

**HYOSUNG CHEMICAL CORPORATION**

**PP/DH Performance Unit**

[www.hyosungchemical.com](http://www.hyosungchemical.com)

Headquarter in Seoul, Korea  
(06578) 235, Banpo-daero, Seocho-gu,  
Seoul, Korea

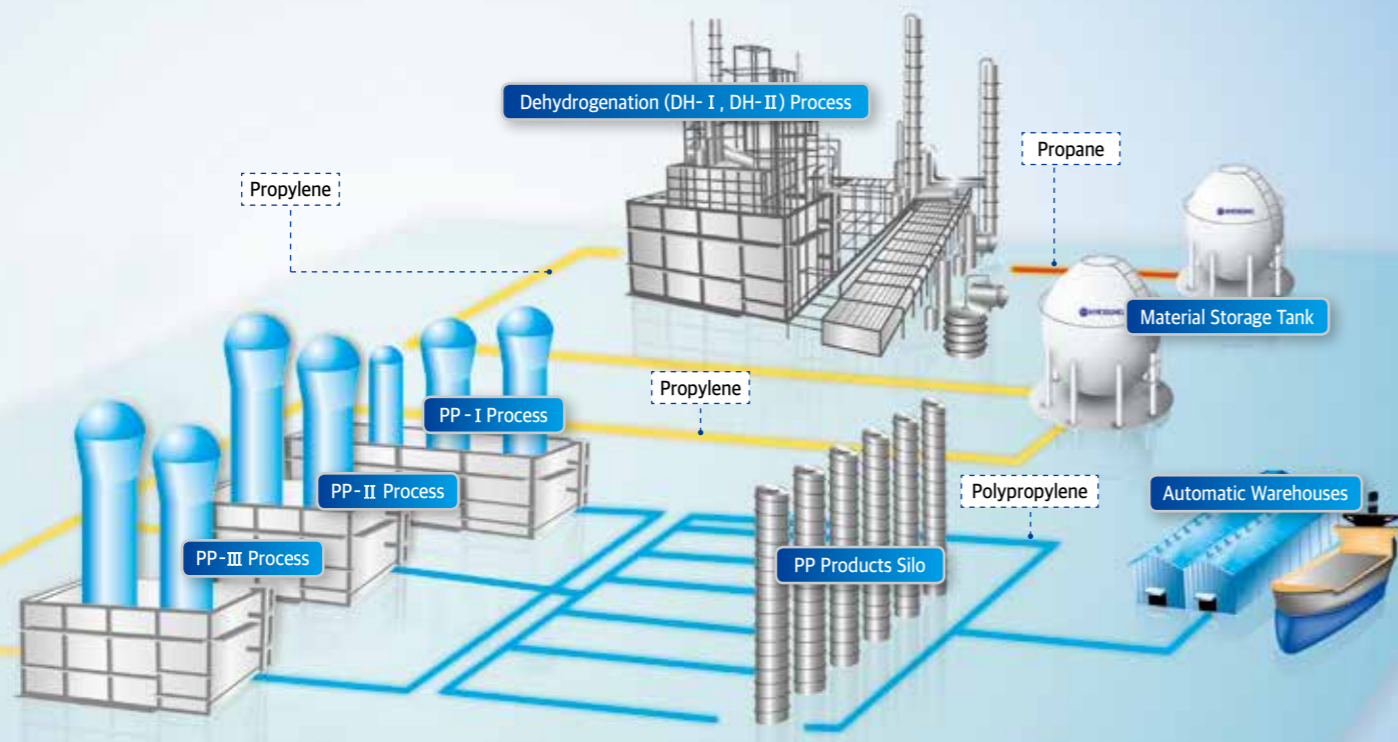


# Topilene®

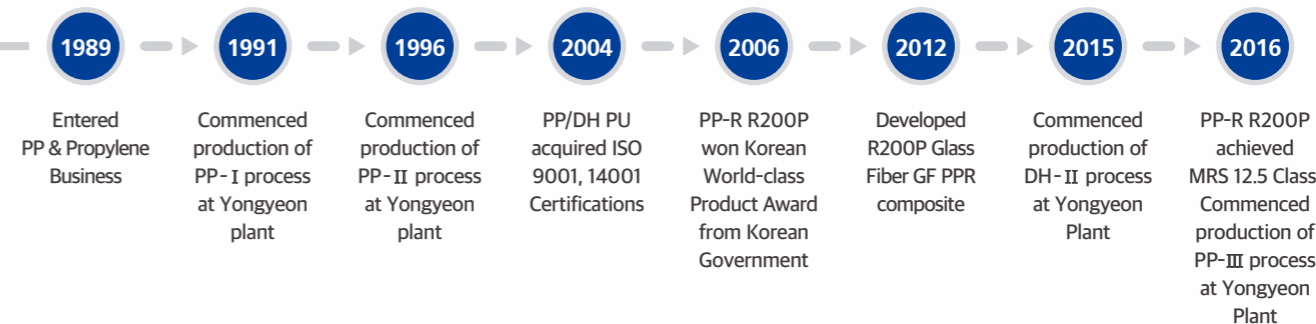
HYOSUNG CHEMICAL  
POLYPROPYLENE

## TOPILENE PROCESS

To secure a stable supply of the main material for polypropylene production, Hyosung Chemical supplies itself with high-purity propylene from the propane dehydrogenation (DH) process where it has adapted cutting edge manufacturing technology. From raw materials to the finished products, Hyosung Chemical has successfully established vertical integration of its supply chain. TOPILENE®, a trademark of Hyosung Chemical polypropylene, is the outcome of merging company's polymerization technology with advanced process technique and wide range of catalyst application skill.



## HISTORY\_PP/DH PU



# SPECIALIZED USE

Topilene®



## FOR PIPES



Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C) / (-10°C)		Application	Characteristics
			D256 kg-cm/cm			
<b>R200P</b>	0.25	9,000	N.B / 5		Hot and cold water supply pipe, Radiator pipe	Long-term hydrostatic pressure resistance (MRS 12.5, CRS 3.3), Long-term heat stability, High impact strength, NSF/ANSI 14, DVGW W270, WRAS, EU 10/2011
<b>R200P-####</b> (Color grade)	0.25	9,000	N.B / 5		Hot and cold water supply pipe, Radiator pipe	Long-term hydrostatic pressure resistance, Long-term heat stability, High impact strength Uniform color (Grey, Green, White)
<b>R200P-G20N</b> (GF PPR)	0.3	20,000	14 / 5		Hot and cold water supply pipe, Radiator pipe	PPR composite with glass fiber (GF 20%), Long-term hydrostatic pressure resistance, High stiffness, High impact strength
<b>R200P-G40N</b> (GF PPR)	0.3	40,000	14 / 5		Hot and cold water supply pipe, Radiator pipe	PPR composite with glass fiber (GF 40%), Long-term hydrostatic pressure resistance, High stiffness, High impact strength
<b>HB240P</b>	0.3	15,000	N.B / 5		Sewage pipe, Drainage pipe	High stiffness, High impact strength, Long-term heat stability
