POKETONE™
HYOSUNG POLYKETONE

Flame retarded (V-0), high-flow injection moulding grade

POKETONE Polymer M33AF2Y

POKETONE Thermoplastic Polymers are aliphatic polyketones, a revolutionary new class of semi-crystalline thermoplastics. Hyosung developed new catalyst to produce this unique polymer at in 2013 and constructed commercial plant in 2015, in Ulsan, Korea.

POKETONE Polymer M33AF2Y is a flame-retarded high-flow injection moulding grade with mechanical properties which classify it as an engineerring thermoplastic. This grade offers UL94 V-0 rating, high comparative tracking and glow-wire indices, all without the use of halogenated or red phosphorus flame retardants. The benign flame-retardant system used for POKETONE Polymer M33AF2Y ensures that the smoke density and toxicity are both low. Yet this grade retains the exceptional blend of properties of the base polymer, such as low moisture absorption, good toughness and high resistance to a wide range of chemicals.

POKETONE Polymer M33AF2Y is an advanced high-flow, low-viscosity polymer that should be considered for mouldings with long flow paths or thin walls. This grade is very easy to process on standrad injection moulding equipment. Cycle times are generally short. Parts show good mould definition with glossy mar-resistant surfaces. POKETONE Polymer's low moisuture sensitivity means that no conditioning of parts before assembly or use is necessary.

Applications of POKETONE Polymer M33AF2Y may be found in the automotive, electrical, electronics, industrial and consumer applicance markets.

TABLE 1 : TYPICAL MECHANICAL PROPERTIES OF POKETONE POLYMER M33AF2Y – Measured at 23℃

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Tensile strength at yield	D638	527-1	50 MPa	50MPa
Tensile modulus	D638	527-1	1,850 MPa	1,700 MPa
Tensile elongation at yield	D638	527-1	21 %	21 %
Tensile elongation at break	D638	527-1	40 %	40 %
Flexural strength	D790	178	58 MPa	56 MPa
Flexural modulus	D790	178	1,700 MPa	1,550 MPa
Notched Izod impact strength	D256	180/A	70 J /m	6 kJ/m^2
Notched Charpy impact strength	-	179/1eA	-	8 kJ/m^2

TABLE 2: TYPICAL PHYSICAL PROPERTIES OF POKETONE POLYMER M33AF2Y – Measured at 23℃

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Specific gravity	D792	1183	1.26g/cm^3	1.26g/cm^3
Shore D hardness	D2240	868	-	76
Hardness Rockwell	D785	-	105	-
Water absorption equilibrium at 50% RH	D570	62	0.5 %	0.5 %
Water absorption at saturation	D570	62	1.9 %	1.9 %

TABLE 3: TYPICAL THERMAL PROPERTIES OF POKETONE POLYMER M33AF2Y

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Melting temperature	D3418	11357	222℃	222℃
Vicat softening point	D1525 5kg	306/B50 50N	185℃	185℃
Heat deflection temperature	D648 66psi 264psi	75 0.45MPa 1.8 MPa	190℃ 110℃	185℃ 90℃

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TABLE 4: TYPICAL PROCESS RELATED PROPERTIES OF POKETONE POLYMER M33AF2Y				
	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Melt flox index 240℃/2.16kg	D1238	1133	34 g/10 min	32㎖/10min
Mould shrinkage	D955 MD, 3mm TD, 3mm	-	1.3 % 1.4 %	-

TABLE 6: TYPICAL FLAMMABILITY PROPERTIES OF POKETONE POLYMER M33AF2Y		
	Test Method & Conditions	Values
Flame resistance	UL94	V-0 (0.8mm)
Glow wire flammability index	IEC 60695-2-12	960℃ (1.0mm)
Glow wire ignition temperture	IEC 60695-2-13	800℃ (1.0mm)

TABLE 5: TYPICAL ELECTRICAL PROPERTIES OF POKETONE POLYMER M33AF2Y		
	Test Method & Conditions	ASTM Values
	ASTM	SI
Dielectric sterngth, Short term	D149 3 mm 2 mm	 16 kV/mm 22 kV/mm
Volume resistivity	D257	10^{13} ohm cm
Surface resistivity	D257	10^{17} ohm/sq.
CTI	IEC 112	600V
Dielectric constant at 60Hz	D150	5.7
Dissipation factor at 60Hz	D150	0.015

