Freseal

K-PACK

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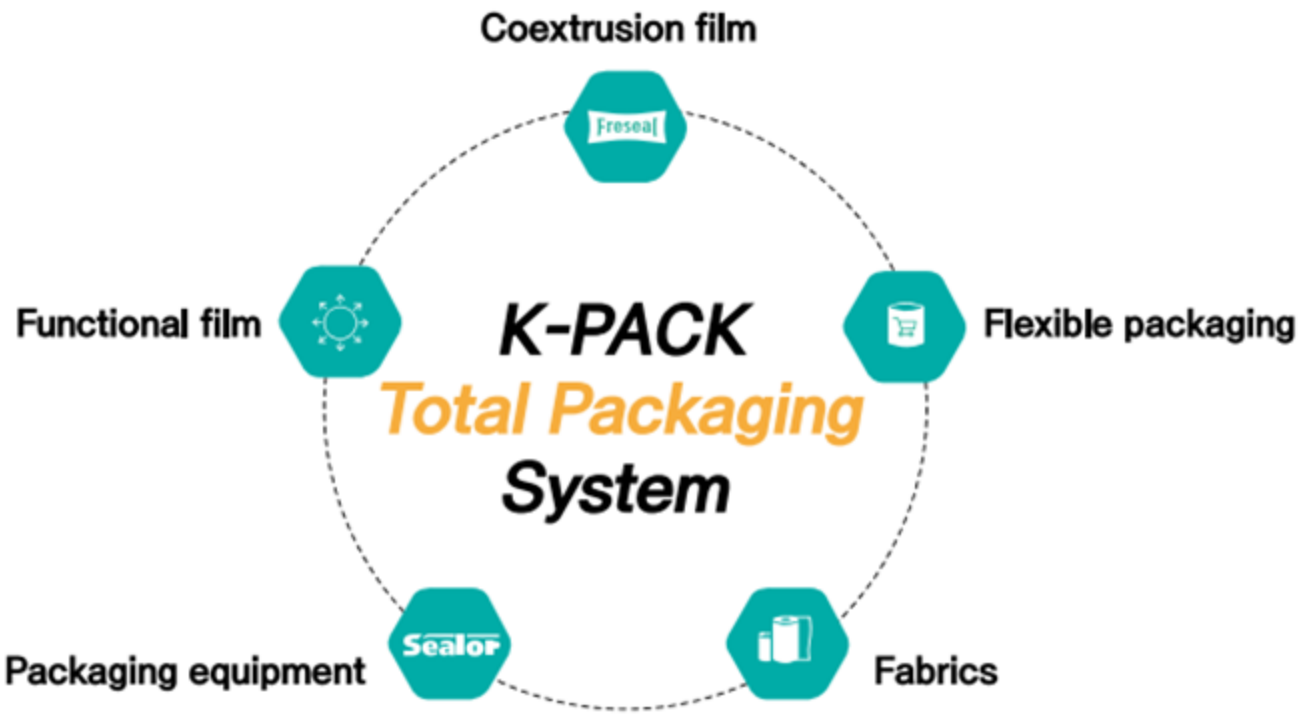
#1, Brand Introduction

Brand Introduction

Tomorrow Packaging



Brand Introduction

Freseal

Freseal

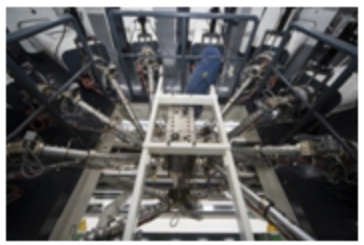
Fre : Fresh + Seal : Sealing

Our film keep your product quality and Freshness

Freseal Manufacturing Facilities

W&H 11 layer Cast Line





Manufacturer: WINDMOLLER & HOLSCHER

Products: Barrier Cast Film & Gas Barrier film

Annual capacity: Max 7,000MT

Latest 11 layer Cast film production line

Master Slitter



Manufacturer: Kampf Schneid GmbH

Products : Flexible films slitting

Machinable thickness : 8~800㎛

Maximum workable width : 3.050m

Maximum running speed : Max. 800m/min

K·PACK

#2, Freseal Special Films

Freseal Special Films

Special Film

Special films are improved packaging capabilities by utilizing an 11-layer multi-layer co-extrusion facility

