

starex[®]

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STAVIAN
CHEMICAL



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starex[®]

ABS, ABS ALLOY, ASA



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Product Portfolio

starex[®] is the styrene product brand of LOTTE CHEMICAL which provides **excellent** integrated solutions backed by our **exclusive** experiences and **expertise** in materials technology.

starex[®]

ABS	ABS Alloy	Specialty
General	Transparent MABS	Weatherable Materials
Extrusion	Scratch Resistant MABS	Medical
Flame Retardant	ABS/GF	Anti-microbial & viral
Heat Resistant		Eco-friendly
Metal Plating/Painting		Luminous



General Purpose ABS

APPLICATIONS



HA



E&E



Automotive
Exterior



Motorcycle
(Bike)



Sundries
Stationery, Toys

KEY FEATURES



Flowability



Heat
stability



Surface
quality



Balanced
properties

PRODUCT LINE UP

General

- SD-0150
- SD-0150GP
- SD-0150 W
- HP-0500
- HG-0760TV
- HG-0760GP

High Flow

General

- HF-0660I

High Flow

- HF-0670
- HF-0680

Super High Flow

- HF-0690 M

High Impact

High Impact

- SD-0170HX

Super High Impact

- SD-0190HX

Chemical Resistant

- EG-0763
- EG-7000
- EG-0191

Food Contact

- FP-0140 (GB, EN10)
- FP-0140P (NSF 42)
- FP-0160 (NSF 61) *

Rapid Molding

- RM-0760

Low Gloss

General

- SL-0100

High Flow

- SL-0620

Antistatic

- EA-0640

* Under Development

Extrusion ABS

APPLICATIONS



Refrigerator
inner



Building &
Construction



Pipe

KEY FEATURES



Thin-wall vacuum
forming capability



Gloss
surface



Impact
strength



Chemical &
Crack resistance

PRODUCT LINE UP

Refrigerator - General

- SV-0157 (CP, General)
- QU-0191 S (CP, Thin-wall)
- FP-0191 (CP, EN10-GB)

Construction Material

General

- SH-0160
- SV-0167

UV

- SV-0165 U

Refrigerator - Chemical Resistant

- SU-0191LH (Mixed blowing agent)
- EU-0191S (LBA)

Pipe

High Impact

- SP-0170

Pressure Resistant

- SP-0180



Flame Retardant ABS

Heat Resistant ABS

APPLICATIONS

KEY FEATURES

APPLICATIONS

KEY FEATURES



HA
Washing machine,
Refrigerator,
Air-conditioner

E&E

OA machines
Printer, Copier

Wiring devices

Flammability **Heat stability** **Processability** **Colorability**

Automotive
Interior, Exterior,
Lighting

Heat resistance **Flowability, Processability** **Chemical resistance** **Low TVOC**

PRODUCT LINE UP

PRODUCT LINE UP

Halogen

1.5mm V-0

- VE-0800
- VE-0812
- VE-0856 (2.0mm 5VB, 3.0mm 5VA, RTI 80°C)
 - VE-0856 U (Weatherability)
 - VE-0856 G (Low Gloss)
- VE-0860 (2.5mm 5VB, RTI 95°C)
 - VE-0860 P (High Heat Resistant)
 - VE-0860 T (High Impact)
 - VE-0860EX (Extrusion)

2.0mm V-0

— VE-0815

2.1mm V-0

— VE-0858
(2.5mm 5VA)

2.5mm V-0

— VE-0810

3.0mm V-2

— VE-0865EL (Extrusion)

Non-halogen

0.75mm V-2

— NH-0825 S
— NH-0826

1.0mm V-2

— NH-0927

Injection

Semi Heat Resistant

- **General**
 - SR-0315 V (VST 102)
 - SR-0300 (VST 102, High Impact)
- **Low Gloss**
 - LH-0300 (VST 100)

Heat Resistant (Below VST 105)

— SR-0310FM

High Heat Resistant (VST 106~110)

- **General**
 - SR-0320 K
- **Low TVOC**
 - SR-0320LT
 - SR-0320LI

Super Heat Resistant (Over VST 110)

- **General**
 - SR-0325
 - SR-0330M
 - SR-0340M
- **Low TVOC**
 - SR-0325LT
 - SR-0325L
 - SR-0330L
 - SR-0340L

Extrusion

- **General**
 - BM-0320 E
- **Blow Molding**
 - BM-0320JK



Metal Plating/Painting ABS

APPLICATIONS



Automotive
Exterior



E&E
TV



Bath,
Sanitary



Sundries
Cosmetics container,
Dinnerware

KEY FEATURES



High adhesion
strength,
Etching ability



Gloss
retention



Chemical
resistance



Dimensional
Stability

Metal Plating

Painting

PRODUCT LINE UP

Metal Plating

- High Adhesion Strength
 - MP-0160 R
- Surface Quality
 - MP-0670
- High Heat Resistant
 - MP-0320

Painting

- PT-0180
- PT-0180 H
- PT-0180C
- PT-0180B

Transparent MABS

APPLICATIONS



HA
Washing machine,
Vacuum cleaner



Sundries
Toys, Dispenser,
Food container,
Cosmetics container



E&E

KEY FEATURES



Clear
transparency



Impact
strength



Flowability,
Processability



Color stability
& consistency

PRODUCT LINE UP

General

- General
 - TX-0520K
 - TX-0520IM(Ice color)
- High Flow
 - TX-0550K

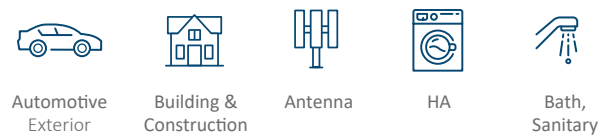
Specialty

- NSF Certification
 - TX-0510F
- Chemical Resistant
 - TX-0520HR
- Toughness
 - TX-0570
- Antistatic
 - TX-0550AT
- Stiffness
 - TX-0585



