INFINO®

Create Infinite Possibilities

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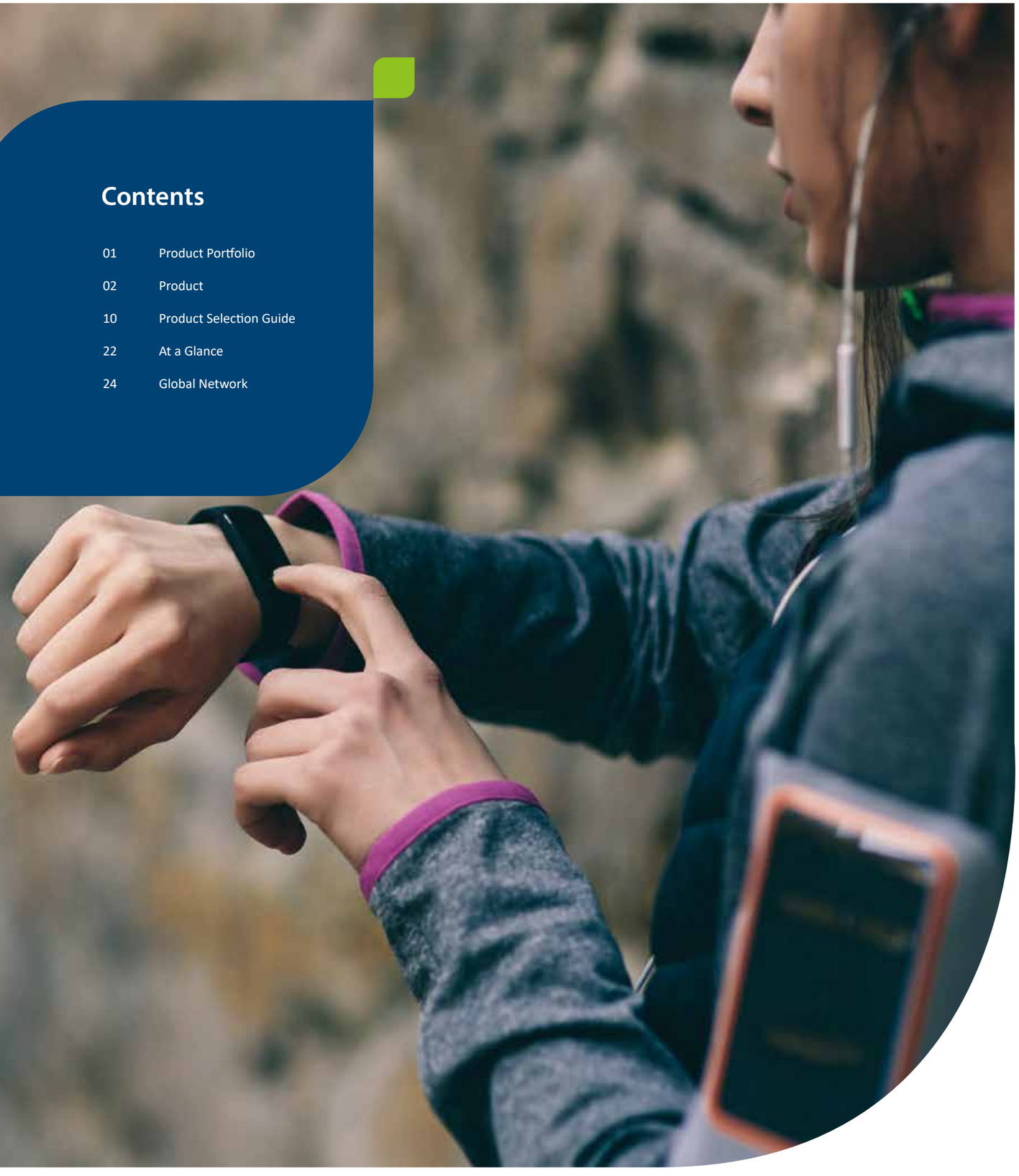
English

INFINO®

PC & PC Alloy, High Performance EP

LOTTE CHEMICAL



Contents

Product Portfolio

INFINO® is LOTTE Chemical's high-performance engineering plastics brand, symbolizing the company's commitment to pursuing infinite possibilities and creating differentiated solutions and values for customers.

INFINO®

PC & PC Alloy

PC	PC/ABS	PC/ABS/GF	PC/GF	Special Alloy
Transparent	General	Flame Retardant	General	PC/ASA
General	Metal Plating	Eco-friendly	High Impact	PC/PET
Flame Retardant	Flame Retardant		Flame Retardant	PC/PBT
Eco-friendly	Eco-friendly		Dimensional Stability	
Medical	Luminous		Eco-friendly	

High Performance EP

PPA	PBT	mPPE	PPS	PCT
PPA/GF	PBT	mPPE	PPS/GF	PCT/GF
– High Impact	PBT/GF	mPPE/GF	PPS/GF/MF	
– High Heat Resistant	PBT/ABS/GF	PA/PPE		
– Flame Retardant (non-halogen)	PBT/ASA/GF	PA/PPE/GF		
– Eco-friendly	PBT/PET/GF, MF	PA/PPE/CNT		

Transparent PC

APPLICATIONS

- E&E
- Automotive
- Lighting
- Sundries
- Medical devices
  - Stationery, Toys
  - Hemodialyzer housing, IV Set, Oxygenator, Drug/Fluid Delivery

KEY FEATURES

- Optical
  - High transmittance
  - Biocompatibility
- UV
  - resistance
  - γ-ray resistance
- Flowability
- Impact
  - strength
  - Property stability
- Various colors
  - available
  - Global medical standards
    - SO-10993, USP Class VI, Food Contact

Medical

PRODUCT LINE UP

General

- SC-1100(U)R
- SC-1102UR
- SC-1220(U)R
- SC-1222UR
- SC-1280UR (Lighting)
- QC-1100UR (1.6T V2, f1)
- QC-1220UR (1.6T V2, f1)

Extrusion

- SC-1060P
- SC-1060U
- SC-1063U

Automotive

- General
  - LT-1100
  - LT-1220
- Diffusion
  - TP-1020U *
  - TP-1025U *
- High Impact
  - IV-1025U *
- Chemical Resistant
  - IV-1075C
- Scratch Resistance
  - IW-1015

Medical

- EtO Sterilization
  - ML-1010R (MFI 11.5)
  - ML-1020R (MFI 22)
- Γ-ray Sterilization
  - High Impact
    - MR-1005 (MFI 7.5)
  - Mid Flow
    - MR-1015 (MFI 18)
  - High Flow
    - MR-1020 (MFI 20)

* Under Development

Flame Retardant PC

APPLICATIONS

- E&E
- Energy
  - Battery, Smart meter

KEY FEATURES

- Flame retardant & Heat resistance
  - Cl, Br free
- High modulus
- Flowability
- Impact strength
- Surface quality

PRODUCT LINE UP

General

- Semi-transparent
  - High Flow (Semi-transparent)
    - TN-1045D(0.8T V2)
    - TN-1045M(2.0T V2)
  - High Heat
    - TH-1100(2.0T V0)
    - TH-1108(3.0T V0, f1)
  - Anti-microbial
    - ABF-1010SC *
- Opaque
  - General
    - SA-1100(0.75T V2)
    - SA-1220(0.75T V2)
  - High Heat
    - HN-1064IF(1.5T V0)
    - NH-1035(2.0T 5VB)
    - HN-1024(1.0T V0)
  - Flame Retardant for Thin-wall
    - UF-1017S(0.8T V0)
    - UF-1002(0.75T V0, 2.5T 5VA)
    - UF-1063(0.6T V0)
    - UF-1064(0.6T V0, High Impact)*
  - High Impact at Low Temp.
    - UH-1064(1.5T V0, f1)
    - UH-1068(1.5T V0, f1)

