

FLEX+ PAK

INNOVATION IN YOUR LIFE

THE LEADER
FOR
TOMORROW

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GREETING MESSAGE

The passion and challenge for

FlexPlusPak specializes in the manufacture of industrial materials not alone packaging materials which is basis for the food industry but also electronic materials protection film.

Since its establishment in 1976, FlexPlusPak has been trying to contribute to the happiness of humankind by providing eco-friendly products and services.

Starting with its gravure printing business in 1977, FlexPlusPak has expanded its field of business from plastic molding business in 1984 to non-oriented coextrusion film business in 1987 upon the foundation of faith and trust of customers.

In the years to come, FlexPlusPak will provide the best solutions what customers need with high value added technology and quality competitiveness.



BUSINESS OVERVIEW

Enriching lives!
Flex Plus Pak will lead the way.

- 01 Flexible Package
- 02 Film
- 03 Molding
- 04 Paper Cups



1970

- 1976.08 Established FlexPlusPak
(capital stock 50 million won)
- 1976.09 Flexible package product launch
- 1979.08 Increased capital to 100 million won
- 1981.04 Installed Gravure printing equipment (NAKAJIMA 6°)
- 1982.11 Increased capital to 150 million won
- 1983.05 Installed Gravure printing equipment and its related facilities (NAKAJIMA 7°)
- 1984.09 Established the first factory in the Banwol Industrial Complex (production of flexible package material)
- 1984.11 Installed the first vacuum molding equipment (production of molding products)
- 1987.09 Installed the first coextrusion(3-layers) film machine (production of film products)
- 1989.03 Installed the first vacuum metallizing machine (LEYBOLD AG.)(production of deposition products)
- 1989.05 Installed the coextrusion (3-layers) film machine (MODERN)
- 1989.08 Installed of the second vacuum molding equipment (Senba)

1990

- 1991.03 Installed third vacuum molding equipment (Senba)
- 1991.05 Increased capital stock to 300 million won
- 1991.06 Established the second factory in the Banwol Industrial Complex (production of film and molding products)
- 1992.01 Installed tandem extruder for extrusion coating
- 1992.03 Received award from the Minister of Finance (Taxation day)
- 1992.03 Installed the second vacuum metallizing machine (leybold ag.)
- 1992.05 Installed the first curved surface printer (KASE)
- 1993.04 Installed Gravure printing equipment (8 degrees)
- 1993.09 Installed the coextrusion (3-layers) film machine and its related facilities
- 1994.03 Installed the second curved surface printing machine. (VAN DAM)
- 1994.04 Installed pressure vacuum molding equipment (ADOLF ILLIG)
- 1995.04 Installed the third curved surface printing machine (VAN DAM)
- 1995.05 Installed the coextrusion film (triple layer) and its related facilities (MITSUBISHI)
- 1996.07 Installed motor operated pressure vacuum molding equipment (Senba systems)
- 1997.11 Installed KAMP SLITTER equipment (KAMP)
- 1997.12 Installed the fourth curved surface printing machine (KOHOKU SEIKO)
- 1998.03 Received award from the Minister of Strategy and Finance (Taxation day)
- 1999.05 Received award from the Minister of Commerce, Industry and Energy (outstanding small and medium businesses award)

MILESTONES



2000

- 2000.06.05 Installed the coextrusion film machine
- 2000.09.29 Installed Gravure printing equipment (8 colors)
- 2001.03.03 Received award from the Seoul regional tax commissioner (Taxation day)
- 2001.03.29 Installed the second evaporation equipment (APPLIED FILMS GmbH)
- 2001.11.29 Installed the first coextrusion (5-layers) film blown (LUIGI BANDERA)
- 2002.01.07 Installed the 4th molding equipment (45 ton pressure forming) (TOKO)
- 2002.03.03 Received award from the deputy prime minister and minister of strategy and finance (Taxation day)
- 2003.05.27 Installed slither rewinder equipment
- 2003.12.11 Acquired ISO 9001, 2000 certification (AJA Korea international certification institute)
- 2004.02.10 Installed air pressure and vacuum molding equipment and its related facilities (ADOLF ILLIG)
- 2004.06.25 Installed coating & dry laminating equipment (Seotong technology, Inc.)
- 2005.03.03 Received award from the deputy prime minister and minister of strategy and finance (Taxation day)
- 2006.05.10 Installed the coextrusion 3-layers film machine (Windmoller & Holscher)
- 2007.01.19 Changed company name to Yusang Co.,Ltd
- 2008.09.22 Installed the 3rd vacuum metallizing machine (Applied Materials GmbH)
- 2009.03.03 Received award from the Minister of Strategy and Finance (Taxation day)
- 2009.12.03 Received the award for exporting more than \$1,000,000 on the 46th Trade day

