

BUSINESS AREA

Domestic Business



Global Network



Contact for further information

If you want to inquire more detail information on product of KOLONPLASTIC,INC. follow the process written below.

1. Access the Internet homepage of KOLONPLASTIC, INC. www.kolonplastics.com
2. Find 'Product' Category and 'Product Inquiry' menu.
3. Then you can send an e-mail according to regional groups.

KOPEL[®]

**Thermoplastic Polyester
Elastomer (TPC-ET)**

Engineering Plastic



About Kolon Plastics

Kolon Plastics-Growing with our customers as a POM Global Leader

Kolon Plastics was established in March 1996 as a joint venture between Kolon Industries Inc. in Korea and Toray Industries Inc. in Japan. Production was begun in 1998 with capacity and sales of 25,000MT/year. After the 2nd factory line was completed, we produce 57,000MT of POM and 50,000MT of the other compounding materials a year. As a specialist POM manufacturer with the engineering plastics technology. Our priority is to create customer solutions and to grow with our customers as a POM global leader.

Our management philosophy, which has been inherited from our parent company, emphasizes the role and social responsibility of the enterprise as well as an enlightened attitude toward each member of our organization.

Be an unflinching industrialist

Kolon Plastics has an unflinching spirit as a member of industry and constantly tries to contribute to industrial development.

A place to realize each individual's potential

We help our members to improve their ability and try to make the organization a fruitful workplace.

Contribution to affluent human life and development of mankind

This is our ultimate goal.



Introduction of KOPEL®

What is KOPEL® - TPC-ET?

KOPEL is a thermoplastic polyester elastomer, which is a new engineering thermoplastic elastomer combining the properties of conventional rubber and thermoplastic. Its flexibility and elastic recovery are very similar to rubber but its processability is much superior to rubber.

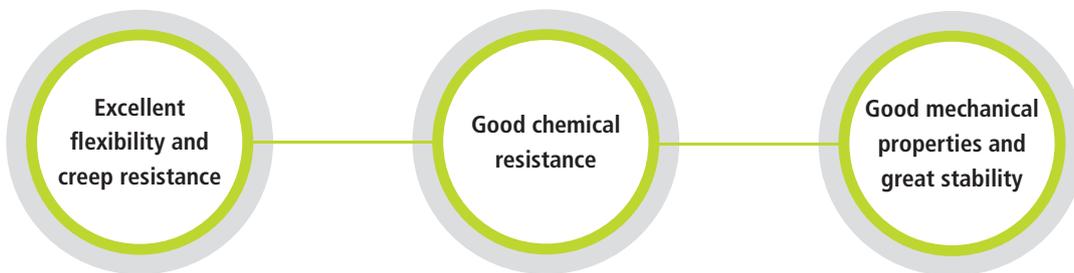
While its flexibility and elastic recovery are similar to rubber, its mechanical properties, heat resistance, weather resistance and UV stability are far better than the performance of conventional rubber.

KOPEL®

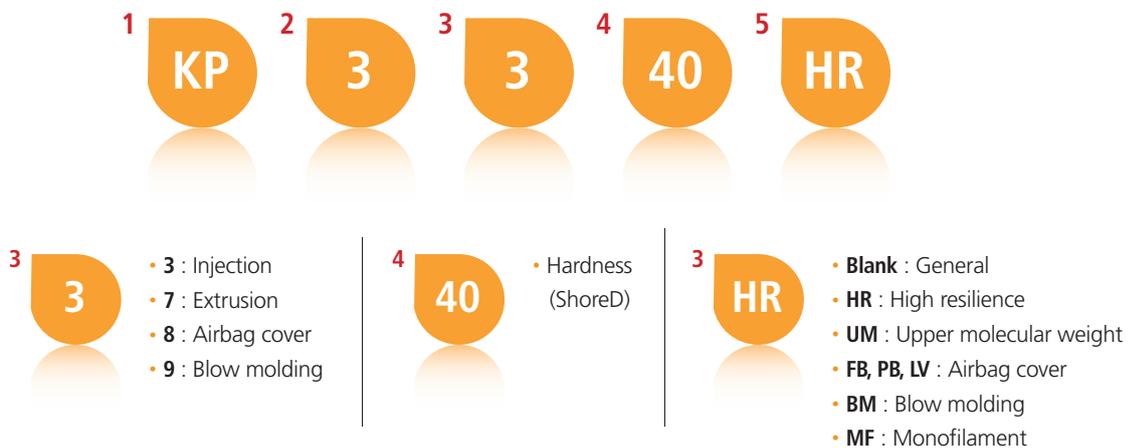
Thermoplastic Polyester Elastomer (TPC-ET)

