PolyMirae

Global leading PP supplier

PolyMirae is the most admired company in the polypropylene industry in Asia because of its superior performance, empowered people and social responsibility. PolyMirae is in business to deliver exceptional value to its customers, employees, communities and shareholders by developing, manufacturing and marketing polypropylene that improves the quality of people's life.

Creating Polypropylene, Shaping a better future

PolyMirae Portfolio : Fiber Application

Clarification	Product Name	MIL (dg/min)	Specific characteristics
Yarn / Rope	*Moplen* HP450J	3.25	High tenacity yarn.
	Moplen HP5039	4	Rope having high productivity and good processability
Multifilament /BCF	*Moplen* HP5030UV	10	High tenacity multifilament containing UV stabilizer
	Moplen HP653P	17	Multifilament having good coloring / Bulk Continuous Filament
Staple fiber	*Moplen* HP5020	11	Staple fiber nonwoven, TiO_2 added
	Moplen HP553P	14	Staple fiber nonwoven
	Moplen HP552R	25.5	High speed spinning multifilament / Staple fiber nonwoven
Spun bond	*Moplen* HP5038	34	High tenacity spunbond nonwoven
	Moplen HP563S	38	High spinnability spunbond nonwoven
	Moplen HP562T	60	High spinnability spunbond nonwoven
	Moplen RP361S	35	Soft spunbond nonwoven
	Metocene HM562S	30	Very narrow MWD, Peroxide free, High tenacity Spunbond nonwoven
General Melt blown	*Moplen* HP5036	230	Melt blown nonwoven, Pellet type, Peroxide free (make-to-order)
	Moplen HP561X	800	Melt blown nonwoven, Pellet type *HP465YHP : Enhanced filtration efficiency
	Moplen HP461X	1,100	
	Moplen HP461Y	1,300	
	Moplen HP465Y / HP465YHP	1,500	
Metocene Melt blown	*Metocene* MF650W	500	Very narrow MWD, Peroxide free, Meltblown nonwoven
	Metocene MF650X	1,200	
	Metocene MF650Y	1,800	
	Metocene MF650Z	2,300	

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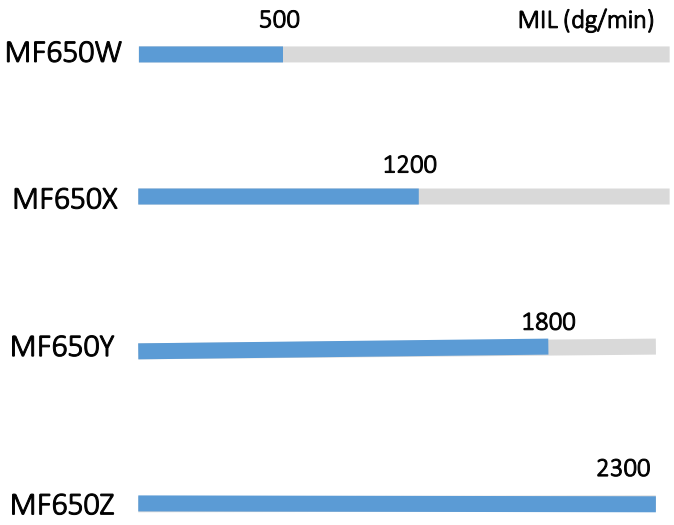
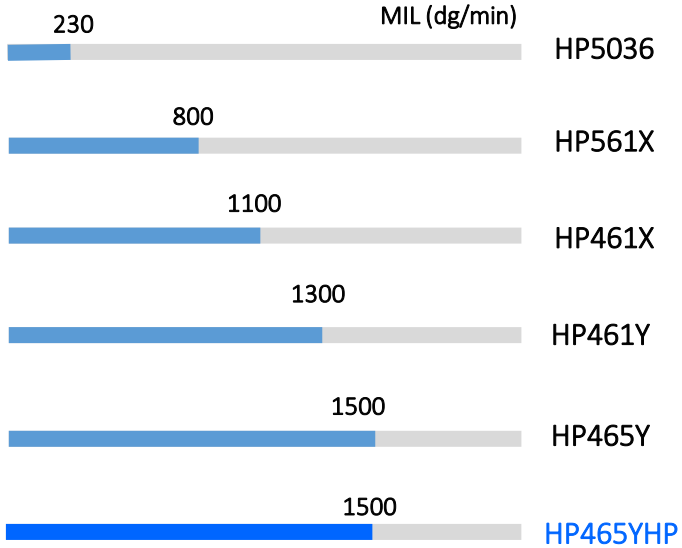
PolyMirae Portfolio : Meltblown