Low Smoke

- EN45545-2 Compliant
  - FS-1152(R1 HL2)
  - FS-1030(R22 HL3)

Reinforced

- GF 10%
  - General
    - HN-3102GH(1.5T V0)
  - High Flow
    - LS-3104G(0.75T V2)
    - HN-3102G(1.5T V0)
  - High Heat
    - HN-3104(1.5T V0, 3.0T 5VA, f1)
- GF 20%
  - High Flow
    - NH-3204G(2.0T V0)
    - NH-3208GL(0.75T V0)
    - HF-3200H(1.5T V2)
  - Surface Quality
    - NH-3200(0.75T V0)
  - High Heat
    - HN-3204(1.5T V0, 2.5T 5VA, f1)
  - High Impact
    - NH-3203(0.8T V0)*
- GF 30%
  - General
    - HM-3301GL
  - High Impact
    - NH-3303(1.0T V0)
- GF 40%
  - General
    - NH-3402F(2.0T V1)

* Under Development

Flame Retardant PC Alloys

APPLICATIONS

- E&E
- Energy
  - Battery, Smart meter

KEY FEATURES

- Flame retardant & Heat resistance
  - Cl, Br free
- High modulus
- Flowability
- Impact strength
- Surface quality

PRODUCT LINE UP

General

- General
  - High Impact
    - NH-1015B(1.5T V0)
  - High Flow
    - NH-1015V(1.5T V0)
  - Light Resistant
    - NH-1013U(1.5T V0)
  - Flame Retardant for Thin-wall
    - NH-1021(1.0T V0)
- High Heat
  - General
    - NH-1037(1.5T V0)
  - High Flow
    - NH-1033(1.5T V0)
  - Chemical Resistant
    - NH-1041(1.5T V0)
  - Anti-microbial
    - ABF-1030G(1.5T V0)
- High Flow
  - General
    - NE-1030(1.5T V0)
    - NH-1090(2.0T V0)
  - Anti-hydrolysis
    - NH-1098(1.5T V0)
- High Flame Retardant
  - General
    - NE-1060(2.0T 5VB)
  - High Heat
    - NH-1049(2.5T 5VB, GWIT)*
    - NH-1034(2.5T 5VA)
  - Chemical Resistant
    - NH-1047(2.0T 5VB)
    - NH-1048 (1.5T 5VB)
- High Modulus
  - High Impact
    - NH-1150HH(1.2T V0, MF 15%)
  - High Flow
    - NE-1306(2.0T 5VB, MF 30%)
    - NM-1229I(1.0T V1, MF 20%)
- Functionality
  - GC-1048(1.5T V0/5VB, PCR 30%)
  - GC-1045 (1.5T V0, PCR 30%)
  - GV-1066 (1.5T V0, PCR 60%)*
  - GV-1016 (1.5T V0, PCR 65%, RTI)*
  - GC-1017 (1.5T V0, PCR 30%)
  - GV-1155OP (1.2T V0, OBP)*
  - GV-1005OP (1.0T V0, OBP)

Reinforced

- GF 10%
  - General
    - HM-1100F (1.5T V0)
- GF 15%
  - General
    - LS-1150G (0.75T V2)
    - LS-1159 (2.0T V0)
  - High Impact
    - LS-1159S (2.0T V0)

* Under Development

High Impact PC & PC/GF

APPLICATIONS

- Mobile devices
- E&E

KEY FEATURES

- Flowability
- High modulus
- Impact strength after painting process
- Surface quality
- Chemical resistance
  - Cosmetic

PRODUCT LINE UP

General

- High Impact
  - AH-1080
  - CF-1050
  - CF-1070
- Chemical resistance
  - GM-1080
- Transparent
  - CF-1021T

Reinforced

- General
  - AH-3100 (GF 10%)
  - AH-3200 (GF 20%)
- Dimensional Stability
  - LS-3302 (GF 30%)
- High Impact
  - CF-3200HF (GF 20%)
  - CF-3300HF (GF 30%)
- Surface Quality
  - GI-3103 (GF 10%)

* Under Development

High Heat Resistant EP

APPLICATIONS

LED
Engine Room, Interior, Exterior

Connector

Mobile devices

KEY FEATURES

Long-term heat stability

High modulus

Quality stability

PRODUCT LINE UP

PCT (High Reflectivity/Reliability)

- Processability at Low Temp.
  - General
    - TK-2046MA
  - High Luminance
    - TK-2050LP
- Transparent
  - TK-2020T

PPA (High Heat Resistance/Impact Strengt)

- Connector (PA6T)
  - Flame Retardant
    - HX-4302G (0.4T, V0)
    - HX-4452G (0.4T, V0)
- Automotive
  - General
    - HA-4302G (GF 30%)
  - Long-term Heat Resistance
    - HA-4350HP (GF 35%)
  - Metal Plating
    - HA-4400MP

Super Structural EP

APPLICATIONS

Mobile devices
Rear cover, Bracket

E&E
TV, Bobbin, Connector

HA
Coffee machine

KEY FEATURES

Metal-replacement

Thin-wall design

Flowability

PRODUCT LINE UP

PA, PPA (Super Modulus)

- HM-4450C (PPA/GF45%, 34GPa)
- HM-4300G (PPA/GF 30%, 10GPa)
- HM-4500G (PPA/GF 50%, 13GPa)
- HM-4650G (PPA/GF 65%, 20GPa)
- HM-4650LW (PPA/GF 65%, 20GPa, Low Warpage)
- MKD-1016 (PA/GF 55%, 15GPa, Low Warpage)

PPS (High Impact/Anti-scratch)

- XP-2130A (PPS/GF 30%, Anti-scratch)

Metal Adhesion, LDS Materials

APPLICATIONS

Mobile devices
Rear cover
Metal Adhesion

Internal antenna
Mobile devices, E&E
LDS

KEY FEATURES

High adhesiveness
Impact strength, Low shrinkage
Chemical resistance
Metal Adhesion

Plating adhesion strength
Impact strength
LDS

PRODUCT LINE UP

Metal Adhesion

- PBT/GF
  - JS-5207LD (GF 20%, Low Permittivity)

LDS (Laser Direct Structuring)

- PC
  - LP-1025(Chemical Resistant)
- PC/GF
  - LP-3105 (GF 10%, Chemical Resistant)
  - LP-3305 (GF 30%, Chemical Resistant)
  - LP-3303 (GF 30%, Black)
- PC/ABS
  - LP-1010 (Black)
  - LP-1011(White etc.)
- PA
  - LP-4300 (GF 30%)
  - LP-4304 (GF 30%, High Heat) *
- Eco-friendly
  - LP-3305GW (GF 30%, PCR 20%)

Eco-friendly Material

APPLICATIONS						KEY FEATURES				
E&E	E&E	Automotive	Mobile	잡화	Energy Battery, Smart meters	Eco-friendly Sustainable plastic resource circulation	Flame Retardant, Heat Resistant Flame retardant Cl, Br Free	High Modulus	fluidity	Various Color Available