Engineering Plastic

Properties of KOPEL® - TPC-ET?



Mechanical property



Introduction of KOPEL®

Why has it to be KOPEL?

■ General TPE (Thermoplastic elastomer)

: Materials with both thermoplastic and elastomeric properties

*Improvement of flexibility at low temperature and fatigue resistance



■ KOPEL® Provide

- ▷ Good process ability and recycle performance
- ▷ Excellent flexibility on low temperature
- ▷ Good durability (whether/thermal)
- ▷ High temperature resistance
- ▷ Good chemical resistance
- ▷ Solid fatigue resistance
- ▷ Non toxicity

Touch

KOPEL® offers noble touch.

Outstanding softness and coloring property would make your satisfaction. Being gentle in appearance but sturdy in performance, it's KOPEL® !

Safety

KOPEL® presents reliable stability.

Even in most severe conditions, reliability of KOPEL® does not change. And it has good environmental affinity because of containing no hazardous or toxic material.

Budget

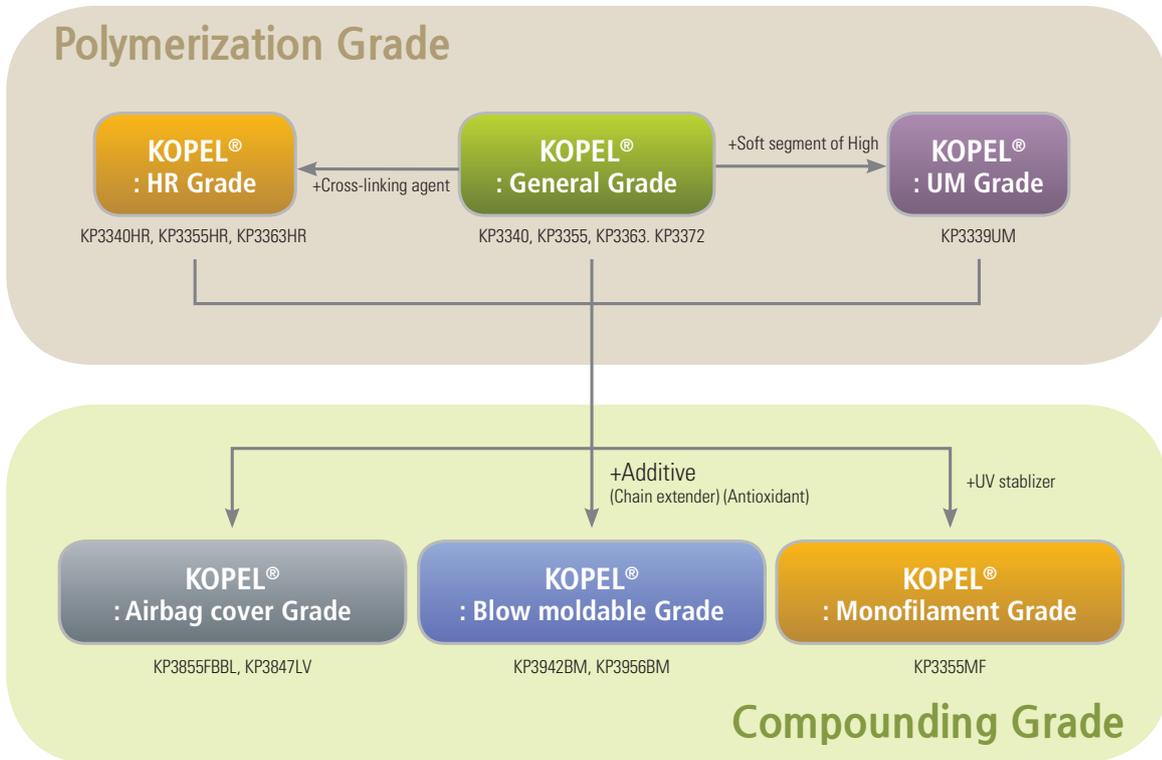
Though KOPEL® has very good performance.