4 Metocene Meltblown Grades



6 General Meltblown Grades



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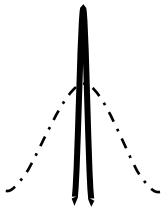
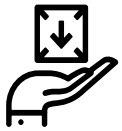
Metocene Meltblown

Characteristics

Low VOC
Low Odor



Very narrow
MWD



Low Tm

Granule
Non-pelletized

Metocene Meltblown from Metallocene

Metallocene catalyzed PP provides a huge benefit

MIL range from 500 dg/min to 2300 dg/min

	ASTM D1238L (dg/min)
Metocene **MF650W**	**500**
Metocene **MF650X**	**1,200**
Metocene **MF650Y**	**1,800**
Metocene **MF650Z**	**2,300**

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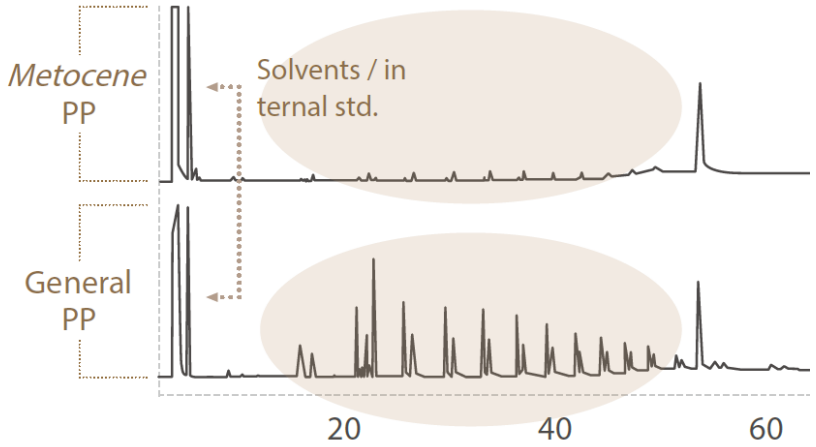
Metocene Meltblown

Benefits *: Metocene* MF650W, MF650X, MF650Y, MF650Z

Low VOC
Low Odor

Low Tm

Very low impurities and oligomers



GC traces illustrating Oligomers

Energy saving

Operation Temperature can be reduced around 10~15℃

Typical Tm

- **Metocene Homo PP : 154 ~ 157 ℃**
- **General Homo PP : 160 ~ 165 ℃**

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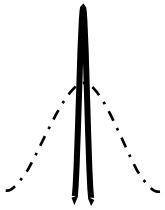
Metocene Meltblown

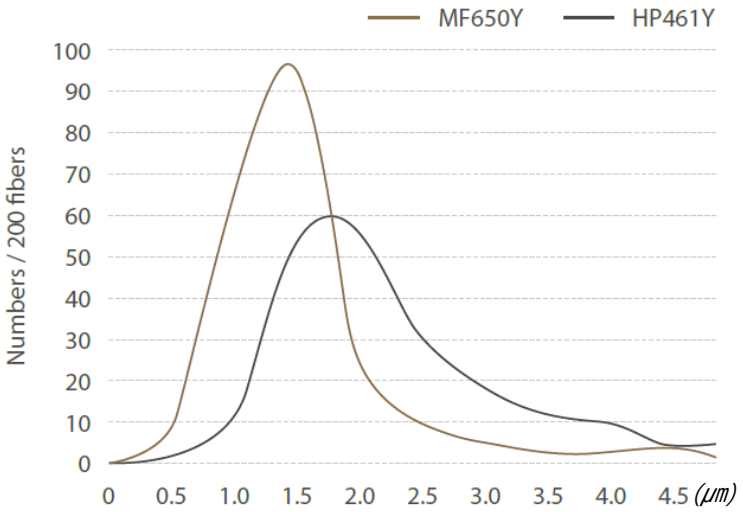
Benefits *: Metocene* MF650W, MF650X, MF650Y, MF650Z



