Characteristics	Test Methods	Unit	FM6300	FM6381UV	FM6341UV
Classification			PMMA/ABS	PMMA/ABS	PMMA/ABS
Features			General	Pearl	Pearl
Physical properties					
Specific gravity	D792	-	1.11	1.12	1.12
Absorption rate	D570	%	0.02	0.02	0.02
Mechanical properties					
Tensile strength	D638	kg/cm ²	540	470	470
Tensile elongation	D638	%		50	50
Flexural strength	D790	kg/cm ²	620	720	720
Flexural modulus	D790	kg/cm ²	19000	27000	27000
Izod impact strength	D256	kg cm/cm	13	10	10
Thermal properties					
Heat distortion temperature (18.6kg/cm ²)	D648	℃	83	85	85
Melt Index (220℃, 10 kg)	D1238	gr/10min	21	19	19
Others					
Flame retardancy	UL94	-	HB	HB	HB
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7

TRAMID

High lubricity and strength. Strong resistance to heat, wear, chemical and oil.

Characteristics	Test Methods	Unit	4110	4115	4110G10	4110G20
Classification			PA6(Un-Reinforced)	PA6 (Un-Reinforced)	PA6(Reinforced)	PA6(Reinforced)
Features			General	Impact modified	General	General
Physical properties						
Specific gravity	D792	-	1.13	1.08	1.2	1.28
Absorption rate	D570	%	1.6-1.9	1.6-1.9	1.2-1.6	1.2-1.6
Mechanical properties						
Tensile strength	D638	kg/cm ²	750	600	1000	1250
Tensile elongation		%	15-35	30-50	3	3
Flexural strength	D790	kg/cm ²	1000	750	1500	1900
Flexural modulus		kg/cm ²	25000	21500	49000	62000
Izod impact strength	D256	kg cm/cm	4	13	6	6.5
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	60	52	208	210
Melt Index (250℃, 5.0 kg)	D1238	gr/10min				
Melt Index (260℃, 2.16 kg)	D1238	gr/10min	45	12	-	-
Others						
Flame retardancy	UL94	-	HB	HB	HB	HB
Mold shrinkage	D955	%	0.6-0.8	1.1-1.6	0.4-0.6	0.4-0.6

Characteristics	Test Methods	Unit	4110G30	4110G50	4110GN30	4115G30HU
Classification			PA6(Reinforced)	PA6(Reinforced)	PA6(Reinforced)	PA6(Reinforced)
Features			General	General	Flame Retardant	Impact modified, UV stability
Physical properties						
Specific gravity	D792	-	1.36	1.56	1.62	1.3
Absorption rate	D570	%	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.3
Mechanical properties						
Tensile strength	D638	kg/cm ²	1650	1900	1350	1450
Tensile elongation		%	3	2.2	2	3
Flexural strength	D790	kg/cm ²	2500	3100	1850	2300
Flexural modulus		kg/cm ²	80000	120000	90000	74000
Izod impact strength	D256	kg cm/cm	9	11	7.5	12
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	210	210	205	208
Melt Index (275℃, 2.16 kg)	D1238	gr/10min	45	-	-	-
Others						
Flame retardancy	UL94	-	HB	HB	0.8mm V-0	HB
Mold shrinkage	D955	%	0.3-0.5	0.3-0.5	0.3-0.5	0.3-0.5

TRAMID

Characteristics	Test Methods	Unit	4210	4215	4210G10	4210G20
Classification			PA6,6(Un-Reinforced)	PA6,6 (Un-Reinforced)	PA6,6(Reinforced)	PA6,6(Reinforced)
Features			General	Impact modified	General	General
Physical properties						
Specific gravity	D792	-	1.14	1.08	1.21	1.29
Absorption rate	D570	%	1.0~3.0	1.0~3.0	1.2~1.6	1.2~1.6
Mechanical properties						
Tensile strength	D638	kg/cm ²	770	630	1100	1350
Tensile elongation		%	12~30	35~55	3	3
Flexural strength	D790	kg/cm ²	1000	800	1750	2110
Flexural modulus		kg/cm ²	27000	22000	51000	64000
Izod impact strength	D256	kg cm/cm	5.5	14	6	6.5
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	65	55	235	238
Melt Index (250℃, 5.0kg)	D1238	gr/10min				
Melt Index (275℃, 2.16kg)	D1238	gr/10min	32	8	-	-
Others						
Flame retardancy	UL94	-	HB	HB	HB	HB
Mold shrinkage	D955	%	0.6~0.8	1.1~1.6	0.3~0.5	0.3~0.5