2010

- 2010.04.30 Installed slither rewinder (FUJI TEKKO)
- 2010.09.30 Installed the 9 colors gravure printing machine
- 2010.09.30 Installed dry laminating machine
- 2010.12.15 Installed the coextrusion(3-layers) film machine (Windmoller & Holscher)
- 2010.11.30 Received the award for exporting more than \$5 million worth of goods on the 47th Trade day
- 2011.12.12 Received the award for exporting more than \$10 million worth of goods on the 48th Trade day

01

BUSINESS PROFILE



Flexible Package Business

By starting from a small printing factory in Dangsan-dong, Yeongdeungpo in 1970s, FlexPlusPak is leading the domestic packaging culture, which has developed with Korea's food packaging industry, and is developing further through quality control and new product development for customer satisfaction.

We embedded quality control systems throughout the production processes in Gravure printing (one of the best technologies in the flexible packaging business), dry lamination, extrusion coating, non-solvent lamination metalizing, and embossing to meet the requirements of our customers.

FlexPlusPak provides its products to the largest Korean food processing companies including Lotte, Orion, Nongsim, Paldo, Ottugi, Samyang and Harim and is growing together with the Korean food industry.





Refrigerated/ Frozen food packaging

Refrigerated products are normally distributed at a temperature of between $-5^{\circ}\text{C} \sim +5^{\circ}\text{C}$, and frozen products are produced and sold at lower than -18°C . Refrigerated/frozen food packaging requires maintaining the product at a moist environment and a lower temperature, keeping it water-resistant, odor-resistant and gas-resistant.

Main products

Classification	Packaging product composition	Product features
Ham/sausage	Ny/PE/LLDPE	Vacuum packaging possible, pin hole resistant
	PET/PE/LLDPE	Highly heat-resistant, cold-resistant, water resistant, and odor-resistant
Ice cream	OPP/VM-CPP	Metal luminosity improves appearance and prevents light penetration
	OPP/PE/W-CPP	Outstanding seal strength
	OPP/W.O	Outstanding hiding power, outstanding high speed packaging



Liquid packaging

Because it is important to maintain the quality of liquid products, damp-proof, gas-proof, light-proof, odor-resistant, and gas-resistant materials are used. Liquid food packaging employs an automatic filling system where composite materials such as films especially require outstanding pressure resistant, high speed fillings, and mechanical adapted features.

Main products

Classification	Packaging product composition	Product features
Liquid condiment/ sauce	Ny/LLDPE	Available for sterilization by boiling, outstanding impact strength
	Ny/VM-PET/LLDPE	Damp-proof, outstanding gas-barrier, light-proof
	Ny/M-LLDPE	High speed filling adapted, better hot-tack sealability through contamination, outstanding gas-resistance



Dry food packaging

Dry food is affected by oxygen and water in the air and it requires very good packaging that should be damp-proof and have a gas-barrier. Dry food packaging is selected based on the requirements of quality maintenance, printing adaptability and economic efficiency.

Main products

Classification	Packaging product composition	Product features
Snacks	OPP/PE/VM-PET/PE/SEAL layer	Outstanding high speed packaging adaptability, Outstanding gas-barrier
	OPP/PE/VM-PET/PE	Outstanding gas-barrier
Biscuits	OPP/VM-CPP	Outstanding gas-barrier, Improves appearance through metal luminosity
	OPP/CPP	Damp-proof, outstanding water-proof, outstanding transparency
Noodles	OPP/PE/VM-CPP	Outstanding gas-barrier, outstanding scratch-resistance
Soups	PET/PE/AL/PE	Damp-proof, outstanding gas-barrier Used for powder condiment packaging
	OPP/PE	Used for dried condiment packaging



Retort food packaging

Retort sterilization is done at 100°C for a certain period of time, and pressured vapor (Steam) or pressured hot water is used in a pressured pot called retort at a pressure range of (1.5~3.0kg/cm²). High retort is done at 135°C for 2 minutes, but retort at 120°C for 30 minutes is more common.