Weather Resistant Material

APPLICATIONS



KEY FEATURES



PRODUCT LINE UP

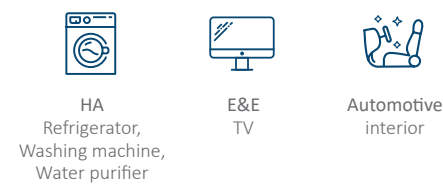


SPECIALTY

Luminous

Various appearance and texture effect

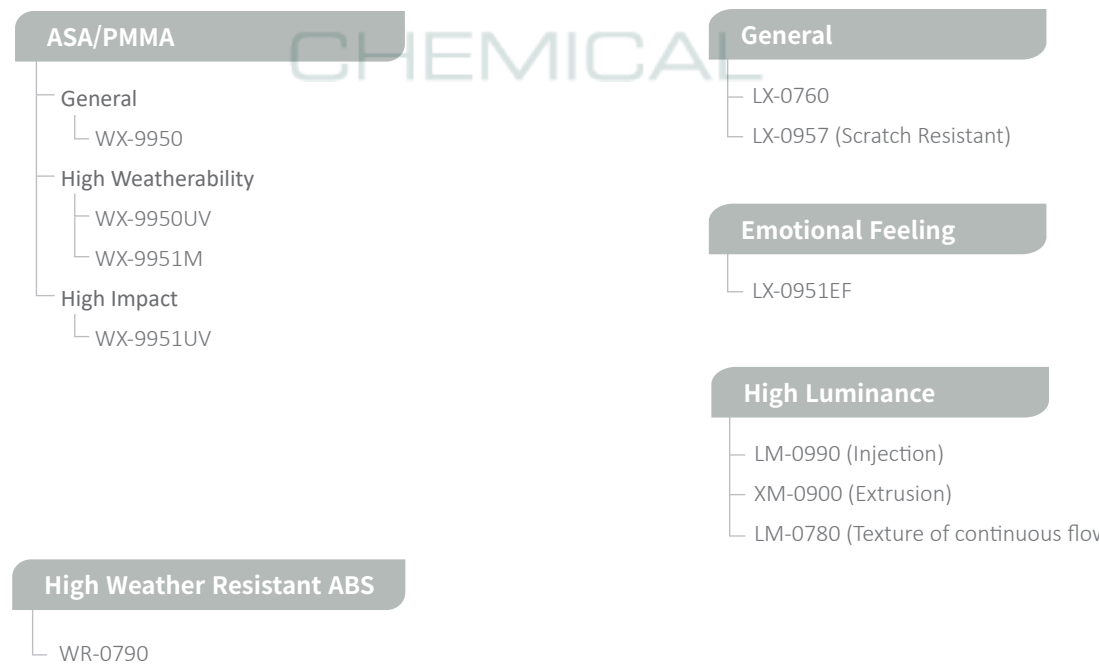
APPLICATIONS



KEY FEATURES



PRODUCT LINE UP

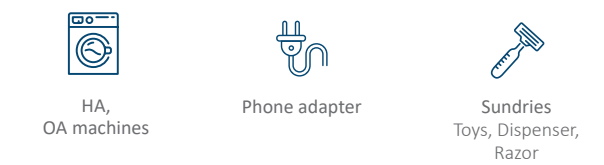


* Under Development

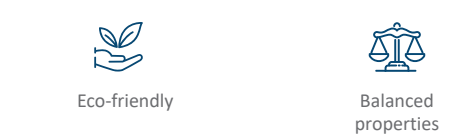
Eco-friendly Material

Material solutions based on the mechanical and chemical recycling of waste products

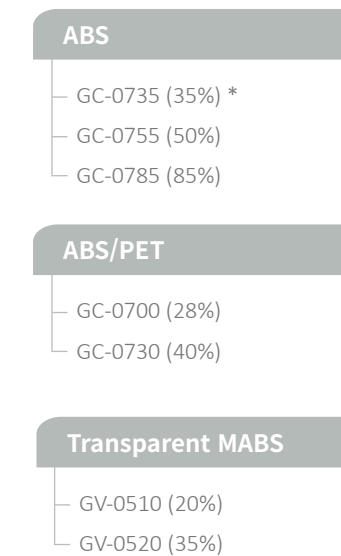
APPLICATIONS



KEY FEATURES



PRODUCT LINE UP





Anti-microbial & viral Material

Customized material with reliability

APPLICATIONS



HA
Vacuum cleaner,
Humidifier, Water purifier



Sundries
Bath, Sanitary, Card

KEY FEATURES



Anti-microbial &
viral property



Weatherability



Harmlessness to
human body

PRODUCT LINE UP

Anti-microbial
evermoim™

ABS, ASA

- ABF-0200E (General)
- ABF-0280 (Flame Retardant)
- ABF-0297 (ASA) *

SAN/GF

- ABF-5220E (20%) *
- ABF-5230E (30%) *

PP

- ABF-6200 *

* Under Development

Medical Solution

Ensured materials for medical devices

APPLICATIONS



Medical devices
Drop spike,
Infusion filter

KEY FEATURES



Biocompatibility



Chemical
resistance



Color & Property
stability after
sterilization
(γ-ray, ETO)

PRODUCT LINE UP

General

- MR-0130 (High Flow)
- ML-0750 (CFDA)

Transparent

- MR-0500 (High Modulus)*
- TX-0520ML (CFDA)

Product Selection Guide

General Purpose ABS

Properties	Test Method	Condition	Unit	General						High Flow				High Impact		Chemical Resistant			Food Contact		Rapid Molding	Low Gloss		Antistatic
				SD-0150	SD-0150GP	SD-0150 W	HP-0500	HG-0760TV	HG-0760GP	HF-0660I	HF-0670	HF-0680	HF-0690 M	SD-0170HX	SD-0190HX	EG-0763	EG-7000	EG-0191	FP-0140	FP-0140P	RM-0760	SL-0100	SL-0620	EA-0640