Characteristics	Test Methods	Unit	4210G30	4210G50	4210GN30	4215G30HU
Classification			PA6,6(Reinforced)	PA6,6 (Un-Reinforced)	PA6,6(Reinforced)	PA6,6(Reinforced)
Features			General	General	Flame Retardant	Impact modified, UV stability
Physical properties						
Specific gravity	D792	-	1.37	1.57	1.63	1.3
Absorption rate	D570	%	0.8~1.1	0.8~1.1	0.8~1.1	0.8~1.3
Mechanical properties						
Tensile strength	D638	kg/cm ²	1800	2100	1600	1600
Tensile elongation		%	3	3	2.5	3
Flexural strength	D790	kg/cm ²	2800	3250	2100	2500
Flexural modulus		kg/cm ²	90000	132000	90000	86000
Izod impact strength	D256	kg cm/cm	10	12	6.2	14
Thermal properties						
Heat distortion temperature (18.6kg/cm ²)	D648	℃	240	240	240	233
Melt Index (250℃, 5.0kg)	D1238	gr/10min				
Melt Index (275℃, 2.16kg)	D1238	gr/10min	-	-	-	-
Others						
Flame retardancy	UL94	-	HB	HB	0.8mm V-0	HB
Mold shrinkage	D955	%	0.3~0.5	0.3~0.5	0.3~0.5	0.3~0.5

TRIHIP

High impact polystyrene has stronger resistance to shock compared to the existing polystyrene and is superior in safety against flood, electric property and weather resistance.

Characteristics	Test Methods	Unit	B500	B300
Classification			Unreinforced	Unreinforced
Features			General	Flame resistant
Physical properties				
Specific gravity	D792	-	1.04	1.15
Mechanical properties				
Tensile strength	D638	kg/cm ²	250	250
Tensile elongation	D638	%	25	50
Flexural strength	D790	kg/cm ²	350	330
Flexural modulus	D790	kg/cm ²	19000	19000
Izod impact strength	D256	kg cm/cm	10	9
Rockwell hardness	D785	R scale	97	90
Thermal properties				
Heat distortion temperature (18.6kg/cm ²)	D648	℃	77	76
VICAT	D1525	℃	89	87
Melt Index (200℃, 5kg)	D1238	gr/10min	14	15
Others				
Flame retardancy	UL94	-	HB (1.5mm)	V-0 (1.6mm)
Mold shrinkage	D955	%	0.4~0.8	0.4~0.8

TRIPPE

High processibility in a wide range of temperature.
Good mechanical property, safety against flood and heat resistance.

Characteristics	Test Methods	Unit	GP812	GP814	GP815	GP817	ST855
Classification			Unreinforced (General)	Unreinforced (General)	Unreinforced (General)	Unreinforced (General)	Unreinforced (Flame resistant)
Features			General	General	General	General	General
Physical properties							
Specific gravity	D792	-	1.08	1.08	1.08	1.08	1.09
Absorption rate	D570	%	0.07	0.07	0.07	0.07	0.07
Mechanical properties							
Tensile strength	D638	kg/cm ²	300	460	520	560	450
Tensile elongation	D638	%	20 <	20 <	20 <	20 <	35
Flexural strength	D790	kg/cm ²	470	680	790	1020	600
Flexural modulus	D790	kg/cm ²	21000	21900	22700	24100	22000
Izod impact strength	D256	kg cm/cm	6	9	10	11	6
Thermal properties							
Heat distortion temperature (18.6kg/cm ²)	D648	℃	81	98	105	120	85
Melt Index (250℃, 3.8kg)	D1238	gr/10min	42	18	11	4	35
Coefficient of linear expansion	D696	mm/mm/℃	7	6	6	5	6
Others							
Flame retardancy	UL94	-					V-1(1.5mm)
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7

TRIBS

Features include high impact resistance, good machinability, thermal resistance and platability.