our material could give you economical benefits. Save more money, Take more enhanced performance with KOPEL® !

Features

- Excellent performance with broad temperature range
- Eco-friendly material
- Good durability
- Stable low temperature performance
- Outstanding injection moldability
- Soft touch and good appearance

Grade of KOPEL®



Characteristics of KOPEL Grade

Characteristics	grade	Key Uses
General	KP3328	
	KP3340	Conveyor Belt
	KP3355	Roller for semi-conduct process line
	KP3363	Ski/Snowboard equipment
	KP3372	Automatic gear lever slider
High resilience	KP3340HR	Bed spring
	KP3355HR	Support equipment
	KP3363HR	Conveyor Belt Roller for semi-conduct process line
Upper molecular weight	KP3339UM	Conveyor Belt House Roofing Membrane
Airbag cover	KP3855FB	Airbag Cover
Blow moldable	KP3942BM	CVJ-Boots, Bellows
Mono filament	KP3355MF	Elastic Fabric

GRADE

Typical Property data of KOPEL®



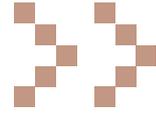
Properties	Method (ASTM)	Unit	General Grades					
			KP3328	KP3340	KP3355	KP3363	KP3372	
Specific gravity	D792	-	1.08	1.15	1.19	1.23	1.27	
Hardness	D2240	Shore D	28	40	55	63	72	
Melt flow rate	D1238	g/10min	21 ^{*4}	16 ^{*1}	28 ^{*3}	36 ^{*4}	36 ^{*5}	
Melting point	DSC	°C	180	170	195	210	215	
Water Absorption	D570	%	0.8	0.7	0.5	0.3	0.3	
Mold Shrinkage	D955	%	0.9	1.0	1.1	1.3	1.6	
Tensile Strength	D638	Kgf/cm ²	190	170	270	350	420	
Elongation		%	650	650	530	480	340	
Flexural Strength	D790	Kgf/cm ²	480	750	1800	3500	5200	
Izod Notched Impact Strength	D256	Kgfcm /cm	23°C	NB	N.B	N.B	N.B	26
			-40°C	NB	N.B	N.B	8.4	5.5
CS-17 Taber abrasion	D1044	mg/10 ³ cycles	3	4	5	7	10	
Flammability	UL 94	-	HB	HB	HB	HB	HB	
Volume resistance	D257	Ω/cm	10 ¹⁴	10 ¹⁶	10 ¹⁶	10 ¹⁴	10 ¹³	

*Melt flow rate was tested at *1:200°C, *2:210°C, *3:220°C, *4:230°C, *5:240°C

*All results are measured by KOLON Ind.