Physical Properties

Specific Gravity	ASTM D792	-	-	1.04	1.04	1.04	1.05	1.04	1.04	1.04	1.04	1.04	1.04	1.02	1.02	1.04	1.08	1.04	1.04	1.04	1.05	1.03	1.04	1.05	
Melt Flow Index	ASTM D1238	200°C, 5kg	-	2	1.8	2	-	5.5	4	3.6	4.5	5.5	8.5	-	-	12	-	9	-	2	1.5	4.5	7.5	2	1.8
		220°C, 10kg	-	-	-	16	-	-	-	-	-	-	-	8	8	-	-	35	-	-	-	-	-	-	-
	250°C, 10kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ISO 1133	200°C, 5kg	g/10min	2	1.8	2.2	-	5.7	4	3.6	4.5	5.5	8.5	8	8	12	-	9	-	2	1.5	4.5	7.5	2	1.8
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.7	0.3-0.7	0.3-0.6	0.3-0.6	0.4-0.6	0.3-0.6	0.3-0.6	0.4-0.6	0.4-0.7	0.3-0.6	0.3-0.6	
		X-Flow at 3.2mm(TD)	-	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.7	0.3-0.7	0.3-0.6	0.3-0.6	0.4-0.6	0.3-0.6	0.3-0.6	0.4-0.6	0.4-0.7	0.3-0.6	0.3-0.6	

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	420	360	464	480	420	400	400	380	420	400	370	350	390	460	430	410	460	330	320	450	
	ISO 527	50mm/min	MPa	-	-	-	-	-	-	-	-	-	-	-	-	390	-	-	-	30	-	-	-	
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	630	590	657	700	620	600	600	580	630	580	600	570	550	570	650	620	620	675	450	480	750
	ISO 178	2mm/min	MPa	76	65	70	60	62	60	60	68	60	58	60	55	55	55	50	60	60	50	57	54	
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	21,000	21,000	23,200	23,000	22,000	20,000	20,000	21,000	21,000	21,000	18,800	18,000	20,000	20,000	23,000	22,000	21,000	24,500	16,000	16,000	26,000
	ISO 178	2mm/min	MPa	2,500	2,200	2,400	2,200	2,200	2,000	2,000	2,400	1,900	2,100	1,800	1,700	2,000	1,960	2,000	2,200	2,200	2,000	1,800	1,700	2,200
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	22	28	19.2	13	16	23	22	19	20	19	40	44	26	20	24	20	20	15	6	19	
	ISO 180 1A	1/8inch at 23°C at 23°C, 4mm	kJ/m ²	35	21	20	13	15	23	22	18	20	22	50	53	32	21	30	20	20	20	7	18	
Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C, 4mm	kJ/m ²	24	25	21	14	16	20	21	20	18	19	35	40	29	20	36	21	21	15	11	24	
	ASTM D785	R-scale	-	109	105	111	114	110	108	108	108	107	104	90	88	100	95	98	106	110	112	97	90	
Rockwell Hardness	ISO 2039-2	-	-	109	105	109	114	110	108	108	109	107	104	88	85	100	95	98	106	110	111	93	91	

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	84	-	91	-	82	85	85	85	82	-	-	84	78	88	-	90	85	81		
	ISO 75-2 (Unannealed)	4.6kgf/cm ² , 6.4mm	-	-	-	99	-	-	93	-	-	90	-	-	-	-	-	-	-	96	96		
		18.56kgf/cm ² , 3.2mm	-	-	-	-	-	-	-	-	-	-	-	-	-	78	-	-	-	-	77	70	
	ISO 75-2 (Annealing)	1.8MPa, 4.0mm	-	-	79	82	82	75	76	74	74	-	73	-	-	76	78	88	-	-	90	91	
0.45MPa, 4.0mm		-	-	90	-	96	88	88	86	86	-	84	-	-	90	78	-	-	-	88	100		
VICAT Softening Temperature	ISO 306	B/50	°C	99	97	99	100	97	96	96	92	97	94	91	88	95	90	98	96	99	99	97	92
		B/120	-	99	-	-	-	-	-	-	-	-	-	-	-	-	91	-	-	-	-	100	100

Flame Characteristics

Flammability	UL94	HB	mm	1.0/1.5/3.0/6.0	1.0/1.5/3.0/6.0	1.0/1.5/3.0/6.0	1.0/1.5/3.0	1.2/1.5/3.0/6.0	1.2/1.5/3.0/6.0	1.0/1.5/3.0/6.0	1.5/3.0	1.5/3.0	1.5/3.0	-	-	1.5, 3.0, 6.0	1.5, 3.0	1.0-6.0	-	-	-	1.5, 3.2	1.5, 3.0
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Other Properties

Yellow Index	ASTM D1925	3.2mm	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-
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Extrusion ABS

Properties	Test Method	Condition	Unit	Refrigerator Inner					Industrial Use			Pipe	
				SV-0157	QU-0191 S	FP-0191	SU-0191LH	EU-0191S	SH-0160	SV-0167	SV-0165 U	SP-0170	SP-0180

Physical Properties

Specific Gravity	ASTM D792	-	-	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min	4.5	4.3	4.5	3.5	2.5	8	5.2	8.2	6.4	6
	ISO 1133			4.5	4.3	4.5	3.5	2.5	8	5.2	8.2	6.4	6
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.3~0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
		X-Flow at 3.2mm(TD)		0.3~0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	430	485	420	500	510	360	390	400	390	370
	ISO 527	5mm/min 50mm/min	MPa	45	50	43	47	52	35	40	45	40	45
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	600	740	650	720	720	550	600	770	540	550
	ISO 178	2mm/min 5mm/min	MPa	65	75	65	72	75	55	65	80	60	65
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	23,000	24,300	22,000	24,500	24,000	18,000	20,000	26,000	17,500	19,000
	ISO 178	2mm/min 5mm/min	Mpa	2,400	2,500	2,300	2,300	2,400	1,800	2,000	2,700	1,900	2,100
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C 1/8inch at 23°C	kgf/cm	25	22	32	30	29	33	35	22	39	38
	ISO 180 1A	at 23°C, 4mm	kJ/m ²	30	26	31	30	40	45	45	25	48	48
Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C, 4mm	KJ/m ²	30	26	32	31	43	27	35	25	34	38
	ASTM D785 ISO 2039-2	R-scale	-	108	109	103	108	107	101	100	92	94	98
Rockwell Hardness	ASTM D785 ISO 2039-2	R-scale	-	108	108	102	108	107	101	100	95	101	101