<b>HB242P</b>	0.3	18,000	N.B / 5		Sewage pipe, Drainage pipe	Very high stiffness, High impact strength, Long-term heat stability
<b>HB240TC</b>	0.5	13,500	N.B / 6		Corrugated conduit pipes	High stiffness, High impact strength, Heat resistance

The properties listed are highly dependent on the test specimen preparation followed ASTM D618 and testing protocols. A similar protocol may generate substantially different values. This information is furnished conditional upon the persons receiving the material making their own determinations as to its suitability for their own particular purpose only.



## FOR MEDICAL APPLICATIONS



Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C)		Application	Characteristics
			D256 kg-cm/cm			
<b>R530A</b>	2	9,500	8		IV Bottle (EBM), Ampoule	Transparent, USP Class VI, EP §3.1.6, US FDA DMF 21499, CFDA
<b>R530</b>	7	9,500	5		IV Bottle (ISBM)	Transparent, USP Class VI, EP §3.1.6, US FDA DMF 21499, CFDA
<b>R530C</b>	7	7,500	10		IV Bag, One-touch Cap, Compounding	TER-PP, Transparent, High impact strength, Excellent softness, USP Class VI, CFDA
<b>J800S</b>	20	21,500	3		Disposable syringe (Hub, Cap, Plunger)	Slip property, High stiffness, US FDA DMF 21499
<b>J801</b>	25	16,500	3.5		Disposable syringe (Barrel), Transparent product	Transparent, USP Class VI, High stiffness, US FDA DMF 21499, UL 94 HB



## FOR COMPOUNDING



Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C) / (-10°C)		Application	Characteristics
			D256 kg-cm/cm			
<b>TP6600</b>	13	10,000	N.B / 10		Containers, Automotive part, Compounding	High impact strength (RTPO)
<b>TP7600</b>	20	8,500	N.B / 15		Automotive part, Compounding	High impact strength (RTPO)
<b>TP8600</b>	30	9,000	N.B / 12		Automotive part, Compounding	High impact strength (RTPO)
<b>HJ7280</b>	30	17,500	7 / 4.5		Automotive part, Compounding	High isotactic (HCPP), High stiffness, Heat-resistant
<b>HJ8280</b>	60	17,500	6 / 3.5		Automotive part, Compounding	High isotactic (HCPP), High stiffness, Heat-resistant
<b>HJ9280</b>	90	18,000	4 / 2.5		Automotive part, Compounding	High isotactic (HCPP), High stiffness, Heat-resistant