PRODUCT LINE UP

Mechanical Recycling

- Flame Retardant PC
  - General
    - GC-1022 (1.5T V0, RTI) (20%)
    - GC-1025 (1.5T V0, RTI) (50%)
    - GC-1029 (1.5T V0, RTI) (90%)*
    - GV-1025 (1.0T V0, RTI) (50%)
    - GC-1002FR (0.6T V0) (20%)*
  - Reinforced
    - GC-3107 (GF 10%, 1.5T V0) (70%)*
    - GC-3103 (GF 10%, 0.8T V0) (30%)*
    - GC-3203 (GF 20%, 0.8T V0) (30%)*
    - GC-3303 (GF 30%, 0.8T V0) (30%)*
    - GC-3403 (GF 40%, 0.8T V0) (30%)*
- Flame Retardant PC/ABS
  - General
    - GC-1045 (1.5T V0) (30%)
    - GC-1017 (1.5T V0) (30%)
    - GC-1016 (1.5T V0, RTI) (65%) *
    - GC-1150HC (1.2T V0 MF 15%) (30%)
    - GC-1048 (1.5T 5VB) (30%)
    - GC-1055 (1.5T 5VB) (50%)
    - GC-1087 (1.5T 5VB) (75%) *
    - GC-1088 (1.5T 5VB) (80%) *
  - Reinforced
    - GC-1151 (GF15%, 1.5T V1) (20%)
- High Impact PC
  - General
    - GW-1053 (30%)
    - GW-1055 (50%)
    - GW-1059 (90%)*
    - GW-1005TH (Transparent) (50%)*
  - Reinforced
    - GW-3203 (30%)

OBP (Ocean Bound Plastics)

- Flame Retardant PC/ABS
  - GV-1005OP (1.0T V0) (50% (OBPET 5% + PC 45%))
  - GV-1155OP (1.2T V0, MF 15%) (50% (OBPET 5% + PC 45%))
- PA/GF
  - GB-9302 (GF 30%) (OBPA 20%)
  - GB-9502 (GF 50%) (OBPA 20%)*
  - GB-9702 (GF 70%) (OBPA 20%)*

* Under Development
* % Recycled material content

Automotive Materials

Interior

- PC
  - General
    - LT-1100
    - LT-1220
  - Diffusion
    - TP-1020
    - TP-1020U
    - TP-1025U
  - High Impact
    - IV-1025U
    - IV-1075C (Chemical Resistant)
- PC/ABS/GF
  - WP-1100 (10%)
  - WP-1200 (20%)
- PC/ABS
  - General
    - HP-1000X
    - HP-1000XA
  - Low TVOC
    - HP-1000XL
  - High Flow
    - WP-1069
    - WP-1089
  - Chemical Resistant
    - HP-1000XC
    - WP-1059J
  - Luminous(Paint-free)
    - LX-1098F
    - LX-1025
- PC/ASA
  - WR-7250H
  - IF-7900 (Emotional Feeling)
  - WR-7390EA (Eternal Antistatic)
- PC/PBT
  - AE-3080C (Chemical Resistant)
- PBT/PET/GF
  - AR-6300
  - AR-6308
- PA/ABS
  - SR-9325 *

Exterior

- PC/ABS
  - Painting
    - WP-1059
  - Metal Plating
    - WP-1041(G)
    - WP-1051
    - WP-1061
    - WP-1071
- PC/ABS/MF
  - WP-1170M(MF17%)
- PC/ASA
  - General
    - WR-7000
  - Heat Resistant
    - WX-7010
    - WX-7030
- PC/PET
  - General
    - AE-2030
  - High Flow
    - AE-2039
  - High Modulus (MF)
    - AE-2130 (5%)
    - AE-2150F (15%)
- PC/PBT
  - High Impact
    - AE-3060
    - AE-3063I (High Impact at Low Temp.)
- PBT/PET/GF
  - AR-6508

Lighting

- PC
  - General
    - LT-1100
    - LT-1220
- PC/ABS
  - General
    - HP-1000XA
  - High Flow
    - WP-1069
    - WP-1089
  - High Gloss/Low Gas
    - HP-1000XG
- PBT
  - ASF-9810FL
  - ASF-9810FM
  - ASF-9860
- PPE
  - IL-8020 *
  - IL-8030 *
  - IL-8040 *

Structure

- PBT/ASA/GF
  - AR-5300H
- PA/PPE/CNT
  - CA-7000C *
  - CA-7009
- PBT/PET/GF
  - AR-6200

Power Train (EV Battery)

- PC (FR)
  - EFC-5087 (1.5T V0)
  - EFC-5048 (0.8T V0, High Heat)
- PC/ABS (FR)
  - EFC-1087 (1.5T V0)
  - EMC-1067* (1.5T V0, PCR 10%)
  - EFC-1206 (GF 20%, 3.0T V0)
  - EFC-1207 (GF 20%, 1.5T V0)
- PA (FR)
  - EME-9307* (GF 30%, 1.5T V0, PCR 40%)
  - EFE-9308* (GF 30%, 0.8T V0)
- PPE (FR)
  - EFE-8107* (GF 10%, 1.5T V0)
  - EFE-8107B* (GF 10%, 1.5T V0, Dimension)
  - EFE-8108B* (GF 10%, 0.8T V0, Dimension)
  - EFE-8205* (GF 20%, 2.0T V0)

* Under Development

Transparent PC

		Properties	Test Method	Condition	Unit	General						
						SC-1100R	SC-1100UR	SC-1102UR	SC-1220R	SC-1220UR	SC-1222UR	SC-1280UR
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.2	1.2	1.2	1.2	1.2	1.2	1.2
		Melt Flow Index	ASTM D1238	250°C, 10kg	g/10min							
				300°C, 1.2kg		11.5	11.5	11.5	22.0	22.0	20	28.0
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²							
				50mm/min		640	640	640	640	640	640	640
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	920	920	920	920	920	920	920
				30mm/min								
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	23,000	23,000	23,000	23,000	23,000	23,000	23,000
				30mm/min								
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	15	15	15	10	10	10	10
				1/8inch at 23°C		87	87	87	75	75	75	70
		Rockwell Hardness	ASTM D785	R-scale	-	120	120	120	120	120	120	120
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	127	127	127	125	125	125	123
				4.6kgf/cm², 6.4mm		137	137	137	136	136	136	135
	Flame	Flammability	UL94	HB	mm							
				V-2		0.75-3.0	0.75-3.0	0.75-3.0	0.75-3.2	0.75-3.2	0.75-3.2	0.8-3.2
ISO	Physical	Melt Flow Index	ISO 1133	250°C, 10kg	g/10min							
				300°C, 1.2kg		11.5	11.5	11.5	22.0	22.0	20	28.0
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa							
				50mm/min		64	64	64	64	64	64	64
		Flexural Strength	ISO 178	2mm/min	MPa	92	92	92	92	92	92	92
		Flexural Modulus	ISO 178	2mm/min	MPa	2,300	2,300	2,300	2,300	2,300	2,300	2,300
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	80	80	80	65	65	65	60
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	75	75	75	60	60	60	50
		Rockwell Hardness	ISO 2039-2	R-Scale	-	120	120	120	120	120	120	120
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	125	125	125	123	123	123	122
				0.45MPa, 4.0mm		137	137	137	136	136	136	135
		VICAT Softening Temperature	ISO R 306	B/50	°C	146	146	146	145	145	145	144