Main products

Classification	Packaging product composition	Product features
Sauces	PET/AL/Ny/CPP	Gas-barrier and odor-resistance outstanding
	PET/Ny/CPP	Transparency satisfactory
Fresh noodles	Ny/LLDPE	Available for sterilization by boiling



Cup lid packaging

We select an appropriate sealant material depending on the type of cup. The easy peel packaging is applied to cup noodles packaging.

Main products

Classification	Packaging product composition	Product features
Cup noodles	Paper/PE/AL/PE/SEAL layer	Used for foaming cups
	Paper/PE/PET/PE/AL/PE/SEAL layer	Used for paper cups
	Paper/PE/AL/PE/EPF	Easy peel outstanding for paper cups
Snacks	Paper/PE/PET/PE/AL/PE/EPF	Easy peel outstanding for paper cups



Other product packaging

- Rice packaging
- Pet food packaging
- Anti-fog lid for cups
- Wet tissue packaging

Main products

Classification	Packaging product composition	Product features
Rice packaging	MattOPP/Paper/PE PET/LLDPE/Felt	Felt is used to maintain the quality of the rice Non-luminosity improves the appearance
Anti-fog LID	PET/Ny/CPP	Outstanding for cups that require anti-fog qualities
Wet tissue	PET/LLDPE	Outstanding water-resistance and odor-resistance



FLEXIBLE PACKAGING

POUCH

3-side sealed
All kind of food



ZIPPER POUCH

Snack, dried
& frozen food



STANDING POUCH

Snack, dried
& frozen food



ZIPPER STANDING POUCH

Snack, dried
& frozen food



2-SIDE SEALED STANDING POUCH

Snack, dried & frozen food
Top & bottom load
(2-side sealed)



T-SHAPE SEALED BAG

Snack, dried
& frozen food



SPOUT POUCH

Spout attached pouch
Liquid, ice cream



M-SHAPE SIDE SEALED BAG

Snack, dried
& frozen food



THOMPSON POUCH

Customized
pouch



M-SHAPE EDGE SEALED BAG

Snack, dried
& frozen food



BOX POUCH

Both sides and
bottom has surface area





Flexible packaging manufacturing equipment

Printing

We have high-tech printing equipment that enables doublesided, high-quality, high-speed color printing. In particular, the automatic visual inspection device and immobile visual inspection device can monitor printing defects in real-time.

Machine	Unit	Capa (/year)		
		m	m ²	ton
Printer	4	180,000,000	144,000,000	2,600



Lamination

We have a cleanroom where printed paper and functional film is laminated in a minimally contaminated environment. High quality glue, corona processors and ozone processors are used to increase the attachment strength during the lamination process,. Also, an automatic visual inspection screens black dots and foreign contaminants beforehand and removes them.

Machine	Unit	Capa (/year)		
		m	m ²	ton
Printer	7	300,000,000	240,000,000	10,800



Slitting

It slits the produced material to the right width and height depending on the customer's needs and removes dust and foreign contaminants with the installation of an ionizer and foreign contaminant collector.

Machine	Unit	Capa (/year)		
		m	m ²	ton
Printer	6	270,000,000	216,000,000	13,600



Bagging

It produces an appropriate three-sided pouch, a standing pouch, and a spout pouch depending on the shape and characteristic of the products to protect them and keep them safe.

Machine	Unit	Capa (/year)		
		m	m ²	ton
Printer	2	180,000,000	144,000,000	900



02

Film Business

FlexPlusPak produces CPP(Cast Polypropylene) film for food package and CPP film for electronic and opto-electronic material protection.

CPP film for food package is applied to the inner layer of the packaging which consists of multi-layers to provide outstanding seal and usability in case of high speed production based on high quality reliability.

CPP film for electronic and optoelectronic material protection, first produced in Korea, is designed to protect materials safely. FlexPlusPak protection CPP film is produced under the high quality control process.

