Certification

NSF International · FDA APPROVED · RoHS COMPLIANT · 녹색인증 · KTW · WRAS APPROVED PRODUCT · DVGW

European Commission Food Contact · SVHC Substances of Very High Concern · PAHS · EN 71 Toy standard · ACS · ISO TS16949 · ISO 9001

New Wave of Innovation in Materials

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POKETONE™

HYOSUNG POLYKETONE

EARTH FRIENDLY

Non Toxic
High Efficiency

Acrylate Free
Melamine Free
Bisphenol A Free
Formaldehyde Free
Lead/Chrome/ Free
Prithalate Free

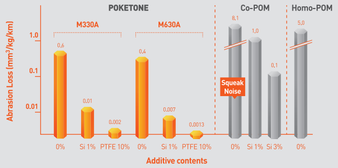
HYOSUNG CHEMICAL

A new thermoplastic polymer HYOSUNG POKETONE is a family of semi-crystalline aliphatic polyketone, made of carbon monoxide(CO) and olefins. POKETONE Terpolymer of CO, ethylene and propylene are used as engineering plastics in a broad range of applications with eco-friendly and non-toxic characteristics, such as low TVOCs(Total volatile organic compounds), free of formaldehyde and acrylonitrile, making it perfect not only for automotive parts but also toys, cosmetic cases and food contact applications.

Abrasion/ Wear Resistance

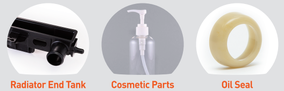
14 times higher wear properties than POM, reducing noise issues in variable wear applications

Gear Monofilament Conveyor Belt

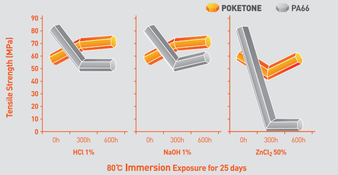


Chemical Resistance

Highly resistant to automotive fluids, hydrocarbon solvents, salts and weak acids/bases



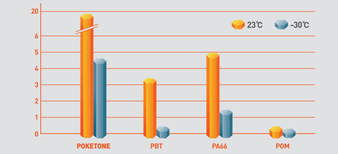
Radiator End Tank Cosmetic Parts Oil Seal



Impact Strength

More than 2.3 times higher impact strength compared to Nylon, PBT

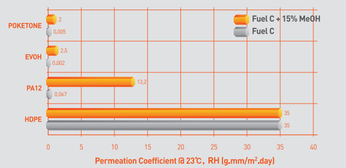
Connector Handcart Wheel Folding Chair Bracket



Barrier Properties

Excellent barrier properties against hydrocarbon, fuel and acid gas for industrial uses

Film Pipe Fuel Tank



Hydrolysis Resistance

Stable property retention to moisture, moisture absorption is approximately 1/4, compared to PA

Water Meter Water Purifier Tank Boiler Heat Exchanger

POKETONE Base Properties

Properties		Test Method	Unit	M930A	M130A	M330A	M430A	M530A	M630A	M730A	M710A	M640A
Physical Property												
Density		ASTM D792	g/cm³	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.22	1.24
Mould Shrinkage (3mm thick.)		ASTM D955	%	1.8~2.0	1.8~2.0	1.8~2.0	1.8~2.0	1.8~2.0	1.8~2.0	1.8~2.0	1.6~1.80	1.8~2.0
Thermal Property												
Melting Temperature		ASTM D3418	℃	222	222	222	222	222	222	222	197	235
Melt Flow Index (240℃, 2.16kg)		ASTM D1238	g/10min	200	115	60	30	14	6	3	3	6
HDT (18.6 kgf/cm²) HDT (4.6 kgf/cm²)		ASTM D648	℃	105 200	105 200	105 200	105 200	102 195	102 195	102 195	75 155	105 200
Mechanical Property												
Tensile Strength	23℃	ASTM D638	MPa	62	61	60	60	59	58	57	47	65
Elongation at Break	23℃	ASTM D638	%	≥150	≥200	≥300	≥300	≥300	≥300	≥240	≥330	≥300
Flexural Strength	23℃	ASTM D790	MPa	60	60	57	56	54	53	50	45	53
Flexural Modulus	23℃	ASTM D790	MPa	1,550	1,530	1,500	1,450	1,400	1,350	1,250	1,100	1,650
Notched Izod Impact Strength	23℃	ASTM D256	J/m	60	78	95	139	174	220	240	200	300
	23℃	ISO 180/1A	kJ/m²	6	6	7	11	13	15	20	15	22
	-30℃	ASTM D256	J/m	30	35	40	42	46	52	52	50	70
	-30℃	ISO 180/1A	kJ/m²	2	2	3	3	3	4	4	4	6
Notched Charpy Impact Strength	23℃	ISO 179/1eA	kJ/m²	6	7	8	12	14	17	18	17	25
	-30℃	ISO 179/1eA	kJ/m²	2	2	2	3	3	3	4	3	5

