










Automotive Parts

Because of durability, easy processing, possibly-renewable raw material and ability for design adjustment, plastic materials are commonly used in automotive industry.

The plastics can provide safety and stability with proper design while cheaper than metals. The global growth of plastic demand for automotive will be increasing significantly from some factors such as design ability, weight reduction, pollution emission control and design capability.

The common polymer materials used for automotive component and parts are Polypropylene (PP), Polyvinyl Chloride (PVC), Acrylonitrile Butadiene Styrene (ABS) and Polyurethane (PU). Weight reduction of vehicles can make more fuel efficiency and reduce greenhouse gas (GHG) emission in the cost-effective way.

International Standard Compliances

	RoHS Restriction of Hazardous Substances:EU Directive 2011/65/EU		TIS 816-2556* (มอก.816) Polyethylene industrial standard		Halal Islamic law for food relate goods/product		US FDA Food and Drug Administration (FDA) Specification according to US FDA 21 code of Federal regulations part 177.1520 ©
	EU FDA Plastic Materials and Articles intended to Come into contact with Food		JCII Japan Chemical Innovation and Inspection Institute.		Phthalate Content According to ASTM D3421-1975		GB9685 - 2016 (China FDA) The Hygienic Standards for Uses of Additives in Food Containers and Packaging Materials* under GB31603-2015
	TAIWAN FDA Sanitation STD. For food utensils, container and package		Organoleptic German Food Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 31 - Sensory Examination Odour and				

*This certification will be updated and revised by 2024 to TIS 816-2565





Automotive Parts



Exterior



Interior



Under The Hood



Coating



2 Wheels


InnoPlus: HDPE					
Properties	Test Method	Unit	Film	Thermoform	Blow Molding/Thermoform
			HD6000F	HD7000H	HD7800B
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.16	0.1	0.04
MFR (190 °C, 21.6 kg)	ASTM D1238	g/10 min	-	10	6
Density	ASTM D1505	g/cm ³	0.956	0.952	0.95
Melting Temperature	ASTM D3418	°C	135	130	134
Tensile Strength at Yield	ASTM D638	kg/cm ²	260	280	300
Tensile Strength at Break	ASTM D638	kg/cm ²	370	400	370
Elongation at Break	ASTM D638	%	950	900	850
Flexural Modulus	ASTM D790	kg/cm ²	11,000	11,000	12,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	27 (NB*)	42 (NB*)	72 (NB*)
Durometer Hardness	ASTM D2240	shore D	65	63	61
Vicat Softening Point	ASTM D1525	°C	125	126	125
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	> 500	> 1,000	> 1,000
End Product			Fender (wheel arch liner)	Automotive Bed Liner	
Product Highlight			<ul style="list-style-type: none"> • Good processability and drawdown ability • High mechanical strength • Good stiffness • Good heat sealability 	Outstanding mechanical strength, good weathering resistance and excellent product appearance	

Note : *C = Complete Break *P = Partial Break *NB = Non Break

InnoPlus: HDPE				
Properties	Test Method	Unit	Blow Molding	
			HD6600B	HD6200B
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	0.4	0.45
Density	ASTM D1505	g/cm ³	0.957	0.962
Melting Temperature	ASTM D3418	°C	135	135
Tensile Strength at Yield	ASTM D638	kg/cm ²	320	330
Tensile Strength at Break	ASTM D638	kg/cm ²	400	350
Elongation at Break	ASTM D638	%	1,000	1,000
Flexural Modulus	ASTM D790	kg/cm ²	14,000	15,000
Notched Izod Impact Strength	ASTM D256	kg.cm/cm	10 (P*)	12 (P*)
Durometer Hardness	ASTM D2240	shore D	65	65
Vicat Softening Point	ASTM D1525	°C	125	125
ESCR; 25% Igepal, F ₅₀	ASTM D1693	Hours	400	60
End Product			Reservoir Tank	Air Duct
Product Highlight			High environmental stress cracking resistance (ESCR) High impact strength Wide variety blow molding applications of small to medium size container	High density polyethylene blow molding grade with optimum balance of processability, environmental stress cracking resistance (ESCR) and impact strength. They are used for wide variety blow molding applications of small to medium size container.