Also, FlexPlusPak produces vacuum metallized CPP film and vacuum metallized PET film with high quality production machine for various needs from customers.



Manufacturing process



CPP Film Manufacturing Process

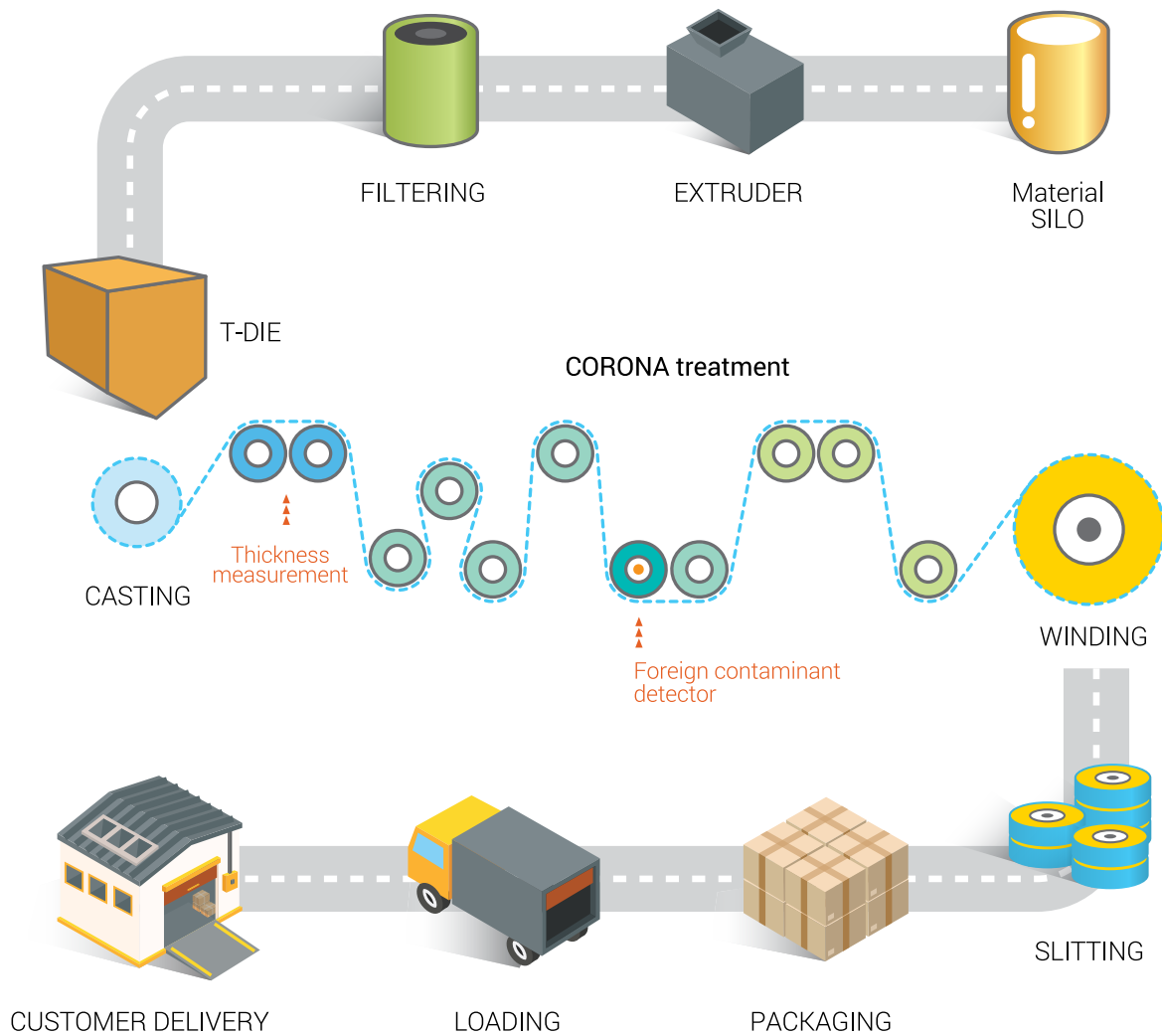


High Vacuum Web Coating Process



Slitting Process

CPP film manufacturing process



UCF Film

Classification		Packaging product composition	Product features
Electronic material protection	Display material	Optical film	UCF-MB2 / MB3 / MG2 / MG3 / MF / MY
		Optical film , tempered glass, LGP, TSP	UCF-MT / MT2 / MTL / MHLV / MHLT
		Optical film , LGP	UCF-MP/ MP2/ MP3/ MPL/ MPG/ MPGL
		Base film for rubber and acrylic PSA coating	UCF-P / P2 / PB / PG
Industrial	Packaging	Food Packaging	VM-PET
	Industrial	Window glass & electronic packaging	VTM-PET
Packaging	General	Food packaging (Heat Seal)	UCF / W-UCF / W-ULF
		Ice cream	
	Anti-fogging	Anti-fogging CPP (product requiring certain level of freshness)	UCF-AF
	Retort pouch	Semi retort pouch	UCF-R
		High retort pouch	UCF-R2
		High retort pouch	UCF-R3
		High Retort Pouch (White CPP)	UCF-R
	Vacuum Metallizing	Packaging that penetrates oxygen and water	VM-UCF
		Heat seal vacuum metallized film under low temperature	VM-ULF
		Packaging that requires easy cut with transverse direction	VM-UEB



Electrical material protection CPP film

Product structure - 3 layers coextrusion film



Product features

- Stable and consistent self-adhesion and excellent resistant to temperature
- Well controlled low gel and fisheye
- No residue on materials after peeling off protection film

Product size

- Width : Min.350mm to Max. 1500mm
- Length : Min. 500M to Max. 7000M

Product type - PP(Polypropylene) & PE(Polyethylene)

- PP product : UCF-MB2, MB3, MG2, MG3, MF, MY, MT, MTL, MHL(V,N,T)
- PE product : UCF-MP, MP2, MP3, MPG, MPL, MPGL