# SPECIALIZED USE

Topilene®



## FOR SMALL ELECTRIC-APPLIANCES



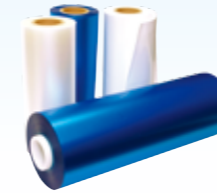
Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C) / (-10°C) D256 kg-cm/cm	Application	Characteristics
<b>HJ801RL</b>	5.5	18,500	4 / -	Coffee maker, Steam iron, Toaster, etc	Very high stiffness, Homopolymer, Long-term heat resistance, UL746B
<b>HJ801R</b>	13	21,500	3.5 / -	Coffee maker, Steam iron, Toaster, etc.	Very high stiffness, Homopolymer Long-term heat resistance, UL 746B, EU 10/2011
<b>J801R</b>	20	21,500	3.3 / -	Coffee maker, Steam iron, Toaster, etc.	Very high stiffness, Homopolymer Long-term heat resistance, UL 746B, EU 10/2011
<b>HJ800R</b>	18	17,500	7 / 4	Coffee maker, Steam iron, Toaster, etc.	High stiffness, Impact strength, Long-term heat resistance, UL 746B, EU 10/2011



## FOR TRANSPARENT CONTAINERS



Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C) D256 kg-cm/cm	Application	Characteristics
<b>R201B</b>	0.25	8,000	N.B	Extrusion blow molding bottle (EBM), Housewares, Food containers, Transparent containers	High transparency, Excellent impact strength, Phthalate-Free
<b>R301</b>	1.5	11,000	20	Extrusion blow molding, Thermoforming sheet	High transparency, Stiffness, Stretchability
<b>R601</b>	12	11,000	7	Food containers, Housewares, ISBM bottles, Transparent containers, Disposable syringe	High transparency, Phthalate-Free, EP §3.1.6, EU 10/2011, GB 9693-88
<b>R701</b>	20	11,000	6	Food containers, Housewares, Transparent containers, Disposable syringe	High transparency, Phthalate-Free, USP Class VI, EP §3.1.6, EU 10/2011
<b>R801</b>	30	11,000	6	Food containers, Housewares, Transparent containers, Disposable syringe	High transparency, Phthalate-Free, Flowability, EP §3.1.6, EU 10/2011
<b>R901</b>	45	11,000	6	Food containers, Housewares, Transparent containers, Disposable syringe	High transparency, Phthalate-Free, High Flowability, EP §3.1.6, EU 10/2011



## FOR SPECIALITY FILMS

Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C) / (-10°C) D256 kg-cm/cm	Application	Characteristics
<b>J340F</b>	2.6	14,000	9 / 4	Retort CPP film	Low odor, High impact strength, EU 10/2011
<b>J351F</b>	2.6	12,000	13 / 5	Retort CPP film	Low odor & orange peel, High impact strength, EU 10/2011
<b>J410F</b>	4.5	13,000	7 / 2.5	Protective CPP film	Very low fisheye, Low haze
<b>J440F</b>	4.5	14,000	7 / 3	Protective CPP film	Very low fisheye, Medium haze
<b>J460F</b>	4.5	14,000	7 / 4	Protective CPP film	Very low fisheye, High haze
<b>J640F</b>	9	14,500	6 / 2	Protective CPP film	Very low fisheye, High haze
<b>L6000</b>	7	8,000	10 / -	Low Temperature CPP Film (Seal Layer)	TER-PP, Transparent, EU 10/2011
<b>M6000</b>	7	8,500	10 / -	Metallizing CPP film (Seal Layer)	TER-PP, Transparent, EU 10/2011

