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Creating polypropylene, Shaping a better future

Flexible and Rigid Packaging

PolyMirae supplies the best
polypropylene in the world



Product Portfolio

Flexible packaging

Segment	Grade	MFR (dg/min)	FM (Kg/m2)	Impact (@23°C)	Typical applications & features
BOPP	<i>Moplen HP522H</i>	2	15,500	5	Balanced stiffness and processability/ Metallization
	<i>Moplen HP622J</i>	3	16,000	4	High speed processability with stretchability/ Metallization
	<i>Moplen HP623J</i>	3	15,500	4	High speed processability with stretchability/ Lamination
	<i>Moplen HP624J</i>	3	15,500	4	High speed processability with stretchability/ Printability
	<i>Moplen HP625J</i>	3	15,000	4	High speed processability with stretchability
	<i>Moplen HP626J</i>	3	16,000	4	High speed processability with stretchability/ AB/ Skin layer
	<i>Moplen HP627J</i>	2	14,300	2.5	Balanced stiffness and processability/ Synthetic paper
	<i>Moplen HP629J</i>	3	15,500	4	Balanced stiffness and processability/ Lamination
	<i>Adstif HA822J</i>	3.3	21,000	3	Very high stiffness and thermal resistance
	<i>Moplen EP322M</i>	9	11,000	15	Semi matt skin layer
CPP	<i>Moplen HP512M</i>	8	15,000	3	General film, Color stability
	<i>Moplen HP513M</i>	8	16,000	2	Metallization
	<i>Moplen EP110J</i>	3	6,500	NB	Battery cell pouch, Retortable, protective film
	<i>Moplen EP310JHP</i>	3	14,000	NB	Retortable film
	<i>Moplen EP310J</i>	5	13,000	20	Retortable film
	<i>Moplen RP210L</i>	6	9,000	5	General film, Battery cell pouch
	<i>Metocene HM2089</i>	9	14,500	2	Metallization, low migration

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High stiffness and high heat resistance BOPP

Adstif HA822J

Benefits

- Excellent stiffness
- High heat resistance
- Printing layer for recyclable PP mono-material packaging

Typical applications

- Food packaging
- Industrial packaging

Properties		Test method (ASTM)	Unit	<i>Adstif HA822J</i>	Conventional BOPP Grade
MFR	2.16kg/230°C	D1238L	g/10min	3.3	3
Tensile strength	@Yield	D638	kg/cm ²	390	370
Flexural modulus		D790	kg/cm ²	21,000	16,000
HDT		D648	°C	120	106



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Semi matt BOPP film skin layer

Moplen EP322M

Benefits

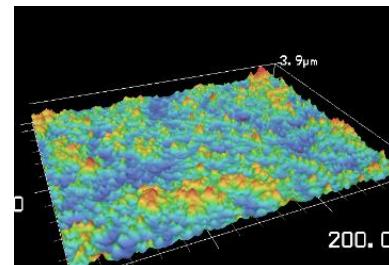
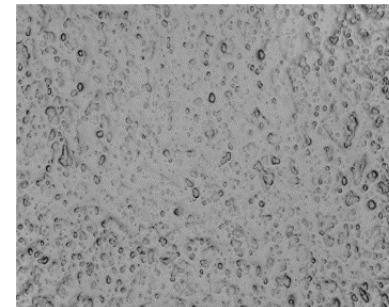
- Good processability without inorganic modifiers
- Appropriate roughness for semi matt film
- Good printing performance

Typical applications

- Food packaging
- Industrial packaging

Properties		Test method (ASTM)	Unit	<i>Moplen EP322M</i>
MFR	2.16kg/230°C	D1238L	g/10min	9
Flexural modulus		D790	kg/cm ²	12,000
IZOD strength	@23°C	D256	kg cm/cm	15
Gloss (60°)		40 μ m Film	%	11
Haze			%	64

EP322M Surface and roughness image



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High impact and low sealing temp. BOPP and CPP film

Hifax EP110J

Benefits

- Excellent impact strength
- Low SIT with stronger seal strength
- Low flexural modulus for softness

Typical applications

- Battery cell pouch
- Retort pouch and protective film
- Sealable BOPP film

Properties		Test method (ASTM)	Unit	Hifax EP110J
MFR	2.16kg/230°C	D1238L	g/10min	3
Tensile strength	@Yield	D638	kg/cm ²	180
Flexural modulus		D790	kg/cm ²	6,500
IZOD strength	@23°C	D256	kg cm/cm	NB
	@-20°C			6.0
HDT		D648	°C	90

Sealing test condition

Seal bar : 10mm*25mm.