Freseal PCR	Freseal Skin	Freseal S-EZ	Freseal PO	Freseal B-CPP	Freseal B-PE
- High Retort - Economic - Pinhole Resistance - Flexibility	- Skin - Excellent Packaging Visibility - Barrier	- Suitable for Sterilization Products - Curl Free - Economic	- Pinhole Resistance - Economics - Flexibility	- Barrier - Quality Improvement - Economic	- Barrier - Quality Improvement - Economic

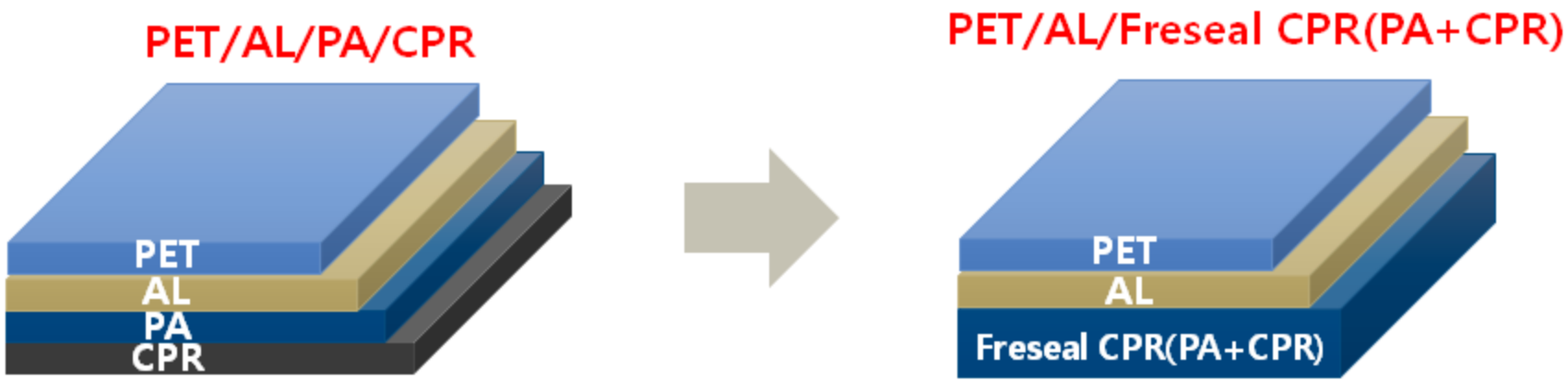
Freseal PCR | PA / CPR4

Introduction

- Freseal PCR is a multi-layer co-extrusion film with PA/CPR-4 configuration applicable to Semi or High Retort.

- This film maintains the function of the existing high retort 4 layers and can be processed with 3 layers, which reduces the manufacturing cost of the manufacturer and provides economical efficiency.

- In addition, it is a hygienic film that secures the flexibility of the product after sterilization and can be widely used in food packaging.



Freseal PCR | PA / CPR4

Characteristics

1. Economical efficiency

Existing 4 layer: PET/AL/PA/CPR	▶	**3 layers of the same function: PET/AL/Freseal PCR (PA/CPR coextrusion film)**
3 times of Laminations	▶	2 times of Laminations

2. Excellent flexibility and pinhole resistance

- Freseal PCR has better film flexibility and pinhole resistance after sterilization heat treatment by applying CPA layer.

3. Packaging safety

- Manufactured in a hygienic production system, it can be safely used for food packaging.

Freseal PCR | PA / CPR4

Application

- Packaging retort pouch and heat treated food
- Ready meal packaging for microwave oven with transparent layering + Freseal PCR applied
- HMR (Home Meal Replacement)

Competitiveness

1. Excellent economic feasibility and improved cost competitiveness

- Provide cost reduction factors through processing simplification
- Securing quality stability

2. Best applied to convenience food

3. Excellent clarity and gloss

Freseal PCR | PA / CPR4

Technical Data

*Test Condition : 23 ℃ / 50%RH

Properties	Unit	Method	Result	
			MD	TD
Tensile Strength	N/㎟	ASTM D882	80	70
Elongation at Break	%	ASTM D882	500	500
Coefficient of Friction	F	ASTM D1894	OUT/OUT	IN/IN
			0.00	0.16
Thickness limited Deviation	㎛	KPM C2004	115	
OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	87.88	
WVTR 38℃, 90%RH	g/㎡day	ASTM1249	3.482	
Haze	%	ASTM D1033	35.9	
Gloss	GU	ASTM D1033	102	

※ This data is our own analysis data, and if our products are to be used commercially, the suitability of the intended use may be determined through the customer's testing process and then applied.