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	89	91	89	92	90	85	88	88		
		4.6kgf/cm ² , 6.4mm		95	95	95	99	95	98				
	18.56kgf/cm ² , 3.2mm			101									
	ISO 75-2 (Unannealed)	1.8MPa, 4.0mm	80	81	83	84	85	78	81	81	77		
	ISO 75-2 (Annealing)	0.45MPa, 4.0mm	90	94	95	96	97	92	94	93	92		
VICAT Softening Temperature	ISO 306	B/50	°C	100	102	101	102	102	99	100	90	99	97
		B/120								103	103	104	99

Flame Characteristics

Flammability	UL94	HB SVA	mm	0.75-6.0	0.75-3.0	0.75	0.75/3.0	1.5/3.0	1.5/3.0	1.5/3.0	1.5/3.0	1.5/3.0
									2.5			

Flame Retardant ABS

Properties	Test Method	Condition	Unit	Halogen														Non-halogen		
				VE-0800	VE-0812	VE-0856	VE-0856 U	VE-0856 G	VE-0860	VE-0860 P	VE-0860 T	VE-0860EX	VE-0815	VE-0858	VE-0810	VE-0865EL	NH-0825 S	NH-0826	NH-0927	

Physical Properties

Specific Gravity	ASTM D792	-	-	1.16	1.16	1.15	1.16	1.17	1.17	1.18	1.17	1.18	1.15	1.15	1.15	1.16	1.05	1.05	1.05
Melt Flow Index	ASTM D1238	250°C, 10kg	g/10min	3.7	3.3	3.5	3.6	3.5	1.6				4	3.5	5		6.5	6.5	3.6
				300°C, 1.2kg							14	12	16			7			
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.4-0.7	0.3-0.6	0.3-0.6	0.3-0.6
		X-Flow at 3.2mm(TD)		0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.4-0.7	0.3-0.6	0.3-0.6

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	410	400	400	400	370	440	380	380	440	420	400	410	420	420	430	550
	ISO 527	5mm/min 50mm/min	MPa	40	44	43	42	47	45	43	43	47	40	42	41	43	41	48	50
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	550	550	540	570	570	650	560	550	600	560	550	550	600	640	650	670
	ISO 178	2mm/min	MPa	62	68	66	64	75	66	70	70	72	60	65	60	64	70	76	78
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	19,500	19,000	20,000	20,000	22,000	23,000	20,000	19,000	21,000	19,000	19,000	18,000	21,000	23,000	23,000	26,000
	ISO 178	2mm/min	MPa	2,000	2,200	2,238	2,100	2,400	2,350	2,300	2,300	2,300	2,000	2,000	2,200	2,000	2,400	2,400	2,600
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C 1/8inch at 23°C	kgf/cm	19	15	16	16	14	14	14	27	20	20	20	17	14	20	14	16
	ISO 180 1A	at 23°C, 4mm	kJ/m ²	18	20	25	21	12	14	23	23	25	17	25	15	14	18	15	21
Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C, 4mm	KJ/m ²	22	18	24	23	12	16	24	24	23	20	25	20	13	24	18	21
	ASTM D785 ISO 2039-2	R-scale	-	97	99	96	95	105	104	102	97	98	96	92	96	100	105	111	110
Rockwell Hardness	ASTM D785 ISO 2039-2	R-scale	-	102	103	96	95	100	104	97	97	98	102	95	102	100	105	113	112

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	80	80	80	80	78	85	89	80	82	80	70	79	84	82	88	
		4.6kgf/cm ² , 6.4mm																	
	ISO 75-2 (Unannealed)	1.8MPa, 4.0mm	73	75	72	76	85	80	80	78				75	82	74	75	78	
	ISO 75-2 (Annealing)	0.45MPa, 4.0mm	85	87	84	87	98	92	92	90	87	89		87	87			90	
	ISO 75-2 (Annealing)	1.8MPa, 4.0mm				87			100	84									89
VICAT Softening Temperature	ISO 306	B/50	°C	88	89	88	90		96	99	94	94	88	90	87	98	93	94	96
		B/120										98	97		91				

Flame Characteristics

Flammability	UL94	V-2 V-0 SVA SVB	mm	1.5	1.5~3.0	1.5,2.0,2.5,3.0	1.5,2.0,2.5,3.0	1.5,2.0,2.5,3.0	1.5,2.5-2.7	1.5,2.5-2.7	1.5,2.5-2.7	1.5,2.5-2.7	2	2.1~3.0	2.5		2	0.75~3.0	0.75~3.0	1.0, 2.5-2.75			
						3	3	3															
								2.0,2.5	2.0,2.5	2.0,2.5	2.5-2.7	2.5-2.7	2.5-2.7	2.5-2.7									

Other Properties

Yellow Index	ASTM D1925	3.2mm	-										15							
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Heat Resistant ABS

Properties	Test Method	Condition	Unit	Injection														Extrusion	
				SR-0315 V	SR-0300	LH-0300	SR-0310FM	SR-0320 K	SR-0320LT	SR-0320LI	SR-0325	SR-0330M	SR-0340M	SR-0325LT	SR-0325L	SR-0330L	SR-0340L	BM-0320 E	BM-0320JK