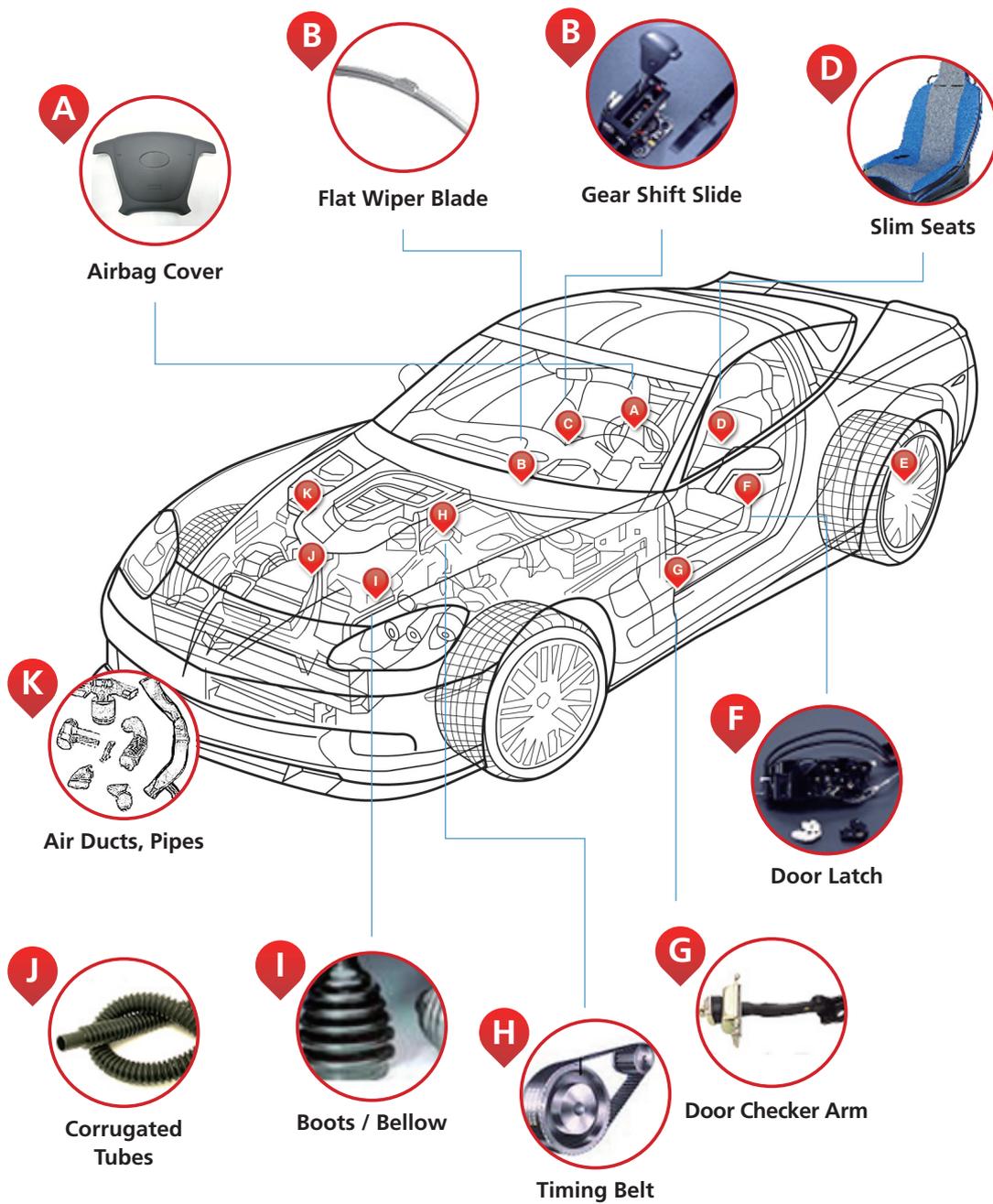


HR Grades				UM Grades	BM Grades		Airbag cover grades
KP3340HR	KP3355HR	KP3363HR	KP3768EX	KP3339UM	KP3942BM	KP3956BM	KP3855FB
1.15	1.20	1.13	1.25	1.12	1.15	1.19	1.19
40	55	63	69	39	41	56	55
13 ^{*2}	16 ^{*3}	29 ^{*4}	26 ^{*4}	36 ^{*3}	7 ^{*5}	3 ^{*4}	16
170	195	210	216	195	223	215	190
0.7	0.4	0.3	0.3	0.7	0.6	0.5	0.02
1.0	1.2	1.3	1.4	1	1.1	1.2	1.6
170	280	370	360	230	205	260	300
600	470	430	420	1000	430	350	470
750	2000	3500	5500	700	978	2500	3800
N.B	N.B	N.B	27	N.B	42.6	N.B	N.B
N.B	N.B	9.0	8.0	N.B	N.B	N.B	N.B
4	5	7	8	-	3	2	5
HB							
10 ¹⁶	10 ¹⁶	10 ¹⁴	10 ¹³	10 ¹⁶	10 ¹⁶	10 ¹⁵	10 ¹⁵