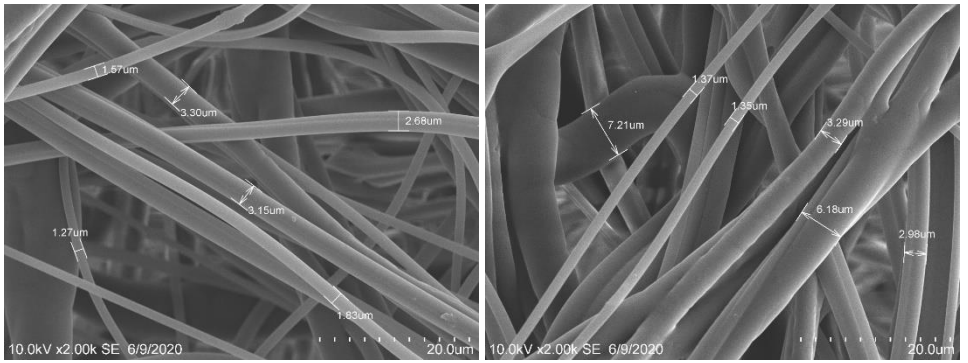
Very narrow MWD

<u>Outstanding Nonwoven properties</u>

The very narrow molecular weight distribution characteristic of Metocene PP improves web uniformity by producing thinner and more uniform size of fibers.



MF650Y **HP461Y**



SEM model HITACHI S-3400N with electronic voltage 10kV, Magnitude 2000

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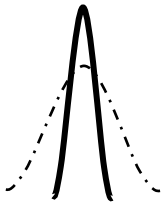
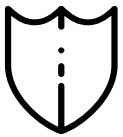
General Meltblown

Characteristics & Benefits

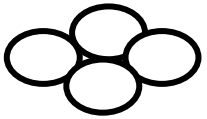
Uniform quality
For Stable operation



Narrow MWD
For excellent
Spinability & drawability



Anti-gas fading Formula
For improving color stability



Pelletized
For easier handling

General Meltblown from ZN catalyst

So called conventional meltblown

MIL range from 230 dg/min to 1500 dg/min

	ASTM D1238L (dg/min)
Moplen **HP5036**	**230**
Moplen **HP561X**	**800**
Moplen **HP461X**	**1,100**
Moplen **HP461Y**	**1,300**
Moplen **HP465Y**	**1,500**
Moplen **HP465YHP** **Enhanced filtration performance*	**1,500**

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Advanced Meltblown

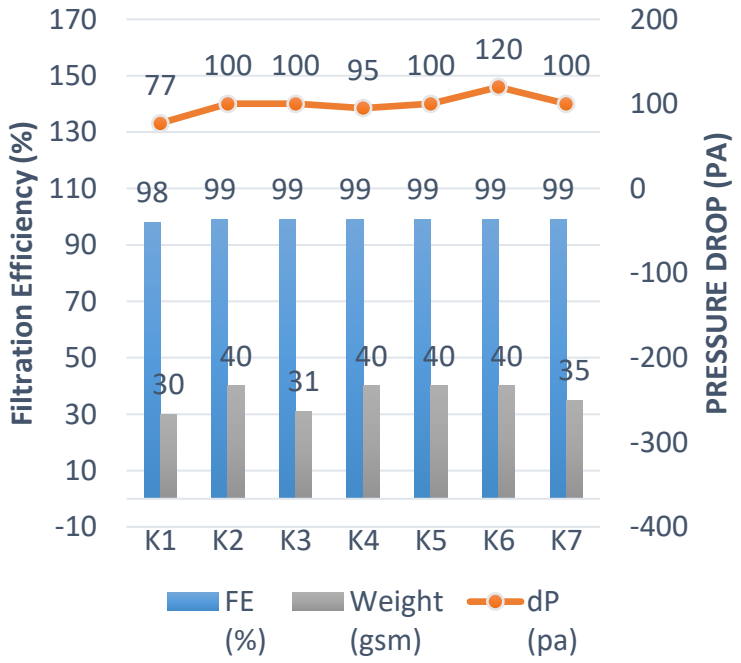
Moplen HP465YHP for Mask filter

***Moplen* HP465YHP provides the unique benefit to high filtration performance without additional chemicals.**

Both charging methods as the post treatment can be workable to produce mask filter.