Physical Properties

Specific Gravity	ASTM D792	-	-	1.04	1.05	1.04	1.06	1.06	1.05	1.05	1.06	1.07	1.07	1.06	1.06	1.07	1.07	1.05	1.04
Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min	26	13	10	20	9	10	6	7.5	3	2.5	4	8	3.5	2.6	3.3	4.5
	ISO 1133			26	13	10	20	9	10	6	7.5	3	2.5	4	8	3.5	2.6	3.3	4.5
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	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	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.4-0.7	0.3-0.6	0.3-0.6
		X-Flow at 3.2mm(TD)		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	0.4-0.7	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 Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	400		354			460	400		420	430					450	430
	ISO 527	50mm/min	MPa	42	48	36	50	50	50	45	50	48	47	50	48	51	48	44	44
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	640	620	465	640	740	700	610		640	640	620				620	600
	ISO 178	10mm/min	MPa	73	76	58	78	74	80	74	73	78	78	85	75	78	85	70	68
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	22,000	23,000	17,593	21,000	24,000	23,800	20,000		22,510	22,000	21,000				20,000	20,500
	ISO 178	10mm/min	MPa	2,500	2,500	2,060	2,600	2,400	2,500	2,400	2,500	2,350	2,500	2,500	2,400	2,400	2,500	2,300	2,250
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C	kgf/cm/cm	21	23	10	15	17	17	22	12	12	14	12	12	13	9	15	30
		1/8inch at 23°C		25	30	15	18	19	20	24	15	13	16	15	15	14	11	20	
		1/4inch at -30°C												7					
		1/8inch at -30°C												6					
Charpy Impact Strength (V-notched)	ISO 180 1A	at 23°C, 4mm	kJ/m ²	24	22	17	17	17	18	23	12	14	14	15	13	14	10	20	30
		at -30°C, 4mm											9	7		8		17	
Rockwell Hardness	ASTM D785	R-scale	-	109	110	100	109	110	113	110	115	113	110	113	115	115	115	105	102
	ISO 2039-2			108	110	100	109	110	113	110	115	113	110	113	115	115	115	105	

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	90	88	88	90	95	94	95	103	104	100	103	107	112	97	91	
		4.6kgf/cm ² , 6.4mm		99		99							116		110			107	
		18.56kgf/cm ² , 3.2mm																	
	ISO 75-2 (Unannealed)	1.8MPa, 4.0mm	80	82	80	82	84	85	86	92	96	92	93	98	103	86	84		
		0.45MPa, 4.0mm	93	95	94	92						112	105			98			
VICAT Softening Temperature	ISO 306	B/50	°C	100	102	100	103	106	106	107	115	118	120	113	115	120	126	108	102
		B/120		102			106												

Flame Characteristics

Flammability	UL94	HB	mm	1.5/3.0															
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Other Properties

Yellow Index	ASTM D1925	3.2mm	-																31.2
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Metal Plating/Painting ABS

Properties	Test Method	Condition	Unit	Metal Plating			Painting			
				MP-0160 R	MP-0670	MP-0320	PT-0180	PT-0180 H	PT-0180C	PT-0180B

Physical Properties

Specific Gravity	ASTM D792	-	-	1.04	1.04	1.05	1.04	1.04	1.04	1.04
Melt Flow Index	ASTM D1238	200°C, 5kg	g/10min	1.5	2.3		3.6	2.3		
		220°C, 10kg		17		6		15	33	
	ISO 1133	200°C, 5kg		1.5	2.3		3.6	2.3		
		220°C, 10kg		17		6		15	33	
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.3~0.6	0.3~0.6	0.3-0.6	0.3~0.6	0.3-0.6	0.4-0.7	0.4-0.7
		X-Flow at 3.2mm(TD)		0.3~0.6	0.3~0.6	0.3-0.6	0.3~0.6	0.3-0.6	0.4-0.7	0.4-0.7

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	480	450	400	400	380	380	
		50mm/min								430
	ISO 527	50mm/min	MPa		51	47	42	42	39	40
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	690	660	630	610	600	530	
		5mm/min								630
	ISO 178	2mm/min	MPa		72	74	75	66	62	60
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	23,000	21,500	21,500	20,000	20,000	18,500	
		5mm/min								21,000
	ISO 178	2mm/min	MPa		2,350	2,190	2,400	2,100	2,000	2,200
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C	kgf-cm/cm	28	24	25	20	33	36	33
		1/8inch at 23°C								39
	ISO 180 1A	at 23°C, 4mm	kj/m ²		27	21	20	32	37	33
Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C, 4mm	KJ/m ²		25	22	24	32	36	33
Rockwell Hardness	ASTM D785	R-scale	-	109	108	109	106	105	98	102
	ISO 2039-2				108	110	106	105	98	102

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	88	92		84	83	
	ISO 75-2 (Unannealed)	1.8MPa, 4.0mm				86		76	
VICAT Softening Temperature	ISO 306	B/50	°C		98	106	97	97	97

Flame Characteristics

Flammability	UL94	HB	mm	1.5, 3			1.5,3.0		
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Transparent MABS

Properties	Test Method	Condition	Unit	General			Specialty				
				TX-0520K	TX-0520IM	TX-0550K	TX-0510F	TX-0520HR	TX-0570	TX-0550AT	TX-0585

Physical Properties

Specific Gravity	ASTM D792	-	-	1.09	1.09	1.08	1.1	1.08	1.08	1.09	1.09
Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min	22	22	27	14	10	4	25	7
		ISO 1133		220°C, 10kg	22	22	27	14	10	4	25
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.4~0.8	0.4~0.8	0.4-0.8	0.4-0.8	0.4~0.8	0.4~0.8	0.4-0.8	0.4-0.8
		X-Flow at 3.2mm(TD)		0.4~0.8	0.4~0.8	0.4-0.8	0.4-0.8	0.4-0.8	0.4~0.8	0.4-0.8	0.4-0.8

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	440	440	400	430	370	380	400	520
	ISO 527	50mm/min	MPa	50	50	44	47	45	47	30	50
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	550	550	600	600	550	550	620	730
	ISO 178	2mm/min	MPa	72	72	65	70	45	60	62	72
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	19,000	19,000	19,500	20,000	19,000	17,000	22,000	23,000
	ISO 178	2mm/min	Mpa	2,200	2,200	1,870	2,200	2,000	1,700	2,200	2,400
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C	kgf-cm/cm	14	14	17	16	16	16	14	12
		1/8inch at 23°C		15	15	18	16	18	18	15	13
	ISO 180 1A	at 23°C, 4mm	kj/m ²	12	12	17	12	15	12		11
Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C, 4mm	KJ/m ²	12	12	15	12	15	13	13	11
Rockwell Hardness	ASTM D785	R-scale	-	110	110	105	106	101	102	100	115
	ISO 2039-2				110	110	106	106	101	102	100

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	81	81	81	80	75	80	77	
		4.6kgf/cm ² , 6.4mm					88				
		1.8MPa, 4.0mm		75	75	73	71	70	75	72	
	ISO 75-2 (Unannealed)	0.45MPa, 4.0mm		85	85		81				
VICAT Softening Temperature	ISO 306	B/50	°C	93	93	90	89	86	91	85	94