General		Extrusion			Automotive					EtO Sterilization		Γ-ray Sterilization		
QC-1100UR	QC-1220UR	SC-1060P	SC-1060U	SC-1063U	LT-1100	LT-1220	TP-1020U	IV-1075C	IW-1015	ML-1010R	ML-1020R	MR-1005	MR-1015	MR-1020
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.19	1.19	1.18	1.2	1.2	1.2	1.2	1.2
									17.0	11.5	22	7.5	18	23
11.5	22.0	6.0	6.0	6.0	11.5	22.0	20.0	7.0	11.0	0.5-0.7	0.5-0.7	0.4-0.7	0.4-0.7	0.4-0.7
0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.4-0.7	0.5-0.8	0.4-0.7	0.5-0.7	0.5-0.7	0.4-0.7	0.4-0.7	0.4-0.7
0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.4-0.7	0.5-0.8	0.4-0.7					
							600	620						
640	640	660	660	660	640	640			690	640	640	660	640	640
920	920	930	930	930	920	920			960	920	920	920	920	920
							920	920						
23,000	23,000						920	920						
		23,000	23,000	23,000	23,000	23,000			23,000	23,000	23,000	23,000	23,000	23,000
15	10						23,000	23,000						
87	75	15	15	15	15	10	11	70	44	15	10	10	10	10
120	120	120	120	120	120	120	121	121	121	120	120	120	120	120
127	125	128	128	128	127	125	128	124	112	127	125	125	123	122
137	136	138	138	138	137	136	140	135		137	136	135	133	132
		2.6-3.2	2.6-3.2	2.6-3.2										
1.6-3.2	1.6-3.2	1.6-2.0	1.6-2.0	1.6-2.0	0.8-3.0	0.8-3.2				0.8-3.0	0.8-3.0	0.8, 3.0		
									17					
11.5	22.0	6.0	6.0	6.0	11.5	22.0	20.0	7.0	11.0	11.5	22	7.5	18	23
							57	59						
64	64	66	66	66	64	64			65	64	64	66	64	64
92	92	93	93	93	92	92	90	93	98	92	92	92	92	92
2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,130	2,100	2,600	2,300	2,300	2,300	2,300	2,300
82	65	85	85	85	80	65	52	62	20	80	65	85	70	65
75	60	80	80	80	75	60	64	74	23	75	60			
120	120	120	120	120	120	120	122	121	121	120	120			
125	123	126	126	126	125	123	123	118	110	125	123	123	121	120
137	136	138	138	138	137	136	139	133	128	137	136	135	133	132
146	145	147	147	147	146	145	147	141		146	145	143	141	140

Flame Retardant PC

						General									
	Properties	Test Method	Condition	Unit	TN-1045D	TN-1045M	TH-1100	TH-1108	SA-1100	SA-1220	HN-1064IF	NH-1035	HN-1024	UF-1017S
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.21	1.22	1.2	1.2	1.2	1.2	1.18	1.2	1.2	1.2
		Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min										19
				250°C, 2.16kg											
				250°C, 5kg											
				250°C, 10kg			92	17	17			30	35	19	
				300°C, 1.2kg		27	41		12	9	20				
				300°C, 2.16kg											
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.4-0.7	0.3-0.6	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.3 - 0.6
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.4-0.7	0.3-0.6	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.3 - 0.6
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²										
				50mm/min		730	750	650	650	650	650	600	600	640	620
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	1,050	1,100	960	900	980	990	800	900	890	910
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	26,500	27,000	22,000	23,000	23,000	23,000	21,000	25,000	22,000	23,500
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	5	4.1			20	12		15		
				1/8inch at 23°C		4	2.5	>5	80	70	70	60	70	70	65
		Rockwell Hardness	ASTM D785	R-scale	-	123	124	119	119	120	120	118	120	118	119
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	95	97	130	130	127	120		113	126	
				4.6kgf/cm², 6.4mm							130				
	Flame Characteristics	Flammability	UL94	HB	mm										
				V-2		0.8, 3.0	0.8, 3.0		1.5	0.75, 1.5, 2.0, 2.5, 3.0	0.75, 1.5, 2.5, 3.0	0.75, 1.0		0.75	0.4
				V-1								1.2			
				V-0				2.0, 2.5, 3.0	3			1.5, 3.0	1.5, 2.0-2.7	1.0, 1.2, 1.5, 3.0	0.7 - 3.0
				5VA											
				5VB									2.0-2.7		
	Optical	Transmissivity	ASTM D1003	2.5mm	%			85							
				3.2mm		89	89								
		Haze	ASTM D1003	2.5mm	%			2							
				3.2mm		0.6	0.6								
ISO	Physical	Melt Flow Index	ISO 1133	220°C, 10kg	g/10min										19
				250°C, 2.16kg											
				250°C, 5kg											
				250°C, 10kg			92	17	17			30	35	19	
				300°C, 1.2kg		27	41		12	9	20				
				300°C, 2.16kg											
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa										
				50mm/min		70	73	60	60	63	60	60	59	60	61
		Flexural Strength	ISO 178	2mm/min	MPa	105	108	95	90	90	90	80	90	80	90
				2.8mm/min											
		Flexural Modulus	ISO 178	2mm/min	MPa	2,600	2,650	2,400	2,200	2,260	2,050	2,100	2,300	2,100	2,350
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	3	2.5			70	45	50	54	70	64
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	3			30	70	25	60	55	65	67
		Rockwell Hardness	ISO 2039-2	R-Scale	-	123	124	119	119	120	120	119	120	118	119
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	93	89	123	123	125	118	119	107	125	93
				0.45MPa, 4.0mm			99				128		120		
		Heat Deflection Temperature (Annealing)	ISO R 306	1.8MPa, 4.0mm	°C		100						116		
				0.45MPa, 4.0mm			104						122		
		VICAT Softening Temperature	ISO R 306	B/50	°C	106	106	144	144	142	138	140	127	143	109
				B/120			108						129		
	Optical	Transmissivity	ISO 13468	2.5mm	%			85							
		Haze	ISO 13468	2.5mm	%			2							