- **K1~K5 : Hydrocharging**
- **K6~K7 : Corona charging**

Test method (TSI, Paraffin oil 0.3µm, 95L/min)



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Advanced Meltblown

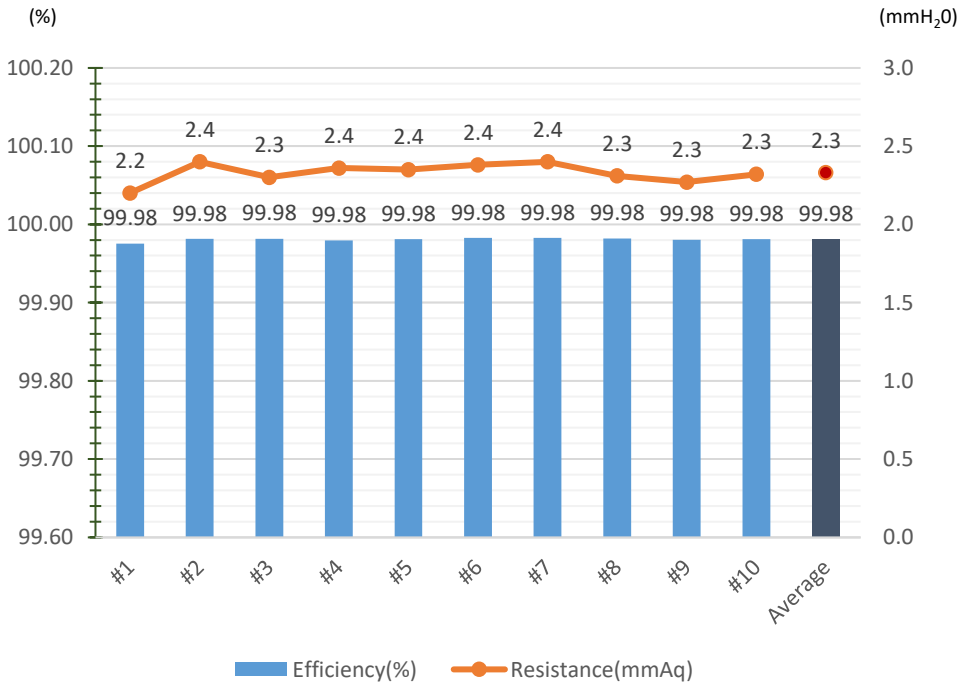
Moplen HP465YHP for HEPA filter

***Moplen* HP465YHP provides the unique benefit to high filtration performance without additional chemicals.**

Customer test result for H.13 HEPA filter

- **Filtration efficiency : 99.98%**
- **Pressure drop : 23 pa (2.3mmH_20)**

Test method (TSI, NaCl 0.3μm, 32L/min)



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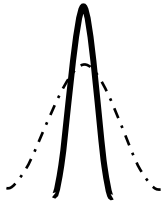
Typical Meltblown Application

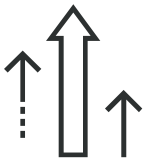
Surgical Gown/Mask, Hygiene/Diaper, Filter especially HEPA, Mask, Wet tissue

PolyMirae Spunbond

General Spunbond; Soft Spunbond ; Metocene Spunbond



Narrow MWD



Suitable for
High Spinning speed

Low Tm

Low VOC
Low Odor

Metocene Meltblown from Metallocene

Metallocene catalyzed PP provides a huge benefit

MIL range from 500 dg/min to 2300 dg/min

	ASTM D1238L (dg/min)
Moplen **HP5038**	**34**
Moplen **HP563S**	**38**
Moplen **HP562T**	**60**
Moplen **RP361S**	**35**
Metocene **HM562S**	**30**

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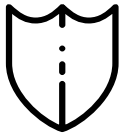
PolyMirae Spunbond