Flame Characteristics

Flammability	UL94	HB	mm	1.5~3.0	1.5~3.0	1.5~3.0	1.5~3.0	1.5~3.0	1.5~3.0	1.5~3.0
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Other Properties

Transmissivity	ASTM D1003	3.2mm	%	90	90	90	88	90	90	88	90
Haze	ASTM D1003	3.2mm	%	2	2	2	3	2	2	4	2



Weather Resistant Material

Properties	Test Method	Condition	Unit	ASA																			ASA/PMMA				High Weatherable ABS
				WX-9120	WX-9130	WX-9120HT	WX-9120HF	WR-9120J	WX-9310J	WX-9300UV	WX-9310UV	WX-9310UA	WR-9300HF	WX-9330UV	WR-9330I	WR-9370	WX-9415	WX-9308HF	WX-9700	WX-9750	WX-9700A	WX-9730L	WX-9730LE	WX-9950	WX-9950UV	WX-9951UV	WX-9951M

Physical Properties

Specific Gravity	ASTM D792	-	-	1.06	1.06	1.07	1.07	1.07	1.07	1.08	1.08	1.08	1.07	1.09	1.07	1.07	1.24	1.07	1.07	1.07	-	1.06	1.06	1.12	1.16	1.15	1.12	1.06
Melt Flow Index	ASTM D1238	220°C, 10kg	g/10min	16	3	18	39	26	21	10	6	7	12	4	5	3	5	12	9	4	5	3	3.5	6	5	6	3.5	30
	ISO 1133	220°C, 10kg		16	3	18	39	26	21	10	6	7	12	4	5	3	5	12	9	4	5	3	3.5	6	5	6	3.5	30
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.3-0.6		0.4-0.8	0.3-0.6	0.3-0.6	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	0.2~0.4	0.4-0.7	0.3-0.6	0.6-0.8	0.3-0.6	0.6-0.8	0.6-0.8	0.4-0.7	0.4-0.7	0.3-0.7	0.5-0.8	0.3-0.6
		X-Flow at 3.2mm(TD)		0.3-0.6		0.4-0.8	0.3-0.6	0.3-0.6	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	0.2~0.4	0.4-0.7	0.3-0.6	0.6-0.8	0.3-0.6	0.6-0.8	0.6-0.8	0.4-0.7	0.4-0.7	0.3-0.7	0.5-0.8	0.3-0.6

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²	460		370	400	450	440		440	440	450	450	480	500	850		430	410	400	320	330					450		
		50mm/min			400						440								450									500	640	550
	ISO 527	5mm/min	MPa	43										45			80		44	43										
		50mm/min			45	35	40	43	48	47	49	49	44		52	49		45			40	27	28	46	65	58	44	45		
Flexural Strength	ASTM D790	2.8mm/min	kgf/cm ²	650	550	560	600	650	680	630	680	660	680	640	710	710	1062	680	620	570	600	420	420	700	780	700	550	650		
	ISO 178	2mm/min	MPa	67	65	65	65	72	75	70	70	67	73	80	70	130	75	65	62	60	47	46	68	90	80	58	70			
Flexural Modulus	ASTM D790	2.8mm/min	kgf/cm ²	21,000	19,000	16,400	19,000	21,000	22,000	20,000	22,000	20,500	22,000	21,000	23,000	23,000	61,000	22,000	20,000	18,000	19,000	14,000	14,100	20,000	23,000	21,000	17,000	22,000		
	ISO 178	2mm/min	MPa	2,100	2,000	2,100	2,000	2,260	2,300	2,250	2,400	2,200	2,100	2,300	2,400	2,160	6,100	2,300	2,030	1,950	2,100	1,550	1,500	2,100	2,600	2,300	1,700			
		2.8mm/min																										2,200		
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C	kgf·cm/cm	10			7	9	8	9	9		10	8		3.5	10	10		11			7	4	5.5	8	20			
		1/8inch at 23°C		18	50	18	12	21	11	16	18	18	15	22	14	15	3.5	13	50	53	50	30	25	7	4	5.5	11	24		
	ISO 180 1A	at 23°C, 4mm	KJ/m ²	18	12	15	12	9		10	16		12	9	9	4.2	11	10	41					4	5.5	10	18			
Charpy Impact Strength (V-notched)	ISO 179 1eA	at 23°C, 4mm	KJ/m ²										5.5																	
				12	14	12	10	14	12	12	14	14	13	13	10	13	4.5		15	32	33	18	20	7	4	5.5	10	20		
Rockwell Hardness	ASTM D785		-	104	98	97	108	105	106	104	105	100	106	103	107	106	115	109	99	95	95	75	80	108	118	112	104	110		
	ISO 2039-2	R-scale		104	98	98	108	105	107	104	106	100	106	103	108	106	115	109	96	95	95	70	78	107	118	112	102	110		

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C			81	75	87	90		90	90	87	92		94	109	96	77	72		73	73		85	83		75
		4.6kgf/cm ² , 6.4mm		92			85					97		92	101			110			87		80	80				
	ISO 75-2 (Unannealed)	1.8MPa, 4.0mm		77	77	72	75	77	78	77	80	80	80		82	87	109	83	75	77		72	73		77	75		74
		0.45MPa, 4.0mm		88			85	91			96				97	103	110		88	88		79	79			87		
		1.8MPa, 4.0mm						94			102				103	104												
ISO 75-2 (Annealing)	0.45MPa, 4.0mm					99			106				107	109														
VICAT Softening Temperature	ISO 306	B/50	°C	97		89	95	98	98	96	101	101	100	103	104	109	115	103	95	94	97	83	84	96	102	98.5	91	93
		B/120								99	103																	

Flame Characteristics

Flammability	UL94	HB	mm							1.5,3.0			1.5																	
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Other Properties

Yellow Index	ASTM D1925	3.2mm	-											25																
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SPECIALTY

Properties	Test Method	Condition	Unit	LUMINOUS						Eco-friendly						evermoin (Antimicrobial)		Medical		
				LX-0760	LX-0957	LX-0951EF	LM-0990	XM-0900	LM-0780	GC-0755	GC-0785	GC-0700	GC-0730	GV-0510	GV-0520	ABF-0200E	ABF-0280	MR-0130	ML-0750	TX-0520ML