						General				Low Smoke		Reinforced											
	Properties	Test Method	Condition	Unit	UF-1002	UF-1063	UH-1064	UH-1068	FS-1152	FS-1030	HN-3102GH	LS-3104G	HN-3102G	HN-3104	NH-3204G	NH-3208GL	HF-3200H	NH-3200	HN-3204	HM-3301GL	NH-3303	NH-3402F
ASTM	Physical	Specific Gravity	ASTM D792	-	1.19	1.19	1.19	1.18	1.36	1.18	1.26	1.25	1.26	1.28	1.34	1.35	1.37	1.34	1.35	1.41	1.42	1.51
		Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min	20	19									23.2						
				250°C, 2.16kg						19												
				250°C, 5kg																		
				250°C, 10kg						12												
				300°C, 1.2kg				16	13			22	30	33	12.5	36		11			7		33
				300°C, 2.16kg										9				12	9			
																					23	
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.2-0.5	0.4-0.7	0.3-0.6	0.2-0.5	0.3-0.4	0.3-0.6	0.2 – 0.5	0.2-0.4	0.3 - 0.6	0.1 - 0.4	0.2-0.5	0.1-0.3	0.1-0.3	0.1-0.4
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.2-0.5	0.4-0.7	0.3-0.6	0.2-0.5		0.3-0.6	0.2 – 0.5	0.2-0.4	0.3 - 0.6	0.1 - 0.4	0.2-0.5		0.1-0.3	0.1-0.4
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²							800	800	860	550	1,100	1,070	1,100	1,200	850		1,400	1,430
				50mm/min		650	620	600	600	500	650										1,375		
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	950	930	850	800	750	900	1,200	1,400	1,500	1,000	1,490	1,400	1,500	1,500	1,500	2,000	1,750	1,800
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	25,000	24,000	21,000	21,000	45,000	24,000	35,000	38,000	41,000	35,000	53,500	59,300	55,000	60,000	55,000	78,000	85,000	110,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm			45	45		25	9	6	5	8				10		14		10
				1/8inch at 23°C		65	70	75	75	6	75	9	8	5.6	10	9	9	15	10	7		15	11
		Rockwell Hardness	ASTM D785	R-scale	-	119	118	118	118	120		90		90	115		120		120	119	93	120	122
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C		95	123	125	89		138	135	137	140	114	93	140	100	138	143	116	110
				4.6kgf/cm², 6.4mm										142	145			145	105	143			117
	Flame Characteristics	Flammability	UL94	HB	mm										0.75								
				V-2									0.75, 0.90, 3.0								1.5		
				V-1											1.2	1.5					1.5		2
				V-0		0.7,3.0	0.6, 3.0	1.5, 3.0	1.5, 3.0		1.5, 2.0, 3.0	1.5-1.6		1.5, 1.6	1.5, 2.5, 3.0	2.0, 2.5, 3.0	0.75, 3.0	3	0.75,3.0	1.5, 3.0	3.0,6.0	0.75(BK) 1.0-3.0(ALL)	2.5,3.0
				5VA		2.5,3.0					3				3.0					2.5		3.0(BK)	
				5VB							2				2.5	2.0, 2.5, 3.0							
	Optical	Transmissivity	ASTM D1003	2.5mm	%																		
		Haze	ASTM D1003	2.5mm	%																		
ISO	Physical	Melt Flow Index	ISO 1133	220°C, 10kg	g/10min	20	19									23.2							
				250°C, 2.16kg						19													
				250°C, 5kg							12								19				
				250°C, 10kg								22	30	31	12.5	36		11			5.4		33
				300°C, 1.2kg				16	13						9				12	9			
				300°C, 2.16kg																		23	
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa							80		75	60	100	105	110	120	88		140	184
				50mm/min		65	62	60	55	55	55		80								115		
		Flexural Strength	ISO 178	2mm/min	MPa	95	93	85	85	80	75	120	130	120	90	146	140	170	150	150	153	175	250
				2.8mm/min																			
		Flexural Modulus	ISO 178	2mm/min	MPa	2,440	2,400	2,100	2,100	4,200	2,400	3,500	3,800	3,700	3,500	6,000	5,400	5,800	6,000	5,400	7,900	8,500	12,000
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²		60	65	55			9		5.6	10	7	10	11.5	10	7		15	16
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²		60	60	60	6	50	9	6	5.9	10	8	10	14	10	7	11	15	17
		Rockwell Hardness	ISO 2039-2	R-Scale	-	119	118	118	120	120		90	121	90	115		120	118	120	119	119	120	122
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C		90	121	120	88		138		132	137		91	140	97	137	142	115	114
				0.45MPa, 4.0mm									135	140	143		98	145	102	142	146		122
		Heat Deflection Temperature (Annealing)	ISO R 306	1.8MPa, 4.0mm	°C												94						
				0.45MPa, 4.0mm													98						
		VICAT Softening Temperature	ISO R 306	B/50	°C	108	107	138	140	97	113			143	142		100	147			150		118
				B/120										146			104				152		
	Optical	Transmissivity	ISO 13468	2.5mm	%																		
		Haze	ISO 13468	2.5mm	%																		

Flame Retardant PC/ABS

						General						
	Properties	Test Method	Condition	Unit		NH-1015B	NH-1015V	NH-1013U	NH-1021	NH-1037	NH-1033	NH-1041
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.18	1.17	1.18	1.2	1.19	1.18	1.18
		Melt Flow Index	ASTM D1238	220°C, 5kg	g/10min							
				220°C, 10kg		23	30	33	28	19	35	27
				250°C, 2.16kg								
				250°C, 5kg								
				250°C, 10kg								
				260°C, 2.16kg								
		Mold Shrinkage(MD)	ASTM D955	Flow at 3.2mm	%	0.5 - 0.7	0.4-0.7	0.4-0.7	0.4 - 0.6	0.4-0.7	0.40-0.70	0.4-0.7
		Mold Shrinkage(TD)	ASTM D955	X-Flow at 3.2mm	%	0.5 - 0.7	0.4-0.7	0.4-0.7	0.4 - 0.6	0.4-0.7	0.40-0.70	0.4-0.7
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²							
				50mm/min		630	650	630	600	670	600	640
		Flexural trength	ASTM D790	2.8mm/min	kgf/cm²	880	890	920	950	1,000	900	900
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	23,000	24,000	25,000	26,000	27,000	23,000	25,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm				8	19	15	
				1/8inch at 23°C		57	55	50	30	60	60	65
		Rockwell Hardness	ASTM D785	R-scale	-		118	118	120	120	119	119
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C		86	88	89	100	92	93
				4.6kgf/cm², 6.4mm					97	108		
	Flame	Flammability	UL94	HB	mm							
				V-2								
				V-1		1.2, 1.3	1.2, 1.3	1.2				
				V-0		1.5, 2.0, 2.1, 2.5, 3.0	1.5, 2.0, 2.1, 2.5, 3.0	1.5-3.0	1mm, 3mm	1.5-3.0	1.5, 3.0	1.5-3.0
				5VA		3	3	3				
				5VB		2.5, 2.1, 2.5	2.0, 2.1, 2.5	2.0-3.0		2.5-3.0		2.0-3.0
ISO	Physical	Melt Flow Index	ISO 1133	220°C, 5kg	g/10min							
				220°C, 10kg		23	30	33	28	19	35	27
				250°C, 2.16kg								
				250°C, 5kg								
				250°C, 10kg								
				260°C, 2.16kg								
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa							
				50mm/min		60	61	60	60	61	60	65
		Flexural Strength	ISO 178	2mm/min	MPa	88	89		95	92	90	90
				2.8mm/min				90				
		Flexural Modulus	ISO 178	2mm/min	MPa	2,450	2,550		2,600	2,500	2,300	2,550
				2.8mm/min				2,650				
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	40	14	30	30	32	55	35
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	44	17	30	20	36	30	18
		Rockwell Hardness	ISO 2039-2	R-Scale	-	118	118	118	120	120	119	119
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	81	82	82	85	93	86	85
				0.45MPa, 4.0mm		93	94		96	105		
		Heat Deflection Temperature (Annealing)	ISO R 306	1.8MPa, 4.0mm	°C	93	97			100		
				0.45MPa, 4.0mm		98	102			106		
		VICAT Softening Temperature	ISO R 306	B/50	°C	98	100	98	100	110	107	105
				B/120		100	103			114		