Sealing time : 0.5 sec

Sealing pressure : 2kgf/cm²

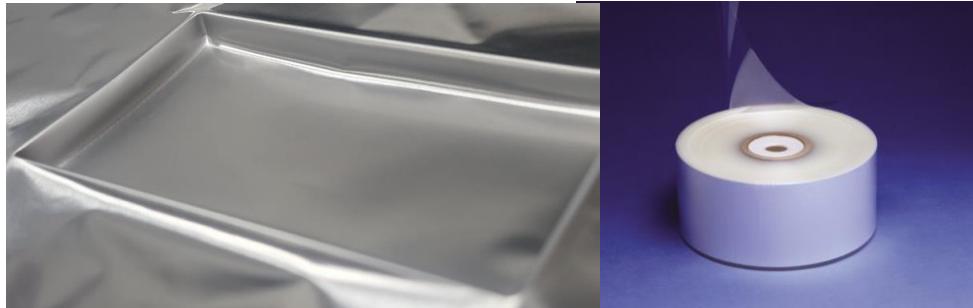
Peeling speed : 200mm/min

Temperature	Hifax EP110J	Conventional HeCo PP
152°C	127	-
154°C	299	170
156°C	384	225
158°C	533	586

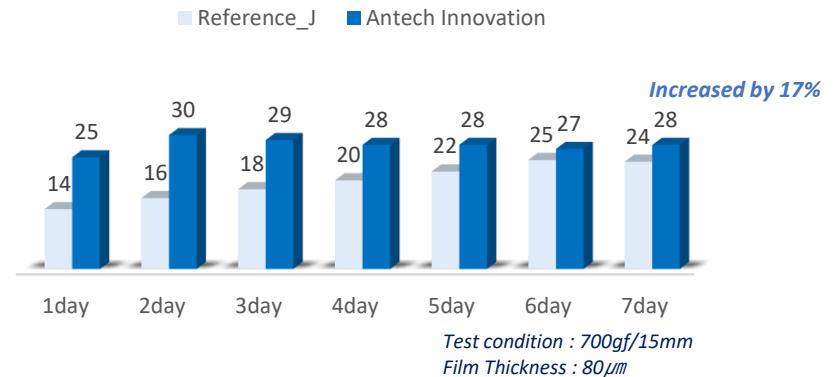
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Case study

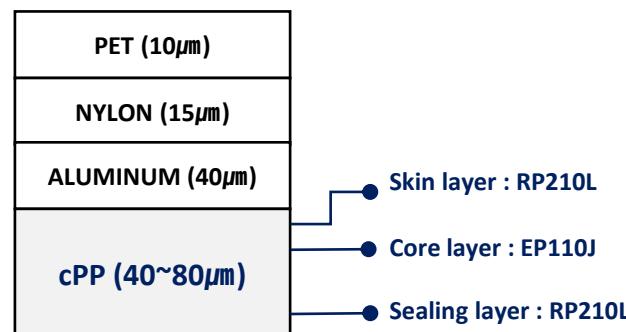
Battery cell pouch application



Sealing strength of Aluminum and CPP film

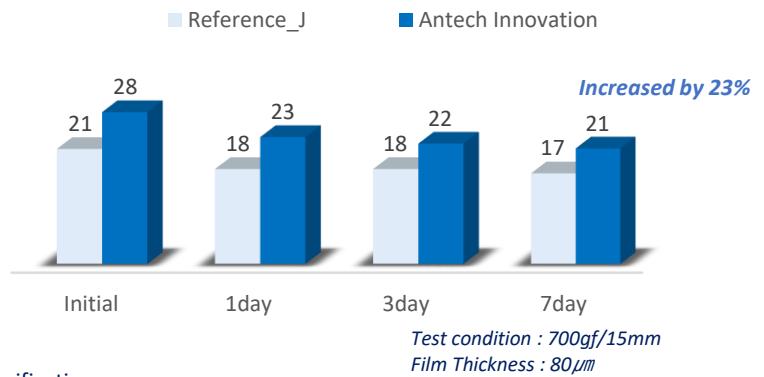


Simplified layer structure of battery cell pouch film



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Electrolytic solution adhesion strength