Physical Properties

Specific Gravity	ASTM D792	-	-	1.04	1.09	1.04	1.1	1.09	1.07	1.04	1.04	1.1	1.12	1.09	1.09	1.05	1.18	1.04	1.04	1.09
Melt Flow Index	ASTM D1238	250°C, 10kg	g/10min	3.2		5.5			5		1.5					4	5		4	
		300°C, 1.2kg			12		15	4.5	40			18	22			40		26		
	ISO 1133	250°C, 10kg		3.2		5.5			5		1.5					4	5		4	
		300°C, 1.2kg			12		15	4.5	40			18	22			40		26		
Mold Shrinkage	ASTM D955	Flow at 3.2mm(MD)	%	0.3~0.6	0.3-0.6	0.3-0.6	0.4-0.8	0.4-0.8	0.3~0.6			0.5-0.9	0.5-0.9	0.4-0.8	0.4-0.8	0.3-0.6	0.3-0.6	0.3-0.6	0.3~0.6	0.4-0.8
		X-Flow at 3.2mm(TD)		0.3~0.6	0.3-0.6	0.3-0.6	0.4-0.8	0.4-0.8	0.3~0.6			0.5-0.9	0.5-0.9	0.4-0.8	0.4-0.8	0.3-0.6	0.3-0.6	0.3-0.6	0.3~0.6	0.4-0.8

Mechanical Properties

Tensile Strength at yield	ASTM D638	5mm/min	kgf/cm ²		460	400		500	450	410	360			400	400	380		410	410	470
		50mm/min		420		490			460	400			350							
	ISO 527	5mm/min		49																
Flexural Strength	ASTM D790	5mm/min	MPa	45		37	50	50	47	43	40	37	40	38	35	30	35	35	45	42
		2.8mm/min		610	700	620	610	700	730	650	570	560	550	550	550	610	550	630	650	
Flexural Modulus	ASTM D790	2mm/min	MPa	72	76	71	70	75	78	72	64	55	55	45	50	60	65	50	74	45
		2.8mm/min		21,000	26,000	21,500	20,000	22,000	27,000	24,000	20,000	19,000	17,000	19,000	19,000	22,000	21,000	22,000	23,000	
Izod Impact Strength (Notched)	ASTM D256	1/4inch at 23°C	kgf-cm/cm	14	15	14	12	7	6	16	16	16	12	14	14	20	10	18	22	11
		1/8inch at 23°C		14	17	15	14	8	7	18	18	48	57	15	15			21	23	12
Charpy Impact Strength (V-notched)	ISO 180 1A	at 23°C, 4mm	kJ/m ²	17	14	14	13	6	6	12	35			12	18	9			16	
		at 23°C, 4mm		19	14	16	12	6		20	19	13			12	20	9		18	19
Rockwell Hardness	ASTM D785	R-scale	-	107	111	108	107	110	108			100	91	109	109	106	94	109	111	115
				ISO 2039-2	107	114	109	112	113	112			96	91	106	109	106	94	108	110

Thermal Properties

Heat Deflection Temperature	ASTM D648	18.56kgf/cm ² , 6.4mm	°C	85	85	86	81	83	85			80	74	80	80					80
		4.6kgf/cm ² , 6.4mm		94	94	90		92			89									
	ISO 75-2 (Unannealed)	1.8MPa, 4.0mm		77	77	78	70	75	75	74	76	71	70							
		0.45MPa, 4.0mm		-	88	89	82	83			83									
VICAT Softening Temperature	ISO 306	B/50	°C	96	94	97	88	98	96	96	97		91	90	92	96	87	94	94	89

Flame Characteristics

Flammability	UL94	V-2	mm	1.5/3.0	1.2-1.32	1.5/3.0	1.5/3.0	1.0/3.0	1.5/3.0	1.5, 3.0	1.0/3.0		
		V-0										2	
		SVA										2.5	



About LOTTE

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

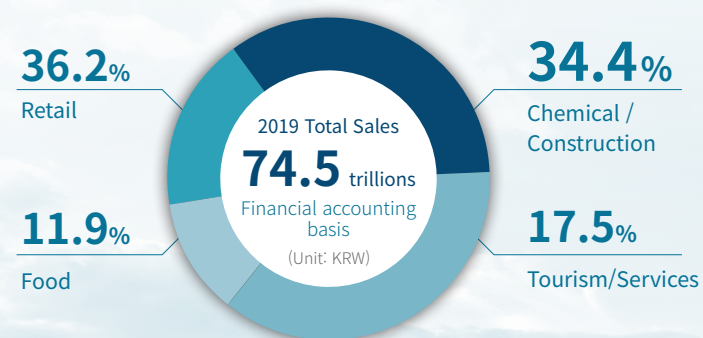
MISSION

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

VISION

Lifetime Value Creator

Major Business Unit Portfolio



About LOTTE CHEMICAL

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

Field of Business



Basic Chemicals

Basic/Intermediate Petrochemicals
Polymer
Monomer

Ethylene, Propylene, BD, SM, OX, C5
PE, PP, PET
EO/EG/GE, EOA, PIA/PTA/MMA

Advanced Materials

High Performance Plastic Materials

STOREx Styrene & general product ABS, ABS Alloy, ASA, PP
INFINO Engineering plastics PC, PC Alloy & High Performance EP
Performance materials TPE, Modified adhesive resin, PP Compound, LFT, EPP

Construction Materials
Water Treatment Membrane

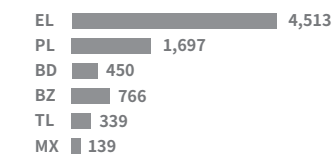
Acrylic solid surface, Engineered stone, Porcelain surface

Capacity

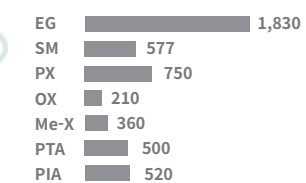
(Unit: KTA)