						General											Reinforced			
	Properties	Test Method	Condition	Unit		ABF-1030G	NE-1030	NH-1090	NH-1098	NE-1060	NH-1034R	NH-1047	NH-1048	NH-1150HH	NE-1306	NM-1229I	HM-1100F	LS-1150G	LS-1159	LS-1159S
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.23	1.18	1.19	1.17	1.18	1.19	1.19	1.18	1.28	1.44	1.34	1.26	1.28	1.28	1.28
		Melt Flow Index	ASTM D1238	220°C, 5kg	g/10min											40				
				220°C, 10kg		40	53	46	45	47	40		36	29	22		26			
				250°C, 2.16kg															14	9
				250°C, 5kg								25								
				250°C, 10kg														24		
				260°C, 2.16kg									16							
		Mold Shrinkage(MD)	ASTM D955	Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.2-0.5	0.05-0.35	0.2 - 0.5	0.3 – 0.6	0.2-0.5	0.2-0.5	0.2-0.5
		Mold Shrinkage(TD)	ASTM D955	X-Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.2-0.5	0.15-0.45	0.2 - 0.5	0.3 – 0.6	0.2-0.5	0.2-0.5	0.2-0.5
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²										650	520	800	900	800	900
				50mm/min		500	640	640	630	630	580	610	630	640						
		Flexural trength	ASTM D790	2.8mm/min	kgf/cm²	800	890	850	850	880	850	900	850	940	1,000	890	1,000	1,400	1,200	1,200
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	21,000	25,000	24,000	25,000	25,000	23,000	26,000	24,000	44,000	72,000	42,000	40,000	46,000	48,000	45,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	8	12	18		15		30	17	6		3.5	8		6	8
				1/8inch at 23°C		10	50	60	45	51	50	65	50	6	4	3	8	9	6	8
		Rockwell Hardness	ASTM D785	R-scale	-	119		118	110	117	118	117	116	110	120		118	121	120	120
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	92	83	87		82	88	85	79	86	106	84	93	127	91	90
				4.6kgf/cm², 6.4mm				95						89			95			93
	Flame	Flammability	UL94	HB	mm			0.8												
				V-2			1							0.4				0.75-3.0		
				V-1				1.5					1	1		1			1.5	1.5
				V-0		1.5, 3.0	1.5, 2.0, 3.0	2.0, 3.0	1.5,3.0	1.5-3.0	1.2	1.5-3.0	1.2 - 3.0	1.2, 3.0	1.5/3.0	1.5, 2.0-2.2	1.5, 2.0, 3.0		2.0, 2.5, 3.0	3
				5VA							2.5									
				5VB				2.0, 3.0		2.0-3.0	2	2.0-3.0	1.5		2	2.0-2.2				
ISO	Physical	Melt Flow Index	ISO 1133	220°C, 5kg	g/10min											40				
				220°C, 10kg		40	53	46	45	47	40		36	29	22		26			
				250°C, 2.16kg															14	9
				250°C, 5kg								25								
				250°C, 10kg														24		
				260°C, 2.16kg									16							
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa										65	50	80	86	80	90
				50mm/min		50	60	60	60	61	55	60	60	64						
		Flexural Strength	ISO 178	2mm/min	MPa	80	90		90	90		90	90	90	100	90	100	135	110	
				2.8mm/min				90			80									120
		Flexural Modulus	ISO 178	2mm/min	MPa	2,100	2,500		2,700	2,550		2,600	2,500	4,400	7,200	4,100	4,000	4,600	5,000	
				2.8mm/min				2,600			2,300									4,500
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	10	16	39	25		15			6	6	3.5	8	8.2	6	8
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	10	17	46	26	12	15	20	45	6.4	6	3	7	9.9	6	8
		Rockwell Hardness	ISO 2039-2	R-Scale	-	119	118	118	110	117	118	117	116	110	120		118	121	120	120
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	89	77	82		78	82	78	75	80	104	83	92	125	91	90
				0.45MPa, 4.0mm			90	93						85			94	127		93
		Heat Deflection Temperature (Annealing)	ISO R 306	1.8MPa, 4.0mm	°C		85													
				0.45MPa, 4.0mm			93													
		VICAT Softening Temperature	ISO R 306	B/50	°C	105	93	98	96	91	100	94	90	95	115		98		97	
				B/120			95													

High Impact Strength PC & PC/GF

						General			
		Properties	Test Method	Condition	Unit	AH-1080	CF-1050	CF-1070	GM-1080
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.18	1.18	1.2	1.2
		Melt Flow Index	ASTM D1238	250°C, 10kg	g/10min	18	18	13	28
				300°C, 1.2kg			11.5	8	16
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²				
				50mm/min		580	600	600	600
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	800	850	850	800
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	21,000	20,000	20,000	20,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm		55	55	
				1/8inch at 23°C		75	70	70	72
		Rockwell Hardness	ASTM D785	R-scale	-	118	120		116
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	129	129		125
				4.6kgf/cm², 6.4mm			137		
	Flame	Flammability	UL94	HB	mm	0.8, 3.0			
				V-2			0.8, 2.5, 3.0	0.8, 2.5, 3.0	0.8, 3.0
				V-1					
ISO	Physical	Melt Flow Index	ISO 1133	250°C, 10kg	g/10min	18	18	13	28
				300°C, 1.2kg			11.5	8	16
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa				
				50mm/min		51	55	58	60
		Flexural Strength	ISO 178	2mm/min	MPa	80	80	80	80
		Flexural Modulus	ISO 178	2mm/min	MPa	2,200	2,100	2,100	2,000
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	59	60	65	53
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	70	65	70	58
		Rockwell Hardness	ISO 2039-2	R-Scale	-	118	120		116
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	125	125		115
				0.45MPa, 4.0mm			136		130
		VICAT Softening Temperature	ISO R 306	B/50	°C	143	141	140	139

General	Reinforced					
CF-1021T	AH-3100	AH-3200	LS-3302	CF-3200HF	CF-3300HF	GI-3103
1.18	1.23	1.32	1.4	1.33	1.4	1.25
36	24	27	12	23	22	33
19				11		21
0.4-0.7	0.2-0.5	0.2-0.5	0.1-0.4	0.2-0.5	0.1-0.4	0.3-0.6
0.4-0.7	0.3-0.6	0.3-0.6		0.3-0.6	0.3-0.6	0.4-0.7
	800	1000	1300	1000	1200	560
650						
850	1200	1500	1800	1400	1700	880
21,000	34,000	55,000	75,000	56,000	66,000	32,000
10	17	16	12	20	15	16
70	20	17	17	19	18	23
120			120	116	115	115
120	136	138	140	141	140	131
133			144	145	143	136
	0.8, 3.0	0.8, 3.0				0.8, 3.2
			0.8	0.8	0.8	
			3.2	3.2	3.2	
36	24	27	12	23	22	33
19				11		21
	80	100	120	100	125	53
60						
92	120	150	175	170	180	85
2,300	3,500	5,500	8,300	6,000	7,300	3,160
60	18	17	12	19	17	18
60	15	18	12	25	18	19
120			120	116	115	115
130	133	135	140	139	138	130
133			144	144	143	134
140			149	148	143	126

High Heat Resistant EP

		Properties	Test Method	Condition	Unit	PCT			PPA				
						TK-2046MA	TK-2050LP	TK-2020T	HX-4302G	HX-4452G	HA-4302G	HA-4350HP	HA-4400MP
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.6	1.71	1.31	1.43	1.58	1.34	1.47	1.44
		Melt Flow Index	ASTM D1238	300°C, 1.2kg	g/10min	18	22	25					
				330°C, 2.16kg					20	8.5	5		
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.5-0.8	0.4-0.7	0.5-0.8	0.3-0.6	0.2-0.4	0.3-0.6	0.3-0.6	0.1 - 0.3
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.5-0.8	0.4-0.7	0.8-1.1	0.5-0.8	0.4-0.6	0.5-0.8	0.4-0.7	0.3 - 0.5
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²	740	600	710	1,450	1,500		2,000	1,750
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	1,100	750	1,100	2,200	2,400	2,300	2,550	2,400
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	65,000	50,000	44,300	95,000	135,000	80,000	112,000	90,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	3	2	4	5	6			10
				1/8inch at 23°C		3.6	2.8	5.8	5	6	11	8.5	10
		Rockwell Hardness	ASTM D785	R-scale	-				120	125	125	110	
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	250	195	255	280	285	280	280	275
	Appearance	Yellow Index	ASTM D1925	3.2mm	-		5↓						
	Optical	Transmissivity	ASTM D1003	1mm	%			60↑					
	Flame	Flammability	UL94	HB	mm	1.5, 3.0	1.5,3.0						
				V-0					0.4	0.4-3.2			
ISO	Physical	Melt Flow Index	ISO 1133	300°C, 1.2kg	g/10min	18	22	25					
				330°C, 2.16kg					20	8.5	5		
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa				145			200	175
				10mm/min		60	60	86					
				50mm/min						150			
		Flexural Strength	ISO 178	2mm/min	MPa	105	75	124	220	240	220	250	240
		Flexural Modulus	ISO 178	2mm/min	MPa	6,900	5,000	4,350	9,500	13,500	7,500	11,000	9,000
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²		2	5.8	5	6		8.5	10
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	3.6	3	6	5	6	13		10
		Rockwell Hardness	ISO 2039-2	R-Scale	-				120	128		110	100
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	250	195	255	280	285	280	280	275