Automobiles

Engine Part



Others

Medical



Tubing



Diaper / Hygienic Articles



Diaphragms



Surgical Gowns



First Aid Bandage / Plaster

Ergonomics



Chair



Bed Equipment

Household



Bedding



Breathable Roofing



Carpets

Clothing



Tubing



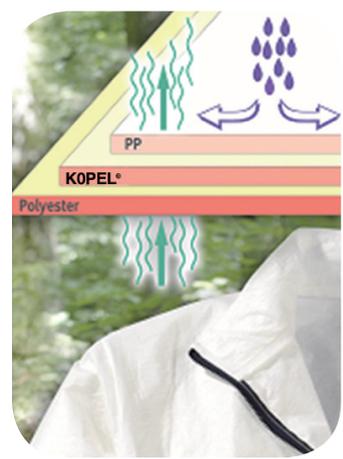
Diaper / Hygienic Articles



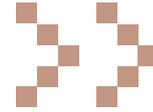
Sports / Leisure Wear



Jumpers



PROCESSING GUIDE



Injection moulding Condition Guide

Item	Units	KP3372	KP3363	KP3355	KP3340	
Cylinder temperature	Rear	°C	210~220	200~210	180~190	160~170
	Center	°C	225~235	220~230	200~210	170~190
	Front	°C	225~240	220~235	210~220	185~200
Nozzle Temperature	°C	230~240	220~235	210~220	185~200	
Mold temperature	°C	40~60	40~60	20~40	20~40	
Molten temperature	°C	230~240	220~235	210~220	185~200	
Screw rpm	Rev/min	40~80				
Injection and holding pressure	kgf/cm2	300~1000				
Back Pressure	kgf/cm2	50~400				
Processing Cycle	Injection	Sec	2~5	2~6	2~8	2~10
	Holding	Sec	15~40	15~40	20~50	20~60

Extrusion moulding Condition Guide

Item	Units	KP3372	KP3363	KP3355	KP3340	
Cylinder temperature	Feeding zone	°C	210~220	200~210	180~190	160~170
	Melting zone	°C	225~235	220~230	200~220	170~190
	Front	°C	225~240	220~235	210~220	180~200
Die Temperature	°C	230~240	220~235	210~220	185~200	
Molten polymer temperature	°C	230~240	220~235	210~220	185~200	

Caution in use

1-1. Injection speed is varied according to product form. For injection molding of KOPEL, it is best to set a slower injection speed compared other crystalline resins given KOPEL's has higher rubber elasticity.

If injection speed is too high, the molten state absorbs the injection pressure, which may adversely affect part design or injection conditions. For thin parts, cooling speed in the cavity is faster than that for thicker parts. If faster injection speed is applied to thicker parts, it may result in defective part production due to surface defects such as flow marks or jetting.

1-2. When a screen filter is used for mixing or other purposes within the barrel case, it is advisable to use screen filters of the 60~120 mesh range.

1-3. Moisture content must be maintained below than 0.1%

* Dry : 2~4 Hr, 100~110°C

1-4. KOPEL has very low melting point compared with other resins, and it causes poor appearance when mixed with other resins.

In order to prevent this, all parts of the machine (feeder, barrel and screw) must be kept clean and washed. Use of a screen filter between the die and barrel is very effective in screening out impurities, and it is also useful in maintaining flow stability of polymer melt.

However, attention should be given to possible elevation of internal pressure in the barrel.