Characteristics	Test Methods	Unit	640R	640G20
Classification			Unreinforced	Reinforced
Features			General	
Physical properties				
Specific gravity	D792	-	1.05	1.20
Mechanical properties				
Tensile strength	D638	kg/cm ²	350	500
Tensile elongation	D638	%	10	1.5
Flexural strength	D790	kg/cm ²	550	650
Flexural modulus	D790	kg/cm ²	25000	55000
Izod impact strength	D256	kg cm/cm	6	6
Thermal properties				
Heat distortion temperature (18.6kg/cm ²)	D648	℃	90	98
Melt Index (220℃, 10kg)	D1238	gr/10min	45	10
Others				
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7

Characteristics	Test Methods	Unit	ST855HF	ST855IS	DA855	GP815G15	GP815G30
Classification			Unreinforced (Flame resistant)	Unreinforced (Flame resistant)	Unreinforced (Flame resistant)	Reinforced	Reinforced
Features			High flow	High impact	High thermal resistance	General	General
Physical properties							
Specific gravity	D792	-	1.1	1.09	1.1	1.2	1.35
Absorption rate	D570	%	0.07	0.07	0.07	0.06	0.06
Mechanical properties							
Tensile strength	D638	kg/cm ²	400	420	430	700	950
Tensile elongation	D638	%	25	40	30	3	2
Flexural strength	D790	kg/cm ²	580	550	650	1000	1300
Flexural modulus	D790	kg/cm ²	22000	21000	22500	40000	63000
Izod impact strength	D256	kg cm/cm	5	10	4.5	5	7
Thermal properties							
Heat distortion temperature (18.6kg/cm ²)	D648	℃	72	82	80	77	80
Melt Index (220℃, 10kg)	D1238	gr/10min	65		30		
Melt Index (250℃, 3.8kg)	D1238	gr/10min		33		21	22
Coefficient of linear expansion	D696	mm/mm/℃	6	6	6	4	3
Others							
Flame retardancy	UL94	-	V-1(1.5mm)	V-1(1.5mm)	V-0(1.5mm) 5VA(2.5mm)		
Mold shrinkage	D955	%	0.5-0.7	0.5-0.7	0.5-0.7	0.4-0.5	0.2-0.3

TRIPPS

Long-term resistance to heat, chemical, flame with good electric property.
High congeniality with inorganic substances and used as alternative to metal.

Characteristics	Test Methods	Unit	7A140	7A150	7A165
Classification			Reinforced	Reinforced	Reinforced
Features			High flow	High tensile strength	High tensile strength
Physical properties					
Specific gravity	D792	-	1.65	1.72	1.95
Absorption rate	D570	%	0.02	0.02	0.02
Mechanical properties					
Tensile strength	D638	kg/cm ²	1,650	1,600	1,600
Tensile elongation	D638	%	2	2	1.5
Flexural strength	D790	kg/cm ²	2,100	2,100	2,000
Flexural modulus	D790	kg/cm ²	160,000	190,000	200,000
Izod impact strength	D256	kg cm/cm	5	6	6
Thermal properties					
Heat distortion temperature (18.6 kg/cm ²)		℃	260	260	265
Melt Index (315℃, 5.0 kg)	D1238	gr/10min	110	90	75
Coefficient of linear expansion	D696	mm/mm/℃	2.5×10 ⁻⁵	2.5×10 ⁻⁵	2.0×10 ⁻⁵
Electrical properties					
Volume resistivity	D257	Ωcm	10 ¹⁶	10 ¹⁶	10 ¹⁶
Dielectric strength	D149	kV/mm	16	16	16
Permittivity (1MHz)	D150	-	4	4	4
Dissipation factor (1MHz)	D150	-	0.005	0.005	0.005
Arc resistance	D495	sec	125	125	125
Others					
Flame retardancy	UL94	-	V-0(0.75mm)	V-0(0.75mm)	V-0(0.75mm)
Mold shrinkage	D955	%	0.3	0.2	0.2