Note : *C = Complete Break *P = Partial Break *NB = Non Break

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose. All above values are typical values, not to be construed as specification.

InnoPlus: LLDPE			
Properties	Test Method	Unit	Injection
			LL8420A
MFR (190 °C, 2.16 kg)	ASTM D1238	g/10 min	20
Density	ASTM D792	g/cm ³	0.924
Molded Plague Properties			
Tensile Strength at Yield	ASTM D638	MPa	15
Tensile Strength at Break	ASTM D638	MPa	10
Elongation at Break	ASTM D638	%	700
Secant Modulus	ASTM D638	MPa	310
Vicat Softening Point	ASTM D1525	°C	92
Durometer Hardness	ASTM D2240	Shore D	53
End Product			 Fender (wheel arch liner)
Product Highlight			Designed for injection molding application. This grade has very narrow molecular weight distribution, offers an excellent impact strength, rigidity, environmental stress cracking resistance and processability

Note :

(1) Film properties obtained from 25 microns film which was blown film extruded at blow up ration 2.5

(2) Film properties obtained from 25 microns film which was casted film


Compound Resin			
Properties	Test Method	Unit	PlastMate PC20006J
Physical Properties			
Melt Flow Rate (MFR) (260 °C, 5 kg)	ISO 1133	g/10 min	17
Density	ISO 1183	g/cm ³	1.13
Rockwell Hardness	ISO 2039	R-Scale	108
Mechanical Properties			
Tensile Strength at Yield	ISO 527	MPa	52
Elongation at Break	ISO 527	%	> 50
Tensile Modulus	ISO 527	MPa	2,300
Flexural Strength	ISO 178	MPa	75
Flexural Modulus	ISO 178	MPa	2,300
Notched Charpy Impact Strength at 23 °C	ISO 179	kJ/m ²	45
Notched Charpy Impact Strength at -30 °C	ISO 179	kJ/m ²	25
Thermal Properties			
Heat Deflection Temperature at 0.45 MPa	ISO 75	°C	119
Heat Deflection Temperature at 1.80 MPa	ISO 75	°C	102
VICAT at 50 N	ISO 306	°C	120

Compound Resin			
Properties	Test Method	Unit	PlastMate PP09310J
Physical Properties			
MFR	ISO 1133	g/10 min	9
Density	ISO 1183-1A	g/cm ³	1.14
Mechanical and thermal Properties			
Tensile Stress @ Yield (50 mm/min)	ISO 527	MPa	90
Tensile Strain @ Break (50 mm/min)	ISO 527	%	3
Flexural Modulus (2 mm/min)	ISO 178	MPa	6,000
Charpy (Notched) Impact Strength (23 °C)	ISO 179	kJ/m ²	8
Heat Deflection Temp. (1.80 MPa)	ISO 75	°C	141

Note: Properties reported here are typical values of the product, not to be considered as specifications.

Solution Creation makes no representations as to the accuracy or completeness of the information contained herein.

Automotive Parts (Cont.)


Compound Resin			
Properties	Test Method	Unit	PlastMate PP07605JBK
Physical Properties			
Melt Flow Rate (230 °C, 2.16 kg)	ASTM D1238	g/10 min	8
Density	ASTM D792	g/cm ³	0.91
- Machine Direction (MD)			1.2 ± 0.1
- Transverse Detection (TD)			1.2 ± 0.1
Mechanical and Thermal properties			
Tensile Strength at Yield	ASTM D638	MPa	20
Elongation at Break	ASTM D638	%	200
Flexural Strength	ASTM D790	MPa	43
Flexural Modulus	ASTM D790	MPa	1,240
Notched Izod Impact Strength at 23 °C	ASTM D256	J/m	108
Notched Izod Impact Strength at -20 °C	ASTM D256	J/m	45
Modified Dupont Impact Strength (3.0 mm, 23 °C) ¹	Internal	J	34
Modified Dupont Impact Strength (3.0 mm, -20 °C) ²	Internal	J	22
Heat Deflection Temperature at 0.45 MPa	ASTM D648	°C	120
Heat Deflection Temperature at 1.80 MPa	ASTM D648	°C	60
Hardness	ASTM D785	R-scale	82
End Product		 Mirror Housing	
Product Highlight		Black PP compound with special properties as below: <ul style="list-style-type: none"> • Good weathering resistance • High ductility • High tensile strength 	

Recommendation : For injection molding

- Melt temperature*: 190–250 °C
- Mold temperature: 45–65 °C
- Screw speed for screw diameter of 35 mm: 30–60 rpm
- Back pressure: 5–10 MPa
- Drying condition: 80 °C at least 2 hours before using.