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# GENERAL USE

Topilene®



## IMPACT COPOLYMER / HOMOPOLYMER

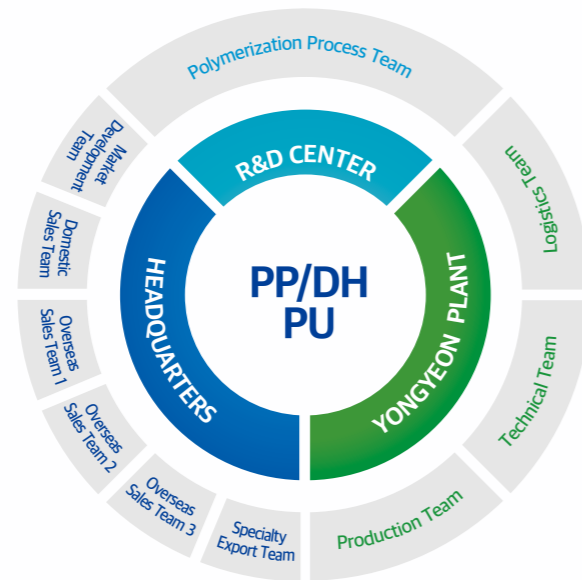


Property ASTM Method Unit	Melt Flow Index D1238 g/10min	Tensile Strength (at Yield) D638 kg/cm <sup>2</sup>	Flexural Modulus D790 kg/cm <sup>2</sup>	IZOD Impact Strength (23°C) / (-10°C) D256 kg-cm/cm	Rockwell Hardness D785 R-scale	Heat Deflection Temperature D648 °C	Application	Characteristics
<b>IMPACT COPOLYMER</b>								
<b>HB240T</b>	0.5	300	16,000	N.B / 7	80	115	General sheet, Thermoforming sheet	High stiffness, High impact strength
<b>HJ340</b>	1.0	300	16,000	12 / 5	80	120	Sheet, Industrial appliances	High stiffness, High impact strength, UL 94 HB
<b>J340</b>	1.7	270	14,000	10 / 5	90	105	Battery case, Container, Crate, Toy	High impact strength, UL 94HB
<b>J440</b>	4	270	13,500	9 / 5	90	105	Battery case, Container, Crate, Toy	High impact strength, UL 94HB
<b>HJ541CP</b>	6.5	300	15,500	10 / 5.5	90	125	Plastic bottle cap	High stiffness, Good processibility, Impact strength
<b>J640</b>	10	270	13,000	8 / 5	90	105	Battery case, Electric appliances, Home appliances, Automotive parts	Impact strength, Flowability, UL 94HB
<b>J642</b>	10	290	16,000	8 / 5	95	120	Battery case, Electric appliances, Home appliances	Impact strength, High stiffness, UL 94HB
<b>J640A</b>	18	270	13,500	7 / 4.5	90	105	Large articles - Electric appliances, Home appliances, Industrial appliances, Automotive parts	Impact strength, Flowability, UL 94HB
<b>J740</b>	25	270	14,000	6.5 / 4	90	110	Large articles - Electric appliances, Home appliances, Industrial appliances, Automotive parts	Impact strength, Flowability, UL 94HB
<b>J742</b>	25	290	16,000	6 / 4	95	120	Large articles - Electric appliances, Home appliances, Industrial appliances	Impact strength, Flowability, High stiffness, UL 94HB
<b>J842</b>	45	280	15,000	5 / 4	95	120	Very large articles - Home appliances, Industrial appliances	High flowability, High stiffness, UL 94HB
<b>J945</b>	53	280	15,000	5 / 4	95	120	Very large articles - Home appliances, Industrial appliances	High flowability, High stiffness, UL 94HB
<b>HOMOPOLYMER</b>								
<b>F501</b>	3	360	16,000	4 / -	95	105	Raffia, Rope, Fishing net	Processibility, Stiffness, Stretchability
<b>J700</b>	12	370	17,500	3 / -	95	110	General injection	Processibility, Stiffness, UL 94HB
<b>J800</b>	23	370	16,500	3 / -	100	110	General injection	Processibility, Stiffness, UL 94HB

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## POLYPROPYLENE TOTAL SOLUTION PROVIDER

Hyosung Chemical has developed the world's most advanced PP manufacturing system along with HYPOL process of MITSUI Petrochemical Co., Ltd. and UNIPOL process of W. R. Grace. We can provide the best products to our partners and satisfy various customers' needs.



### CONTACT

• **Market Development Team**

Tel. +82-2-2146-5451~5457

• **Domestic Sales Team**

Tel. +82-2-2146-5421~5426

• **Specialty Export Team (Southeast Asia)**

Tel. +82-2-2146-5444, 5447

• **Overseas Sales Team 1 (Non-Asia)**

Tel. +82-2-2146-5397, 5442

• **Overseas Sales Team 2 (China-South)**

Tel. +82-2-2146-5432, 5465

• **Overseas Sales Team 3 (China-North & East)**

Tel. +82-2-2146-5433~5434

• **Fax**

+82-2-2146-5428, 5429

[www.hyosungchemical.com](http://www.hyosungchemical.com) / [www.topilene.com](http://www.topilene.com) / [www.r200p.com](http://www.r200p.com)