Product purpose

PP type protection film	PE type protection film
UCF-MB2, MG3, MF, MY : Normal Prism Sheet / color filter	UCF-MP: Polarizer TAC film / Color filter
UCF-MB3 : Bead Coating(size 1.5 μ m) Prism Sheet	UCF-MP3 : TSP Hard Coating
UCF-MT: TSP(Touch Screen Panel) shipment protection	UCF-MP2, MPG: PC film and plate, glass filter, injection molding LGP protect
UCF-MTL : Mobile Prism Sheet (Matte and backcoating) /ITO film	UCF-MPL, MPGL: PMMA plate (extraction molding LGP protect)
UCF-MHL(3 types): extraction molding LGP pattern surface protection	



Electronic material protection film - 'M' series

The self-adhesive products in the "M" series provide the perfect solution to electronic materials in flat panel display. Because it is important to keep optical material immaculate, we have a filtering system and 3D monitoring equipment to produce the "M" series.

Based on the superior quality of the "M" series, we are expanding the protection area from electronic materials to opto-electronic materials.

Main products

Items	Usage	Product features
UCF-MB2 / MB3	Optical material protection - PET - Hardcoating PET - Tempered Glass - TSP - ITO film - Polarizer - TAC film - LGP, LGF	- Products that strictly controlled fisheye and gel - Outstanding resistance to temperature and humidity - Stable and consistent self-adhesion - No residue on materials after removing protection film
UCF-MG2 / MG3		
UCF-MF / MY		
UCF-MT / MT2		
UCF-MTL		
UCF-MHL-V, N, T		
UCF-MPG / MPGL		
UCF-MP / MP2 / MP3		



Electronic material protection film - 'P' series

"P" series coating film (CPP film for PSA coating) is a complete solution for highly adhesive coating to protect electronic materials. The "P" series are used for acrylic and rubber types of adhesive coating and are highly resistant to heat and solvent to help maintain a high level of adhesiveness.