TRILFT

TRILFT is a thermoplastics composite material reinforced with long fibers such as glass, carbon, aramid, natural and stainless steel.
LFT composite exhibits concurrently enhanced flexural modulus and Izod impact strength.

PROPERTY	UNIT	ASTM METHOD	LF9001G20	LF9001G30	LF9001G40	LF9001G50
Characteristics						
Classification			PP/Glass fiber	PP/Glass fiber	PP/Glass fiber	PP/Glass fiber
Physical Properties						
Specific Gravity	-	D792	1.0	1.1	1.19	1.29
Mechanical Properties						
Tensile Strength	kg f/cm ²	D638	870	1,070	1,270	1,320
Flexural Strength	kg f/cm ²	D790	1,070	1,530	1,780	1,940
Flexural Modulus	kg f/cm ²	D790	32,600	56,100	76,500	96,900
Izod Impact Strength, notched, @ 23℃ (1/4")	kg f-cm/cm	D256	12	16.5	20	22.5
Izod Impact Strength, notched, @ -30℃ (1/4")	kg f-cm/cm	D256	15	20	22	25
Thermal						
Heat Distortion Temperature (18.6 kg f/cm ²)	℃	D648	158	160	160	160

PROPERTY	UNIT	ASTM METHOD	LF9051G15	LF9051G30	LF9051G40	LF9051G50
Characteristics						
Classification			PP/Glass fiber	PP/Glass fiber	PP/Glass fiber	PP/Glass fiber
Features			Chemical resistance	UV resistance	UV resistance	UV resistance
Physical Properties						
Specific Gravity	-	D792	0.99	1.09	1.18	1.28
Mechanical Properties						
Tensile Strength	kg f/cm ²	D638	760	1,020	1,170	1,270
Flexural Strength	kg f/cm ²	D790	1,070	1,380	1,530	1,780
Flexural Modulus	kg f/cm ²	D790	30,600	56,100	71,400	91,800
Izod Impact Strength, notched, @ 23℃ (1/4")	kg f-cm/cm	D256	14	15	17	20
Izod Impact Strength, notched, @ -30℃ (1/4")	kg f-cm/cm	D256	18	18	20	21.5
Thermal						
Heat Distortion Temperature (18.6 kg f/cm ²)	℃	D648	158	160	160	160

TRILFT

PROPERTY	UNIT	ASTM METHOD	LF9081G30	LF9081G40	LF9081G50	LF4001G30
Characteristics						
Classification			PP/Glass fiber	PP/Glass fiber	PP/Glass fiber	PA/Glass fiber
Features			High stiffness	High stiffness	High stiffness	
Physical Properties						
Specific Gravity	-	D792	1.11	1.2	1.31	1.35
Mechanical Properties						
Tensile Strength	kgf/cm ²	D638	1,120	1,270	1,380	1,580
Flexural Strength	kgf/cm ²	D790	1,580	1,840	2,040	2,240
Flexural Modulus	kgf/cm ²	D790	61,200	81,600	102,000	81,600
Izod Impact Strength, notched, @ 23℃ (1/4")	kgf·cm/cm	D256	18.5	21.5	26.5	15
Izod Impact Strength, notched, @ -30℃ (1/4")	kgf·cm/cm	D256	23	24.5	28.5	
Thermal						
Heat Distortion Temperature (18.6 kgf/cm ²)	℃	D648	160	160	160	210