Super Structural EP

		Properties	Test Method	Condition	Unit	PA, PPA						PPS
						HM-4450C	HM-4300G	HM-4500G	HM-4650G	HM-4650LW	MKD-1016	XP-2130A
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.39	1.41	1.58	1.79	1.78	1.64	1.65
		Melt Flow Index	ASTM D1238	300°C, 1.2kg	g/10min						10	
				315.5°C, 5kg								115
				330°C, 2.16kg			25		20			
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.1-0.3	0.3-0.6	0.2-0.5	0.1-0.4	0.1-0.4	0.2-0.5	0.3-1.2
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.1-0.3	0.7-0.9	0.4-0.7	0.4-0.7	0.4-0.7	0.3-0.6	0.3-1.2
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²	3,150	2,000	2,500	2,800	2,800	2,700	1,400
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	4,700	2,500	3,500	3,100	3,900	3,400	2,000
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	340,000	95,000	150,000	190,000	200,000	156,000	100,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm		8	13	10	15	12	8
				1/8inch at 23°C		9	8	13	13	15	13	9
		Rockwell Hardness	ASTM D785	R-scale	-		120	120	120	120	121	120
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C		295	240	248	245	250	275
			ASTM D648	4.6kgf/cm², 6.4mm								282
	Flame	Flammability	UL94	HB	mm		0.8-3.0	0.8, 3.0			0.8,1.5,3.0	
				V-0								0.75
ISO	Physical	Melt Flow Index	ISO 1133	275°C, 2.16kg	g/10min						13	
				300°C, 1.2kg							10	
				315.5°C, 5kg								115
				330°C, 2.16kg			25		20			
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa	310	200	250	280	280	260	128
		Flexural Strength	ISO 178	2mm/min	MPa		250	350	310	390	330	
				2.8mm/min		460						190
		Flexural Modulus	ISO 178	2mm/min	MPa		9,500	15,000	19,000	20,000	16,000	
				2.8mm/min		33,000						10,000
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	9	8	13	13	15	17	11
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²		8	13		15	17	11
		Rockwell Hardness	ISO 2039-2	R-Scale	-		120	120	120	120	121	116
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C		295	240	248	245	250	275
				0.45MPa, 4.0mm								289

Metal Adhesion, LDS Materials

		Properties	Test Method	Condition	Unit	Metal Adhesion	LDS (LASER DIRECT STRUCTURING)							
						JS-5207LD	LP-1025	LP-3105	LP-3305	LP-3303	LP-1010	LP-1011	LP-4300	LP-3305GW
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.37	1.28	1.33	1.43	1.47	1.19	1.21	1.46	1.44
		Melt Flow Index	ASTM D1238	250°C, 10kg	g/10min					26	28	36		
				280°C, 2.16kg		20								
				300°C, 1.2kg			24	20	14	17	15	17		16
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.5-0.8	0.4-0.7	0.3-0.6	0.1-0.4	0.1-0.3	0.4-0.7	0.4-0.7	0.3-0.4	0.1-0.4
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.6-0.9	0.4-0.7	0.4-0.7	0.3-0.6	0.3-0.6	0.4-0.7	0.4-0.7	0.6-0.9	0.3-0.6
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²	1,000		750	900	960			1,200	870
				50mm/min			580				530	530		
		Flexural Strength	ASTM D790	2.8mm/min	kgf/cm²	1,700	840	1,100	1,300	1,400	800	800	1,400	1,300
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	57,000	22,000	35,000	54,000	69,000	23,000	25,000	80,000	59,000
		Izod Impact Strength (notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	11	15	9	8	10	47	25		8
				1/8inch at 23°C		11	22	10	10	11	60	50	3	9
		Rockwell Hardness	ASTM D785	R-scale	-	112	118	116		115	113	116	120	
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	208		119	121	125	110	115	281	120
				4.6kgf/cm², 6.4mm		208				132	125	124		
		VICAT Softening Temperature	ISO R 306	B/50	°C		133			126	127	126		
	Flame	Flammability	ASTM D1003	HB	mm		0.8, 3.0		0.8, 3.0	0.8, 3.0	0.8, 3.0	0.8,3.0		0.8-3.0
ISO	Physical	Melt Flow Index	ISO 1133	250°C, 10kg	g/10min					26	28	36		
				300°C, 1.2kg			24	20	14	17	15	17		16
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa	98		78	90	100			120	90
				50mm/min			55				55	55		
		Flexural Strength	ISO 178	2mm/min	MPa	166	82	110	130	120	75	75	140	130
		Flexural Modulus	ISO 178	2mm/min	MPa	5,590	2,200	3,500	5,400	6,500	2,300	2,500	8,000	6,000
		Izod Impact Strength (notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	11	20	10	10	10	60	50	3	10
		Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	11	15	8		11	63	55	4	
		Rockwell Hardness	ISO 2039-2	R-Scale	-	111	118	116		115	113	116	120	
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	208		117	119	124	108	115	281	117
				0.45MPa, 4.0mm		208				133	124	124		
		VICAT Softening Temperature	ISO 306	B/50	°C		133			126	127	126		

Eco-friendly materials

		Properties	Test Method	Condition	Unit	Mechanical Recycling												OBP (Ocean Bound Plastics)		
						GC-1022	GC-1025	GV-1025	GC-1045	GC-1017	GC-1150HC	GC-1048	GC-1055	GC-1151	GW-1053	GW-1055	GW-3203	GV-1005OP	GV-1155OP	GB-9302
ASTM	Physical	Specific Gravity	ASTM D792	-	-	1.2	1.2	1.2	1.19	1.17	1.3	1.18	1.18	1.28	1.18	1.18	1.33	1.21	1.3	1.36
		Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min				55	46	32	38	41							
				250°C, 2.16kg										18						
				250°C, 5kg																35
				250°C, 10kg		22	20	17							19	19	23			
				260°C, 2.16kg														18	9	
				260°C, 5kg															49	
				300°C, 1.2kg				10												
		Mold Shrinkage (MD)	ASTM D955	Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.3-0.6	0.2-0.5	0.3 - 0.6	0.3-0.6	0.1-0.4	0.4-0.7	0.4-0.7	0.2-0.5	0.4-0.7	0.2-0.5	0.1-0.4
		Mold Shrinkage (TD)	ASTM D955	X-Flow at 3.2mm	%	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.3-0.6	0.2-0.5	0.3-0.6	0.3-0.6	0.1-0.4	0.4-0.7	0.4-0.7	0.3-0.6	0.4-0.7	0.2-0.5	0.2-0.5
	Mechanical	Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm²						600			850					600	
				50mm/min		590	590	620	600	580		630	650		490	500		650		
		Flexural trength	ASTM D790	2.8mm/min	kgf/cm²	800	800	890	900	890	930	900	900	1200	830	860	1400	900	900	1,800
		Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm²	21,000	21,000	22,000	24,500	25,500	40,000	25,000	26,000	48,000	22,000	22,000	56,000	26,000	39,000	75,000
		Izod Impact Strength(notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm				15		5	17	15	6		60	18		5	8
				1/8inch at 23°C		60	60	70	60	45	6	50	50	6	75	75	19	15	5	8
		Rockwell Hardness	ASTM D785	R-scale	-	120	120	118	116	115		116	117		118		116			
	Thermal	Heat Deflection Temperature	ASTM D648	18.56kgf/cm², 6.4mm	°C	125	125	128	80	83		79	81	89		130	139		87	205
				4.6kgf/cm², 6.4mm						91							143			
	Flame	Flammability	UL94	HB	mm										0.8, 3.0					0.8 3.0
				V-2		0.75, 1.0	0.75, 1.0	0.75												
				V-1		1.2	1.2			1.5				1.5						
				V-0		1.5, 3.0	1.5, 3.0	1.0, 1.2, 1.5, 3.0	1.5, 3.0	2.0, 3.0	1.2, 3.0	1.2/1.5/3.0	1.2, 3.0	3				1.0,3.0	1.2,3.0	
				5VB						2.0, 3.0		1.5/3.0	1.5, 3.0							
ISO	Physical	Melt Flow Index	ISO 1133	220°C, 10kg	g/10min				55	46	32	38	41							
				250°C, 2.16kg										18						
				250°C, 5kg																35
				250°C, 10kg		22	20	17							19	19	23			
				260°C, 2.16kg														18	9	
				260°C, 5kg															49	
				300°C, 1.2kg				10												
	Mechanical	Tensile Strength at yield	ISO 527	5mm/min	MPa						60			85					60	
				50mm/min		55	55	60	60	59		60	64		50	51		60		
		Flexural Strength	ISO 178	2mm/min	MPa	80	80	80	90	86	90	90	94	120	80	87	170	80	90	
				5mm/min																1,800
		Flexural Modulus	ISO 178	2mm/min	MPa	2,100	2,100	2,100	2,450	2,700	3,900	2,500	2,600	4,800	2,100	2,200	6,000	2,600	3,900	
				5mm/min																75,000
		Izod Impact Strength(notched)	ISO 180 1A	at 23°C, 4mm	kJ/m²	50	50	70	30	17	5	40	40	5		65	19	12	5	8
		Charpy Impact Strength(V-notched)	ISO 179 1eA	at 23°C,4mm	kJ/m²	50	50	65	15	15	5	50	26	5	70	70	25		5	
		Rockwell Hardness	ISO 2039-2	R-Scale	-	120	120	118	116	115		116	117		118		116			
	Thermal	Heat Deflection Temperature (Unannealed)	ISO 75-2	1.8MPa, 4.0mm	°C	121	121	126	78	77		76	78	86		128	137		85	205
				0.45MPa, 4.0mm						86							142			
		VICAT Softening Temperature	ISO R 306	B/50	°C	140	141	143	95	93	98	90	91	95	142	142			95	
				B/120						94										
				A/50														97		