Freseal VS | Vacuum Skin

Introduction

- Freseal VS is a vacuum skin film that can exhibit superior display effects due to its excellent product adhesion in packaging meat, seafood, and processed products.
- This film is suitable for preserving and distributing while keeping the shape of the original product.
- Two grade films, High Barrier and PA Barrier, can be applied in various ways depending on the distribution method.

Characteristics

1. Vacuum skin function

- Freseal VS is closely attached to the product and maximizes the display effect while preserving the original shape of the product.

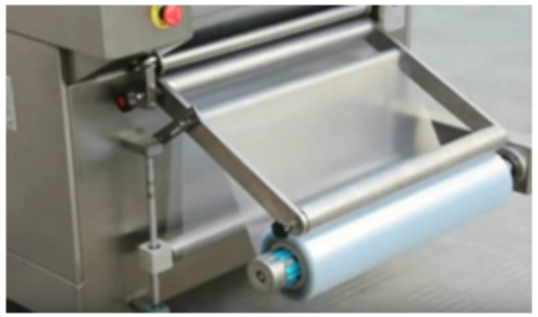
2. High Barrier / PA Barrier

- Refrigerated product packaging: High Barrier / Freseal H-VS (EVOH barrier layer)
- Frozen product packaging: PA Barrier / Freseal P-VS (PA barrier layer)

3. Excellent clarity, gloss and adhesion

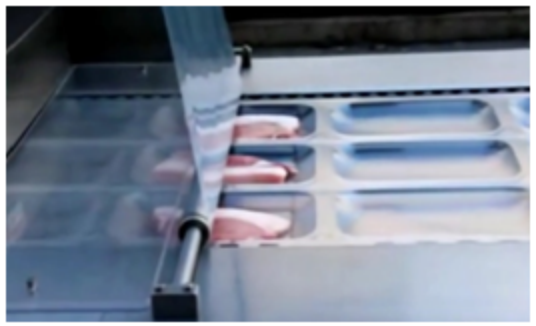
Freseal VS | Vacuum Skin

H-VS (EVOH barrier layer) Process



Installation of upper and Lower Film for exclusive use of skin

Forming of the bottom film



Put products

Skin Sealing

Cutting Finished products

Discharge of finished products

Freseal VS | Vacuum Skin

H-VS (EVOH barrier layer) Process

Freseal VS | Vacuum Skin

Application

- Packaging fresh meat, processed meat, seafood
- Packaging the part meat of Beef, Pork and Chicken
- Ready Meal and HMR

Heat Sealing Strength

*Test Condition : 23 ℃ / 50%RH

Temp.	Unit	Outside	Inside	Temp.	Unit	Outside	Inside
135℃	N/15mm	-	830	155℃	N/15mm	-	990
135℃		-	870	160℃		-	1070
135℃		-	910	165℃		-	1160
135℃		-	950	170℃		-	1240

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Freseal VS | Vacuum Skin

Technical Data

*Test Condition : 23 ℃ / 50%RH

Properties	Unit	Method	Result	
			MD	TD
Tensile Strength	N/㎟	ASTM D882	40	40
Elongation at Break	%	ASTM D882	350	350
Coefficient of Friction	F	ASTM D1894	OUT/OUT	IN/IN
			0.03	0.14
Thickness limited Deviation	㎛	KPM C2004	103	
OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	1.12	
WVTR 38℃, 90%RH	g/㎡day	ASTM1249	7.33	
Haze	%	ASTM D1033	32.7	
Gloss	GU	ASTM D1033	91.8	

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Freseal S-EZ | Special + Easy Peel

Introduction

- Thermoforming film with high barrier and anti-curling function.
- Prevents film curling that occurs during the heat treatment of meat processed vacuum packaging products and general vacuum products.
- High-Barrier and EASY PEEL function.

Freseal S-EZ | Special + Easy Peel

Characteristics

1. Curling prevention function

- Freseal S-EZ is a film containing CPP and has a function to prevent curling that occurs in heat-sterilized products after vacuum packaging.

2. High-Barrier

- It has excellent gas barrier properties.

3. Packaging safety

- Manufactured in a hygienic production system, it can be safely used for food packaging.