Main products

Items	Usage	Product features
UCF-PP2	Prism surface protection Coating Base Film Diffusion plate protection	- Gel controlled product - Excellent coating properties with PSA - Excellent solvent resistance and stability after PSA coating - The smoothness of the film is outstanding
UCF-PG		
UCF-PB		



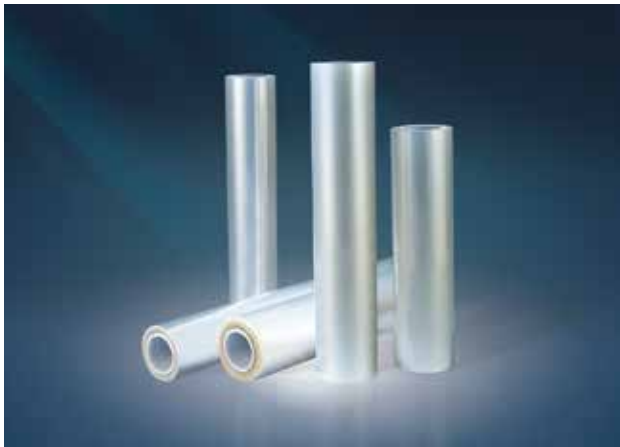
General food packaging (UCF)

FlexPlusPak UCF product, one side heat seal film, is a CPP film consisting of 3 layers. UCF film provides excellent workability for packaging lamination.

Especially, W-UCF used for ice cakes has outstanding properties in heat seal and concealment force under low temperature.

Main products

Items	Usage	Product features
UCF	Heat seal film used for food and snack packaging	<ul style="list-style-type: none"> - Outstanding heat seal and transparency - Excellent workability for packaging lamination
W-UCF	White color heat seal film for Ice cakes	<ul style="list-style-type: none"> - Excellent heat seal under low temperature and high speed packaging



Anti-fogging packaging (UCF-AF)

UCF-AF, a one side heat seal CPP film, is an anti-fogging film and is used for products requiring freshness.

UCF-AF protects the contents from condensation caused by temperature differences between the inner and outer part of the packaging. Therefore, it makes it easier to check the contents freshness and extends the expiration date of contents.

Main products

Items	Usage	Product features
UCF-AF 30	Enoki mushroom packaging - automatic packaging production	<ul style="list-style-type: none"> - Outstanding anti fogging quality - Designed to seal by heating under low temperature, it can keep the outside clean after pillow packaging
UCF-AF 40	Dried seafood and fresh vegetable packaging - applied to packaging pouch for manual packaging production	<ul style="list-style-type: none"> - Outstanding anti fogging quality - Excellent workability during manual production process



Retort packaging (R-UCF)

The casting polypropylene CPP film of the "R" series is used to retort packaging with excellent heat resistance and sealing. In case of retort food, the gas barrier properties are very important. Retort CPP film must keep its seal condition from heat sterilization process to delivery.

The FlexPlusPak "R" series retort CPP film satisfies these conditions with high quality.

Main products

Items	Usage	Temperature	Product features
UCF-R	Oriental medicine, fruit extract pouch	Lower than 120°C	- High transparency, impulse resistant at low temperature - Excellent resistance to outbreak of pinhole
UCF-R2	Soymilk, curry, and sauce pouch	Higher than 120°C	- Impulse resistance under low temperature - High temperature sterilization
UCF-R3	Tuna and cat food pouch	Higher than 120°C	- Impulse resistance under low temperature - High temperature sterilization - Excellent resistance to outbreak of pinhole



Vacuum metallized film

The "VM" series have excellent gas barrier properties with high metal gloss. FlexPlusPak produces vacuum metallized CPP and vacuum metallized PET applied to structural glass, automobile glass, anti-static electronic material carrier, and general food packaging.

Especially, VM-ULF and VM-UEB films improve productivity and quality of food packaging with outstanding gas barrier properties.

Main products

Items	Usage	Product features
VM-UCF	Snack packaging and confectionery packaging	- Excellent metal gloss with outstanding heat seal - Excellent suitability for lamination
VM-ULF	High speed packaging(Snack packaging and general confectionery packaging)	- High speed production packaging applicable - Prevent air leak - Prevent film wrinkle - Excellent heat seal under low temperature
VM-UEB	Snack packaging (Easy cut and high barrier)	- Easy cut in TD direction - Lowest gas barrier properties among aluminum metallized product
VM-PET	Food packaging	- High metal gloss - Excellent in gas barrier properties
VTM-PET	Electronic parts	- Outstanding stability of optical density