TABLE 7: UL-746A SHORT TERM PERFORMANCE CATEGORIES FOR POKETONE POLYMER M33AF2Y			
	Minimum Thickness (mm)		
	0.8	1.6	3.0
HWI	1	1	1
HAI	0	0	0
HVTR	2	-	-
D495	5		-
CTI	0	-	-

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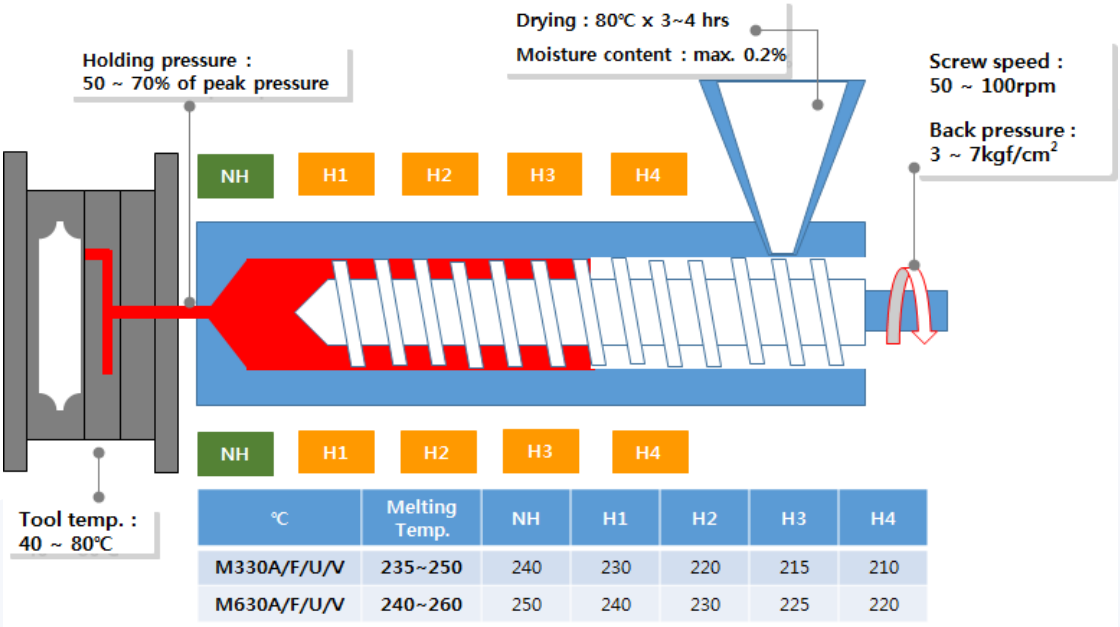
POKETONE Injection Processing Guide



℃	Melting Temp.	NH	H1	H2	H3	H4
M330A/F/U/V	235~250	240	230	220	215	210
M630A/F/U/V	240~260	250	240	230	225	220

Setting Temperature

- Recommended melting temperature: 235-250℃ (460-490˚F)
- Do not exceed 265℃ (509˚F). Long residence times at high end of the temperature range can cause thermal degradation & loss of physical properties.
- Mold Temperature: regarding POKETONE base grade, recommended setting temperature is at 60-80℃. In case of POKETONE glass-fiber reinforced grades, the temperature should be higher at least over 120℃ for better surface quality.

Cleaning Guide

- Please immediately clean barrels thoroughly after producing POKETONE products. Recommend high viscosity HDPE, PCTG and PP (Hyosung R200P). Other commercial purging compounds are also available.

Drying

- Recommend drying POKETONE pellet at 80℃ for about 3~4 hours. POKETONE should be dried by an oven or hopper drier to prevent surface problem like silver streak, drooling or voids.
- If the drying temperature is too high or the drying time is too long, it would be able to bring about discoloration of pellets.

If you need any further technical information, please contact our sales or marketing team who will be happy to assist you with any questions you may have. Feel free to visit our website. www.poly-ketone.com