Moplen HP5038, HP563S, HP562T

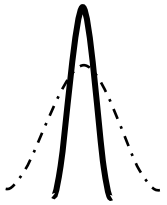
Suitable for
High Spinning speed

For maximizing
productivity



Anti-gas fading
formula

For improving color
stability



Narrow MWD

For excellent
Spinability & drawability

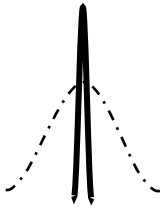
Metocene HM562S

Low Tm

For unique thermal
bonding property

Low VOC
Low Odor

For unique environmental
friendly performance



Very narrow
MWD

For excellent
Spinability & drawability

Soft Spunbond

Moplen **RP361S**

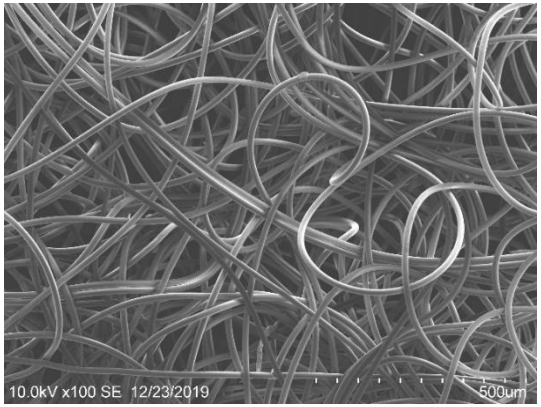
Enhanced Softness

Blending approach : customer test result

Recipe	RP361S recipe	Existing
Process	SS line (Mono)	SS line (Mono)
Base weight	17 GSM	15 GSM
Formulation	RP361S Elastomer (10% down)	Homo Elastomer
Improvement on softness with RP361S	Enhanced 19% on MD & 23% on CD (measured by Handle-O-meter)	

Bi-co approach : Side-by-side configuration

Improving softness by creating bulkiness in nonwoven utilizing crimping effect of bi-component materials.



Nonwoven 20gsm
RP361S(60%), Homo PP(40%)

SEM model HITACHI S-3400N
with electronic voltage 10kV
Magnitude 100

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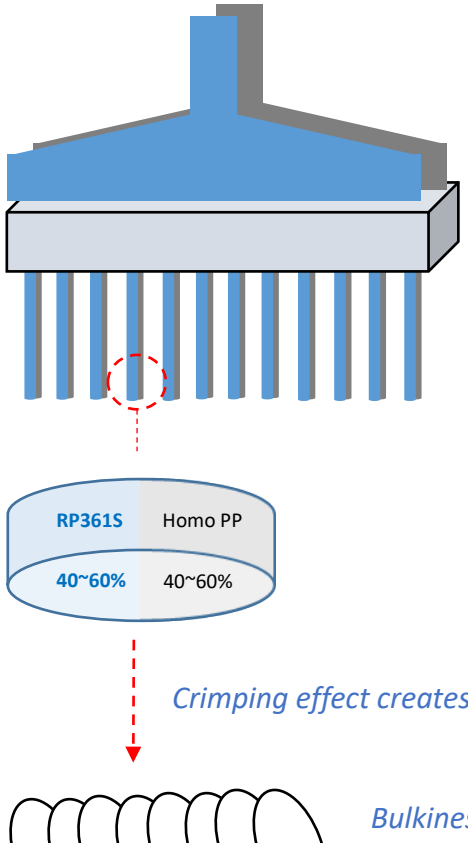
Soft Spunbond

***Moplen* RP361S**



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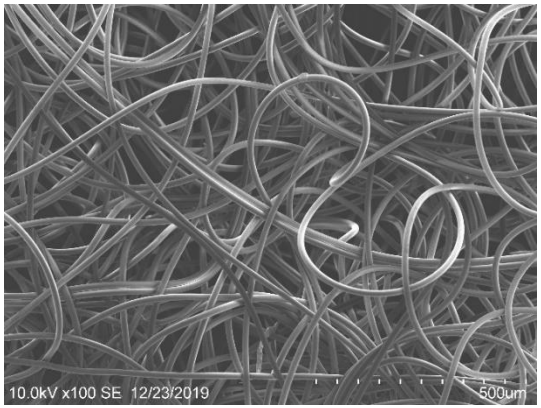

Nonwoven 20gsm
RP361S(60%), Homo PP(40%)

SEM model HITACHI S-3400N
with electronic voltage 10kV
Magnitude 100

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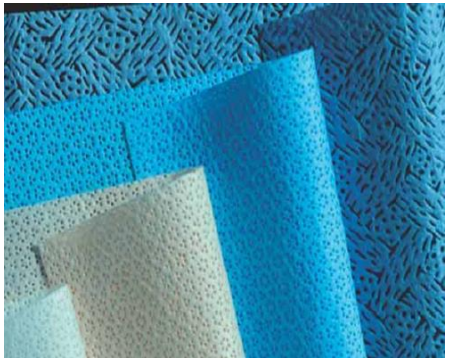
Typical Spunbond Application

Surgical Gown/Mask, Hygiene/Diaper, Agriculture, wet tissue and industrial



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shaping a better future

Thank you for your attention

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