A global group creating a better life for all, LOTTE endeavors to realize this ambitious dream.

New Today, Better Tomorrow

MISSION

We enrich people's lives by providing superior products and services that our customers love and trust.

VISION

Lifetme **Value** Creator

Business Portfolio

LOTTE Chemical's technologies help to enrich our daily lives.

Field of Business

Basic Chemicals

Basic/Intermediate Petrochemicals	Ethylene, Propylene, BD, SM, OX, C5
Polymer	PE, PP, PET
Monomer	EO/EG/GE, EOA, PIA/PTA/MMA

Advanced Materials

High Performance Plastic Materials	**Styrex Styrene & general product** ABS, ABS Alloy, ASA, PP
	INFINO Engineering plastics PC, PC Alloy & High Performance EP
	Performance materials PP Compound, TPE, Modified adhesive resin, LFT, EPP
Construction Materials	Acrylic solid surface, Engineered stone, Porcelain surface
Water Treatment Membrane	

Capacity

(Unit: KTA)

BASIC CHEMICALS

EL	4,513
PL	1,697
BD	450
BZ	766
TL	339
MX	139

POLYMER

HDPE	1,605
LLDPE	490
LDPE/EVA	360
PP	1,820
PET	520
ABS	760
PC	480

BASIC CHEMICALS

MONOMER

EG	1,830
SM	577
PX	750
OX	210
Me-X	360
PIA	520

SPECIALTY

EPDM	96
MMA	260
PMMA	110
S-SBR	100
EOA	330
Acrylic solid surface	970k sheets
Engineered stone	440k sheets

Sales & Production Sites

HQ/R&D

HQ	Seoul
R&D	Uiwang, Daejeon

PRODUCTION PLANT

Asia	Malaysia, Uzbekistan, Pakistan, South Korea, China, Vietnam, India, Indonesia
Europe	Hungary, Turkey (E-stone)
America	U.S, Mexico

SALES CORPORATION

Asia	China, Thailand, Japan
Europe	Germany
America/Africa	U.S, Nigeria

Employees Worldwide(2023)

Including major subsidiaries (Domestic & Overseas)

12,269

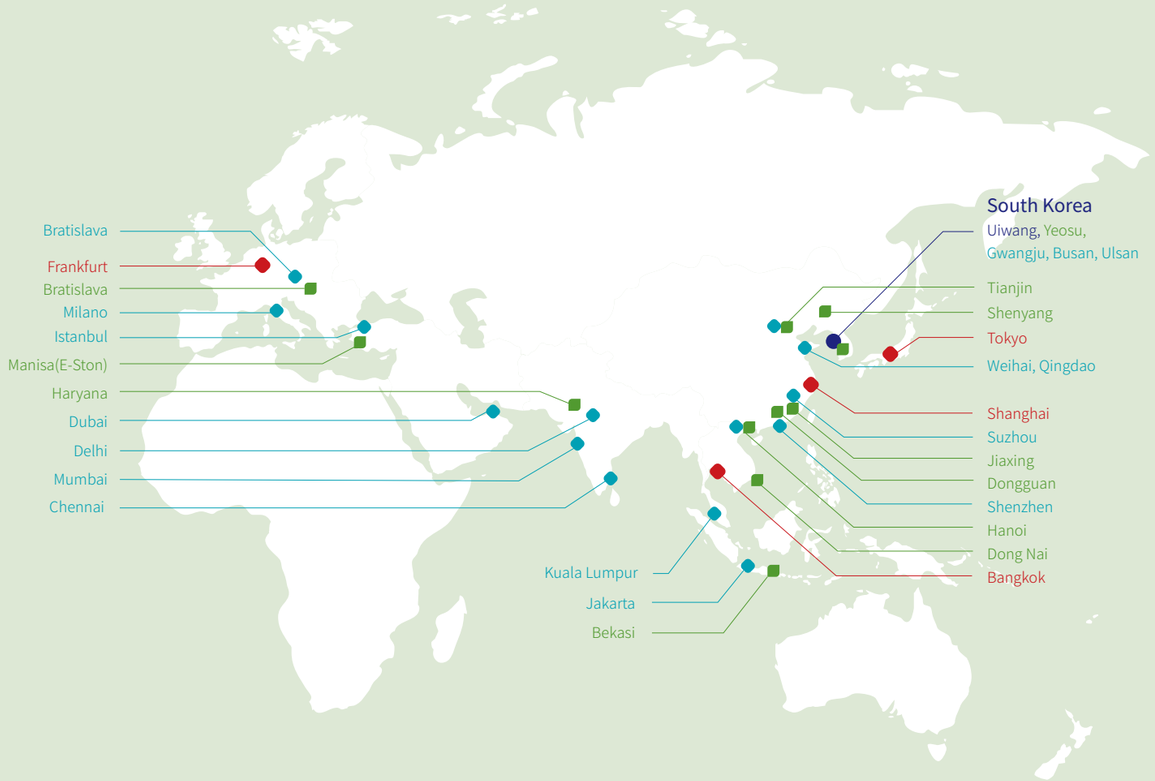
Business Performance(2023)

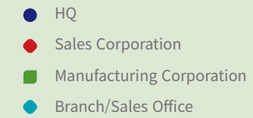
(Unit: KRW)

Sales **19,946** billion

Capital **20,232** billion

Global **Network** [Advanced Materials]





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