PROPERTY	UNIT	ASTM METHOD	LF4001G45	LF4650C20	LF7030G40	LF7080G40
Characteristics						
Classification			PA/Glass fiber	PA/Carbon fiber	PPS/Glass fiber	PPS/Glass fiber
Features				Weathering grade	Impact strength	High stiffness
Physical Properties						
Specific Gravity	-	D792	1.5	1.17	1.56	1.67
Mechanical Properties						
Tensile Strength	kgf/cm ²	D638	2,090	1,990	1,580	1,680
Flexural Strength	kgf/cm ²	D790	2,960	2,650	2,040	1,940
Flexural Modulus	kgf/cm ²	D790	117,000	112,000	117,000	122,000
Izod Impact Strength, notched, @ 23℃ (1/4")	kgf·cm/cm	D256	21.5	12.5	14.5	10
Izod Impact Strength, notched, @ -30℃ (1/4")	kgf·cm/cm	D256		9		
Thermal						
Heat Distortion Temperature (18.6 kgf/cm ²)	℃	D648	215	215	260	260

Metalinus™ / 3D Printing Material

Metalinus™: A material able to have the similar look to metal simply through injection molding without any extra painting process.
3D Printing Material: Great material to produce 3D printing filament. Especially, TRIREX 3DP grade is printable in ABS level low-temperature.

PROPERTY	UNIT	ASTM METHOD	TRIBS LU627	TRIBS LU637	TRIBS ML687	TRILOY LU170	TRIREX ML3020
Characteristics							
Classification			ABS	ABS	ABS	PC/PBT	PC
Features			Metal-like appearance	Metal-like appearance	Metal-like appearance	Metal-like appearance	Metal-like appearance
Physical Properties							
Specific Gravity	-	D792	1.05	1.05	1.05	1.21	1.2
Absortion Rate	%	D570	-	-	-	0.15	0.15
Melt Flow Rate (220℃, 10kg)	g/10min	D1238	9	34	48		
Melt Flow Rate (250℃, 5kg)	g/10min	D1238				19	
Melt Flow Rate (300℃, 1.2kg)	g/10min	D1238					23
Mechanical Properties							
Tensile Strength	kgf/cm ²	D638	500	420	450	550	650
Tensile Elongation	%	D638	30	30	40	>100	>100
Flexural Strength	kgf/cm ²	D790	750	620	650	800	900
Flexural Modulus	kgf/cm ²	D790	24,000	21,000	24,000	21,400	22,000
Izod Impact Strength	kgf·cm/cm	D256	9	20	8	70	75
Rockwell Hardness	R scale	D785	-	-	-	110	120
Thermal Properties							
Heat Distorsion Temperature (18.6 kgf/cm ²)	℃	D648	85	83	85	105	130
Others							
Mold Shrinkage	%	D955	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.7 ~ 1.2	0.5 ~ 0.7