CPP Film

Moplen HP512M / HP513M

Benefits

- Good stiffness
- Good discoloration resistance
- Low level of fish-eye

Typical applications

- Food packaging
- Industrial packaging

Properties		Test method (ASTM)	Unit	<i>Moplen</i> HP512M	<i>Moplen</i> HP513M
MFR	2.16kg/230°C	D1238L	g/10min	8	8
Tensile strength	@Yield	D638	kg/cm ²	350	360
Flexural modulus		D790	kg/cm ²	15,000	16,000
IZOD strength	@23°C	D256	kg cm/cm	3	3
Additive			Slip agents	-	
Typical applications			General	Metallization	



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CPP Film

Moplen EP310J HP / EP310J

Benefits

- Lower gels
- Better gloss & clarity
- Good puncture & tear resistance
- Good processability
- Higher impact strength
- Non phthalate chemical

Typical applications

- CPP film for retort pouch
- Food packaging
- CPP, Blown & BOPP film

Properties		Test method (ASTM)	Unit	<i>Moplen EP310J HP</i>	<i>Moplen EP310J</i>
MFR	2.16kg/230°C	D1238L	g/10min	3	5
Tensile strength	@Yield	D638	kg/cm ²	320	290
Flexural modulus		D790	kg/cm ²	14,000	13,000
IZOD strength	@23°C	D256	kg cm/cm	NB	20
Gloss		D523	%	90	95

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b) These values may shift slightly as additional data are accumulated.



CPP Film

Metocene HM2089

Benefits

- High transparency and gloss
- High purity
- Low volatile & clean running
- Long dyne retention time

Typical applications

- Protective CPP film
- Ter PP replacement
- Metallization layer
- Lamination layer

Properties		Test method (ASTM)	Unit	<i>Metocene</i> HM2089
MFR	2.16kg/230°C	D1238L	g/10min	9
Tensile strength	@Yield	D638	kg/cm ²	350
Flexural modulus		D790	kg/cm ²	14,500
IZOD strength	@23°C	D256	kg cm/cm	2
HDT	4.6kg/cm ²	D648	°C	154



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Product Portfolio

Rigid packaging

Segment	Grade	MFR (dg/min)	FM (Kg/m2)	Impact (@23°C/-20°C)	Typical applications
Sheet, Thermoforming & Blow molding	<i>Moplen EP5078</i>	0.5	14,000	NB	Food packaging & tray, Cosmetic bottles, EBM bottles
	<i>Moplen EP5079</i>	0.5	15,000	NB	Food packaging & tray, Cosmetic bottles, EBM bottles
	<i>Moplen EP640E</i>	0.8	15,500	NB	Food tray, Sheet, thermoforming, EBM bottle
	<i>Moplen RP303G</i>	1.7	13,000	6	T/F sheet
	<i>Moplen RP440K</i>	4.5	12,500	5	Stationery sheet, Bundle package
	<i>Moplen HP647D</i>	0.5	18,500	6	Sheet, Thermal forming
	<i>Moplen HP522H</i>	2	15,500	5	General film, Metallization
Consumer & Houseware	<i>Clyrell RC5056</i>	10	14,000	5	ISBM, Houseware, Food container
	<i>Moplen RP348NK</i>	11	10,700	7	Houseware & Appliance
	<i>Moplen RP344NK</i>	13	12,000	5	Houseware & Appliance
	<i>Moplen RP344RK</i>	24	12,500	5	Houseware & Appliance
	<i>Moplen RP345RK</i>	24	12,500	5	Houseware & Appliance
	<i>Moplen RP348SK</i>	35	10,500	5	TWIM, Houseware & Appliance
	<i>Moplen RP348TK</i>	48	11,500	5	TWIM, Houseware & Appliance
	<i>Moplen RP5007K</i>	75	12,000	5	TWIM, Houseware & Appliance
TWIM	<i>Moplen HP480S</i>	40	15,000	2	TWIM
	<i>Moplen HP740T</i>	60	18,000	2	TWIM
	<i>Moplen EP548S</i>	44	16,800	5/3	TWIM, Container, Housewares, sports
	<i>Moplen EP547U</i>	70	13,000	8/5	TWIM, Food container, Appliance
	<i>Moplen EP557U</i>	70	13,000	8/5	TWIM, Food container, Appliance
	<i>Moplen EP540V</i>	110	13,500	4/3	TWIM, Food container, Appliance
	<i>Moplen EP541V</i>	110	13,500	4/3	TWIM, Food container, Appliance