Freseal S-EZ | Special + Easy Peel

Technical Data

*Test Condition : 23 ℃ / 50%RH

Properties	Unit	Method	Result	
			MD	TD
Tensile Strength	N/㎟	ASTM D882	50	50
Elongation at Break	%	ASTM D882	350	350
Coefficient of Friction	F	ASTM D1894	OUT/OUT	IN/IN
			0.10	0.03
Thickness limited Deviation	㎛	KPM C2004	150	
OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	0.44	
WVTR 38℃, 90%RH	g/㎡day	ASTM1249	2.748	
Haze	%	ASTM D1033	14.7	
Gloss	GU	ASTM D1033	105	

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Freseal PO | Pouch

Introduction

- A vacuum pouch with enhanced pinhole resistance by adding elongation to a general vacuum pouch with a basic PA/PE structure.

- It has excellent strength and vacuum adhesion, and is a very hygienic film that can be widely used in food packaging.

Freseal PO | Pouch

Characteristics

1. Excellent pinhole resistance

- Freseal PO has excellent pinhole resistance compared to general PA/PE vacuum pouches.

2. Excellent physical strength and vacuum adhesion

- Excellent physical strength to preserve the product when applied
- Excellent adhesion to products during vacuum packaging

3. Packaging safety

- Manufactured in a hygienic production system, it can be safely used for food packaging.

Freseal PO | Pouch

Technical Data

*Test Condition : 23 ℃ / 50%RH

Properties	Unit	Method	Result	
			MD	TD
Tensile Strength	N/㎟	ASTM D882	30	30
Elongation at Break	%	ASTM D882	400	300
Coefficient of Friction	F	ASTM D1894	OUT/OUT	IN/IN
			0.00	0.03
Thickness limited Deviation	㎛	KPM C2004	100	
OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	73.38	
WVTR 38℃, 90%RH	g/㎡day	ASTM1249	5.589	
Haze	%	ASTM D1033	4.6	
Gloss	GU	ASTM D1033	121.2	

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Freseal B-CPP | Barrier + CPP

Introduction

- Freseal B-CPP is a multi-layer casting polypropylene film that adds a high barrier function by grafting an EVOH layer to general CPP.

Characteristics

1. High-High aptitude

- Freseal B-CPP has a separate EVOH layer, so it has high gas barrier properties.

2. Excellent mechanical and physical strength

- Freseal B-CPP has excellent processability and physical strength.

Freseal B-CPP | Barrier + CPP

Application

- Packaging to extend shelf life or maintain quality
- Products requiring high barrier properties
- HMR
- Ready Meal

Barrier Properties

Temp.	Properties	Unit	Method	Result
Freseal B-CPP	OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	1.6
	WVTR 38℃, 90%RH	g/㎡/day	ASTM 1249	6.4

Freseal B-CPP | Barrier + CPP

Technical Data

*Test Condition : 23 ℃ / 50%RH

Properties	Unit	Method	Result	
			MD	TD
Tensile Strength	N/㎟	ASTM D882	50	40
Elongation at Break	%	ASTM D882	600	600
Coefficient of Friction	F	ASTM D1894	OUT/OUT	IN/IN
			0.10	0.08
Thickness limited Deviation	㎛	KPM C2004	63	
OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	1.598	
WVTR 38℃, 90%RH	g/㎡day	ASTM1249	6.414	
Haze	%	ASTM D1033	15.8	
Gloss	GU	ASTM D1033	87.3	

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Freseal B-PE | Barrier + LLDPE

Introduction

- Freseal B-PE is a linear low-density polyethylene film that adds a high barrier function by grafting an EVOH layer to general LLDPE. It can be widely applied to products that require high gas barrier in food and industrial packaging.

Barrier Properties

Temp.	Properties	Unit	Method	Result
Freseal B-PE	OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	1.663
	WVTR 38℃, 90%RH	g/㎡/day	ASTM 1249	6.139

Freseal B-PE | Barrier + LLDPE

Technical Data

*Test Condition : 23 ℃ / 50%RH

Properties	Unit	Method	Result	
			MD	TD
Tensile Strength	N/㎟	ASTM D882	30	30
Elongation at Break	%	ASTM D882	600	600
Coefficient of Friction	F	ASTM D1894	OUT/OUT	IN/IN
			0.09	0.03
Thickness limited Deviation	㎛	KPM C2004	76	
OTR 23℃, 0%RH	cc/㎡/day	ASTM 3985	1.663	
WVTR 38℃, 90%RH	g/㎡day	ASTM1249	6.139	
Haze	%	ASTM D1033	7.25	
Gloss	GU	ASTM D1033	121.5	

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Thank you