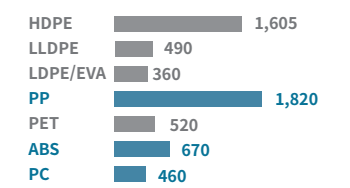
BASIC CHEMICALS



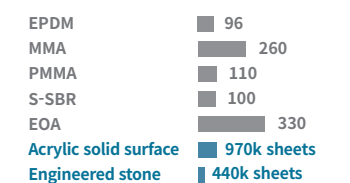
MONOMER



POLYMER



SPECIALTY



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

22 Countries

26 Production bases

SALES CORPORATION

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

Employees Worldwide



Including major subsidiaries (Domestic & Overseas)

10,729

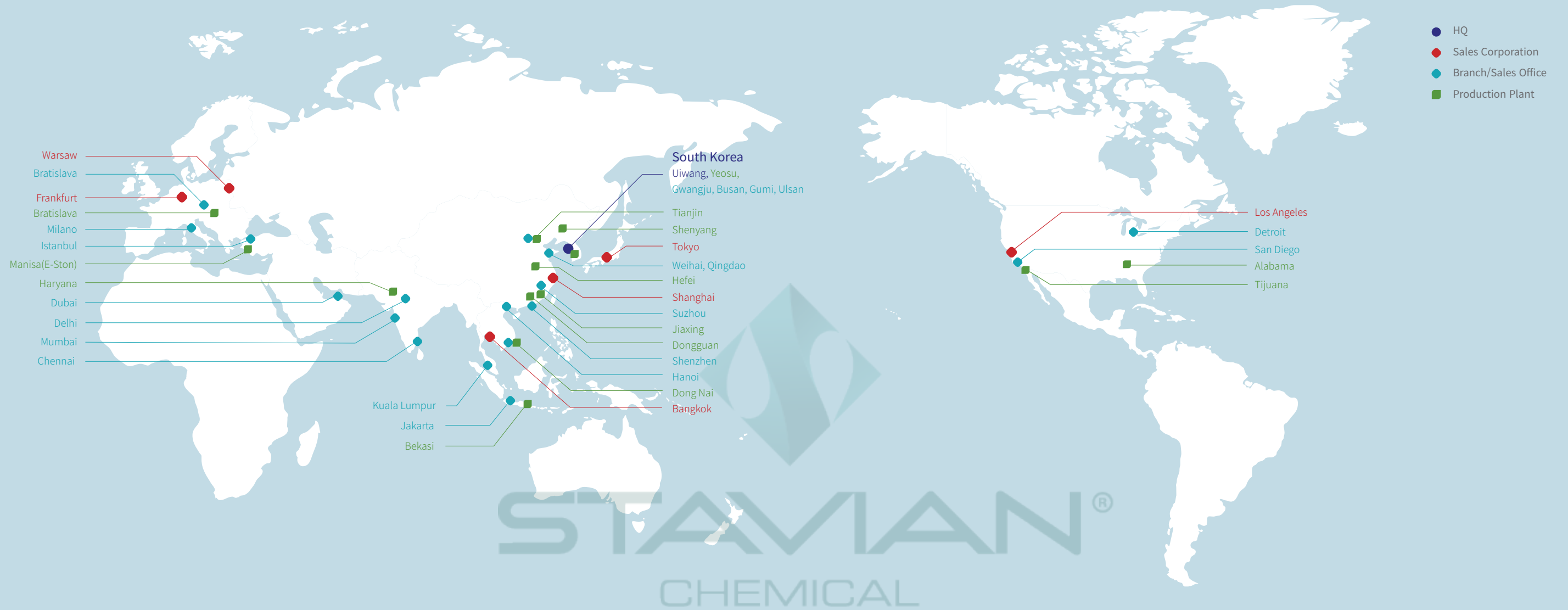
Business Performance(2020) (Unit: KRW)



Sales 12,223 billion

Capital 13,712 billion

Global Network [Advanced Materials]



SOUTH KOREA

Uiwang (Advanced Materials)
Tel. +82-31-596-3114

Yeosu Plant
Tel. +82-61-689-1220

Gwangju Service Office
Tel. +82-62-945-8846

Busan Service Office
Tel. +82-51-465-6829

Gumi Sales Office
Tel. +82-54-468-2811

Ulsan Sales Office
Tel. +82-52-267-9808

Sales Corporation

Los Angeles, U.S.A.
Tel. +1-714-443-0942

Frankfurt, Germany
Tel. +49-6196-7727-260

Shanghai, China
Tel. +86-21-6270-3000

Tokyo, Japan
Tel. 81-3-6369-6429

Bangkok, Thailand
Tel. +66-2-624-6726

Warsaw, Poland
Tel. +48-506-760-890

Production Plant

ASIA

Jiaxing, China
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Shenyang, China
Tel. +86-139-4028-9710

Hefei, China
Tel. +86-186-0573-0711

Jiaxing, China
Tel. +86-188-0240-6710

Dong Nai, Vietnam
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Haryana, India
Tel. +91-88001-02170

Bekasi, Indonesia
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EUROPE

Tatabanya, Hungary
Tel. +36-34-814-120

Manisa, Turkey
Tel. +90-236-213-03-43

AMERICA

Tijuana, Mexico
Tel. +52-664-627-4947

Alabama, U.S.A.
Tel. +1-334-748-0667

Branch/Sales Office

ASIA

Suzhou, China
Tel. +86-512-6262-0323

Qingdao, China
Tel. +86-532-8577-9681

Shenzhen, China
Tel. +86-755-8203-2323

Tianjin, China
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Weihai, China
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Hanoi, Vietnam
Tel. +84-243-227-2071

Dong Nai, Vietnam
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Kuala Lumpur, Malaysia
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Jakarta, Indonesia
Tel. +62-811-813-6404

Chennai, India
Tel. +91-44-4299-4255

Delhi, India
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Mumbai, India
Tel. +91-22-6110-0177

MIDDLE EAST

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Milano, Italy
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Istanbul, Turkey
Tel. +90-212-437-8101(115)

AMERICA

Detroit, U.S.A.
Tel. +1-248-509-7460

San Diego, U.S.A.
Tel. +1-619-500-2837