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Industrial sheet & Thermoforming

Moplen EP5078 / EP5079 / EP640E

Benefits

- Good stiffness
- High heat resistance
- Low level of gel/ fisheye
- Good cycle time
- Good impact resistance

Typical applications

- Sheet, thermoforming applications
- Extrusion blow molding
- applications

Properties		Test method (ASTM)	Unit	Moplen		
				EP5078	EP5079	EP640E
MFR	2.16kg/230°C	D1238L	g/10min	0.5	0.5	0.8
Elongation	@Yield	D638	%	11	11	12
Flexural modulus		D790	kg/cm ²	14000	15000	15500
IZOD strength	@23°C	D256	kg cm/cm	NB	NB	NB
	@-20°C			3	2.5	3
HDT		D648	°C	107	120	123



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Random PP copolymer with Advanced Clarifiers

Clyrell RC5056

Benefits

- High heat resistance
- Good transparency
- Good balance of stiffness and impact

Typical applications

- IBM, ISBM, injection
- Baby bottles, food containers
- Sports drinking bottles

Properties		Test method (ASTM)	Unit	<i>Clyrell</i> RC5056
MFR	2.16kg/230°C	D1238L	g/10min	10
Elongation	@Yield	D638	%	10
Flexural modulus		D790	kg/cm ²	14,000
IZOD strength	@23°C	D256	kg cm/cm	5
HDT		D648	°C	100
Haze (1T)		D1003	%	5



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Industrial Sheet & Thermoforming

Moplen HP647D / HP650D

Benefits

- Good process ability & productivity
- High stiffness
- Good heat resistance
- Good process ability

Typical applications

- Industrial sheet
- Thermoforming sheet
- Extrusion blow molding

Properties		Test method (ASTM)	Unit	<i>Moplen</i>	
				HP647D	HP650D
MFR	2.16kg/230°C	D1238L	g/10min	0.5	0.7
Elongation	@Yield	D638	%	8	9
Flexural modulus		D790	kg/cm ²	19,500	17,500
IZOD strength	@23°C	D256	kg cm/cm	6	5
HDT		D648	°C	120	120



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Random PP copolymer

Moplen RP303G / RP440K

Benefits

- Good balance with stiffness and transparent
- Good processing ability for extrusion
- Good EBM processing
- Good chemical resistance

Typical applications

- Extrusion blow molding applications
- Detergent bottle/ Softener bottle
- Shampoo /Cosmetic bottle
- Sheet and TF application
- Food tray

Properties		Test method (ASTM)	Unit	<i>Moplen</i>	
				RP303G	RP440K
MFR	2.16kg/230°C	D1238L	g/10min	1.9	4.5
Elongation	@Break	D638	%	13	10
Flexural modulus		D790	kg/cm ²	13,500	14,500
IZOD strength	@23°C	D256	kg cm/cm	6	5
HDT		D648	°C	100	100



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Thin wall injection molding

High flow PP portfolio

Benefits

- Optimized balance of stiffness and toughness
- High productivity, Short cycle time
- Low warpage



Typical applications

- TWIM (IML), IM
- Food packaging container
- Ice cream container (Lid & Body)



Properties		Test method (ASTM)	Unit	Moplen						
				HP480S	HP740T	EP548S	EP547U	EP557U	EP540V	EP541V
MFR	2.16kg/230°C	D1238L	g/10min	40	60	44	70	70	110	110
Elongation	@Yield	D638	%	10	10	4	5	5	4	4
Flexural modulus		D790	kg/cm ²	15,000	18,000	15,000	13,000	13,000	13,500	13,500
IZOD strength	@23°C	D256	kg.cm/cm	2	2	5	8	8	4	4
	@-20°C			-	-	3	5	5	3	3
HDT		D648	°C	110	125	125	120	120	125	125

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Thank you for your attention

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