Film test equipment



GC-Mass
residual solvent measurement



Multi-tester
tensile strength and elongation rate measurement



DSC
film material analysis



Permeability measurement
film barrier properties measurement



Film adhesion measurement
film adhesive strength analysis



Gloss Meter
film gloss measurement



Thermal gradient tester
film heat seal temperature measurement



Friction measurement
film friction measurement



Thermo-hygrostat
reliability measurement of temperature and humidity



Loop Stiffness
film stiffness measurement

03

BUSINESS PROFILE



Molding Business

PPP/PS/PET container

Items	Features	Usage	Product features
PS	Impulse strength satisfactory	Ice cream, Pastry tray	Custard, Long leaf pie
Transparent PS	Transparency outstanding	Ice cream container, Pastry cap	Cafepresso
Multi-layer PS	Outstanding oxygen blocking and outstanding damp-proofing	Dairy beverage container	Cantata, Let's be, Latte
PSP	Outstanding heat exchange prevention	Sabalmyeon container	Shinramen, Yugaejang
PP	Impulse strength and outstanding damp-proofing	Ice cream container	Godeureum, Lemonade
PET	Oxygen blocking and outstanding damp-proofing	Snacks Tray	Vegetable crackers

Facility status

	M/C Type	Maker	Maximum	Capacity/Day	Sheet	Supply items
Vacuum molding	Equipment 1	SEN BA M/C	1100M/M	30,000 items (5TON)	PP, PS, PET	Pastry Tray, Cap, Pad
	Equipment 2	SEN BA M/C	1100M/M	30,000 items (5TON)	PP, PS, PSP, PET	Pastry Tray, Cap, Pad
	Equipment 3	SEN BA M/C	1100M/M	40,000 items (7TON)	PP, PS, PSP, PET	Pastry Tray, Cap, Pad
	Equipment 4	TOKO	1100M/M	40,000 items (7TON)	PP, PS, PSP, PET	Sabalmyeon Tray container
Pressure forming molding	Equipment 1	ILLIG	710M/M	50,000 items (5TON)	PP, TransparentPS	Ice cream container, Cap
	Equipment 2	ILLIG	710M/M	50,000 items (5TON)	PP, Multi-layer PS	Dairy beverage multi-layer container
Curved surface printing	Equipment 2	VAN DAM	6 degree printing	30,000 items	PP, PS, PET	Curved container
	Equipment 3	VAN DAM	5 degree printing	25,000 items	PP, PS, PET	
				13,000-15,000 items	PSP, PET	
	Equipment 4	Hobuk Precision	6 degree printing	15,000-17,000 items	PSP, PET	
				25,000-30,000 items	PS, PET	
Equipment 5	Hobuk Precision	6 degree printing	25,000-30,000 items	PSP, PET		
Assembly equipment	Assembly equipment 1	Korea gold foil industry		60,000 items		Spoon inserting cap
	Assembly equipment 2	Korea gold foil industry		60,000 items		Spoon inserting cap
	BODY label equipment	SEICO CL1201		180,000 items		Curved container
	Contraction film equipment	Jeongwoo Mechanics		80,000 items		Curved container



Paper Cups

■ Paper/ Transparent PS

Items	Features	Usage	Product features
Paper	It prevents a heat exchange by applying laminated double-layered paper	Instant noodle container (460cc~1,000cc)	Wangttuggeong, Bibimyeon, Cup noodle, Jin ramen, Ilpumhaemul wangcup
Transparent PS	Transparency outstanding	Ice cream container Pastry Cap	Ojingeoddangkong, Coolhangeudaewa

Facility status

Related facilities	Production capacity	Supply items
2 Cup molding equipment	48CUP/MIN	Ice cream
2 SET -1000 cup molding equipment	42CUP/MIN	Instant noodle container
4 SET -750 cup molding equipment	42CUP/MIN	
2 SET-500cc cup molding equipment	42CUP/MIN	Instant noodle container
4 Foreign contaminant detectors	180EA/ MIN	Regular cup (beverage, snack)
4 Cup molding equipment	42CUP/MIN, 60CUP/MIN	Anti-fogging, Vacuum packaging
1 Skive machine	160~200RPM	Punching equipment
Inner layer, Outer layer	80~110RPM	6.5 ounce beverages
10 Cup molding equipment	30~40RPM	

FLEX+ PAK

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