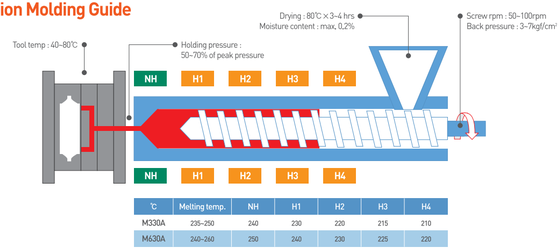
* Moisture Absorption (23°C, 50%RH) : 0.5% / Flammability : HB (0.8, 1.5, 3.0mm thick.)
* The data listed here is not for specification warranty, but typical value.

POKETONE Compound Properties

Properties	Test Method	Unit	Strength reinforced					
			M93AG6A	M93AG8H	M33AG2A	M33AG6A	M33AG8A	M63AG6A
			GF 30%	GF 40%	GF 10%	GF 30%	GF 40%	GF 30%
Density	ASTM D792	g/cm³	1.46	1.54	1.29	1.46	1.55	1.47
Tensile Strength at Yield	ASTM D638	MPa	145	165	83	140	150	135
Elongation at Break	ASTM D638	%	3	2.5	4	4	4	4.8
Flexural Strength	ASTM D790	MPa	190	215	120	190	200	180
Flexural Modulus	ASTM D790	MPa	7,100	9,000	3,270	6,600	8,500	6,050
Charpy Notched Impact strength	ISO 179/1eA	kJ/m²	11	13	5	12	12	17
Melting Temperature	ASTM D3418	℃	222	222	222	222	222	222
Melt Flow Index240℃, 2.16kg	ASTM D1238	g/10min	46	12	35	20	12	1.28
Flammability (t=0.8mm)	UL 94	Class	HB	HB	HB	HB	HB	HB

Properties	Test Method	Unit	Wear resistance			Flame resistance		
			M33AS1A	M63AS1A	M33AT2A	M93AG6P	M33AF2Y	M33AG2F
			Si reinforced	Si reinforced	PFTE reinforced	FR V0, GF 30%	V0	FR V0, GF 10%
Density	ASTM D792	g/cm³	1.24	1.24	1.29	1.47	1.26	1.32
Tensile Strength at Yield	ASTM D638	MPa	60	58	55	120	50	61
Elongation at Break	ASTM D638	%	155	200	70	3	40	11
Flexural Strength	ASTM D790	MPa	55	65	60	170	60	95
Flexural Modulus	ASTM D790	MPa	1,500	1,400	1,650	7,100	1,800	3,200
Charpy Notched Impact strength	ISO 179/1eA	kJ/m²	8	16	8	11	7	8
Melting Temperature	ASTM D3418	℃	222	222	222	222	222	222
Melt Flow Index240℃, 2.16kg	ASTM D1238	g/10min	60	5.7	20	20	40	20
Flammability (t=0.8mm)	UL 94	Class	HB	HB	HB	V0	V0	V0
Glow wire Test (GWT)	IEC 60695-2-11	Class	-	-	-	no flame @750℃		

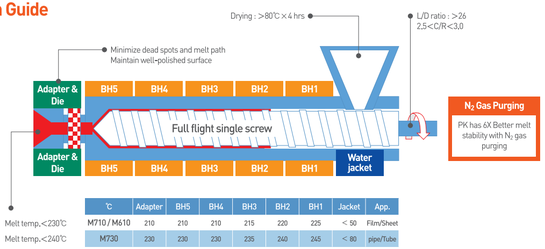
Injection Molding Guide



℃	Melting temp.	NH	H1	H2	H3	H4
M330A	235~250	240	230	220	215	210
M630A	240~260	250	240	230	225	220

- Heated nozzles are recommended to prevent freeze-off issue at nozzle due to small sized nozzle orifice or rapid solidification of POK.
- Should be thoroughly purged at processing temperature with purging material such as PCTG, HDPE, GPPS or other commercially available purging compounds.

Extrusion Guide



℃	Adapter	BH5	BH4	BH3	BH2	BH1	Jacket	App.
M710 / M610	210	210	210	215	220	225	< 50	Film/Sheet
M730	230	230	230	235	240	245	< 80	pipe/Tube

Melt temp.,<230℃
Melt temp.,<240℃

- Start-up with purge polymers(LDPE, PP, HDPE) and gradually change to polyketone.
- Keep lower melt temperature in order to enhance the melt quality (<230℃)
- For more than 1 hour shutdown, purge out polyketone using purge polymers.
- For pipe and monofilament extrusion, the other guides are recommended.