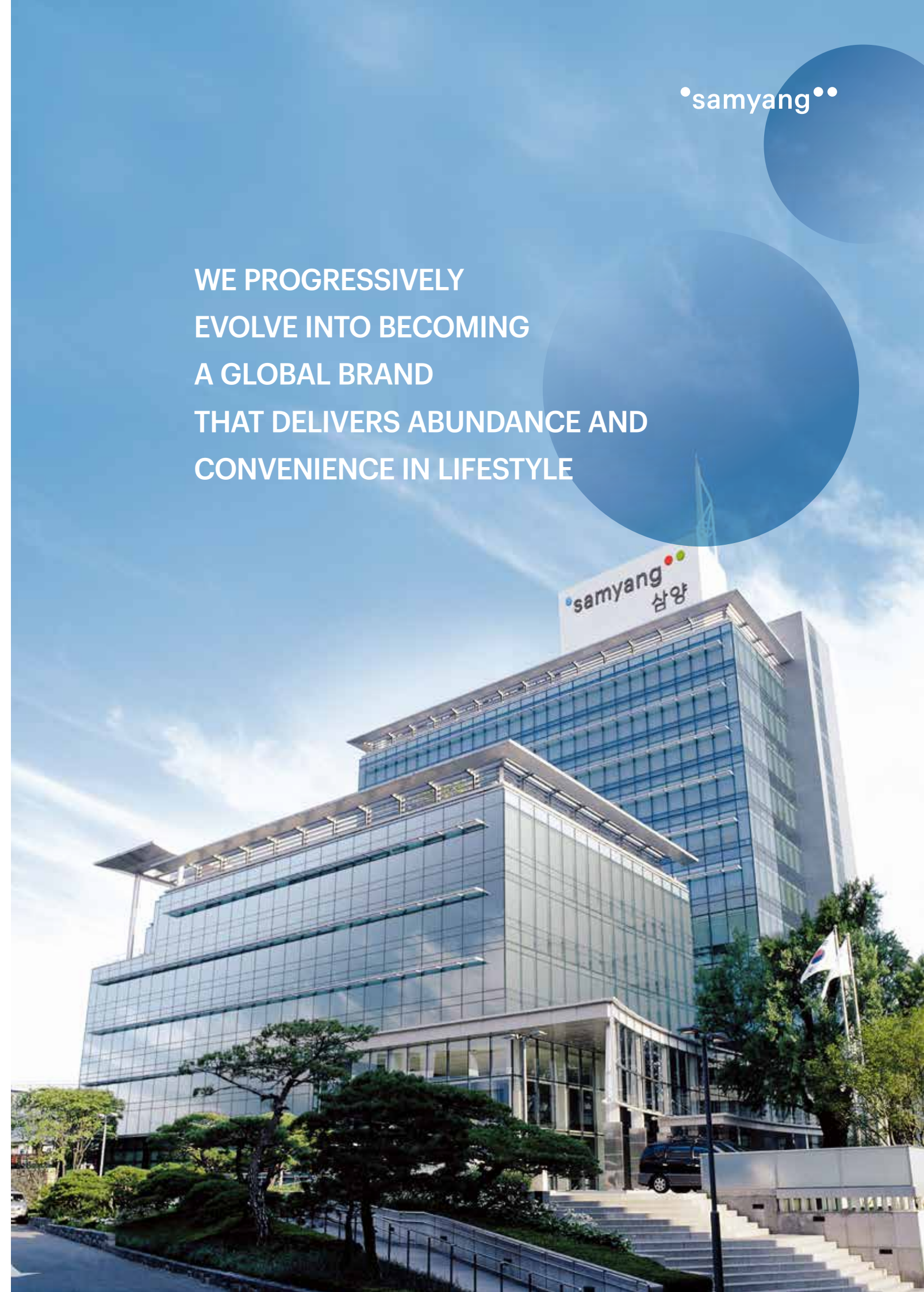
PROPERTY	UNIT	ASTM METHOD	TRIREX 3DP-3000HF	TRIREX 3DP-3000LW	TRIPLEEK 3DP-PK8020
Characteristics					
Classification			PC for 3D printing	PC for 3D printing	PEEK for 3D printing
Features			Low melting point	Low warpage	High heat/high stiffness
Physical Properties					
Specific Gravity	-	D792	1.2	1.2	1.3
Water Absorption (24 hours at 23℃)	%	D570	0.15	0.15	0.1
Melt Flow Rate (235℃, 1.2kg)	g/10min	D1238	7	6	
Melt Flow Rate (380℃, 5.0kg)	g/10min	D1238			20
Mechanical Properties					
Tensile Strength	kgf/cm ²	D638	580	580	880
Tensile Elongation	%	D638	130	130	100
Flexural Strength	kgf/cm ²	D790	850	850	1,350
Flexural Modulus	kgf/cm ²	D790	22,000	22,000	35,000
Izod Impact Strength, notched, 23℃ (1/8")	kgf·cm/cm	D256	45	45	10
Rockwell Hardness	R scale	D785	120	120	120
Thermal Properties					
Heat Distortion Temperature (18.6 kgf/cm ²)	℃	D648	90	95	148
Others					
Printing Temperature	℃		220~240	230~250	380~400
Bed Temperature	℃	-	100~110	110~120	140~160

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