* However, the actual processing conditions depend on mold design, power of machine, equipment and other environments

1. Thickness of test specimen: 3 mm, Weight: 3 kg, High: 200 cm
2. Thickness of test specimen: 3 mm, Weight: 3 kg, High: 65 cm
3. Measure by internal plaque

Compound Resin			
Properties	Test Method	Unit	PlastMate PP11001J Color Available: Natural, Grey (GY)
Physical Properties			
Melt Flow Rate (230 °C, 2.16 kg)	ISO 1133	g/10 min	11
Density	ISO 1183	g/cm ³	0.91
Mechanical and Thermal Properties			
Tensile Strength	ISO 527	MPa	36
Flexural Modulus	ISO 178	MPa	1,500
Notched Charpy Impact Strength at 23 °C	ISO 179	kJ/m ²	3
Notched Izod Impact Strength at 23 °C	ISO 180	kJ/m ²	3
Heat Deflection Temperature at 0.45 MPa (Unannealed)	ASTM D648	°C	100
End Product		 Rear Mirror Housing	
Product Highlight		Polypropylene compound for injection grade with special properties as below: <ul style="list-style-type: none"> • Specially designed for UV resistance • High ductility • High tensile strength 	

Recommendation :

For injection molding

- Melt temperature: 190–240 °C*
- Mold temperature: 45–65 °C

* However, the actual processing conditions depend on mold design, power of machine, equipment, and other environments.

Typical application: Injection molded part for outdoor users			
Properties	Test Method	Unit	PlastMate PP C1803PJ-04 Color : Black
Physical Properties			
Melt Flow Rate (230 °C, 2.16 Kg)	ISO 1133	g/10 min	7
Density	ISO 1183	g/cm ³	1.04
Mold Shrinkage (Average MD/TD)	ISO 2577	%	1.02
Mechanical Properties			
Tensile Strength	ISO 527	MPa	25
Elongation	ISO 527	%	15
Tensile Modulus	ISO 527	%	2,400
Flexural Strength	ISO 178	MPa	36
Flexural Modulus	ISO 178	MPa	2,200
Notched Izod Impact Strength at 23 °C	ISO 180	kJ/m ²	5
Notched Charpy Impact Strength at 23 °C	ISO 179	kJ/m ²	5
Thermal Properties			
Heat Deflection Temperature at 0.45 MPa	ISO 75	°C	112
Heat Deflection Temperature at 1.80 MPa	ISO 75	°C	62

Recommendation:

For injection molding

• Melt temperature: 190–240 °C*

• Mold temperature: 45–65 °C

* However, the actual processing conditions depend on mold design, power of machine, equipment, and other environments.

Typical application: Injection molded part for Interior			
Properties	Test Method	Unit	PlastMate PP25027JGY Color : Grey
Physical Properties			
Melt Flow Rate (230°C, 2.16 kg)	ISO 1133	g/10 min	25
Density	ISO 1183	g/cm ³	1.07
Mechanical and Thermal properties			
Tensile Strength at Yield	ISO 527	MPa	24
Elongation at Break	ISO 527	%	2,880
Flexural Strength	ISO 178	MPa	36
Flexural Modulus	ISO 178	MPa	2,700
Notched Izod Impact Strength at 23 °C	ISO 180	kJ/m ²	8
Heat Deflection Temperature at 0.45 MPa	ISO 75	°C	115

Recommendation:

For injection molding

• Melt temperature: 190–240 °C*

• Mold temperature: 45–65 °C

* However, the actual processing conditions depend on mold design, power of machine, equipment, and other environments.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose. All above values are typical values, not to be construed as specification.

