

Flame retarded (V-0), 30% glass-reinforced, advanced high-flow injection moulding grade

POKETONE Polymer M93AG6P

POKETONE Thermoplastic Polymers are aliphatic polyketones, a revolutionary new class of semi-crystalline thermoplastics.

POKETONE Polymer M93AG6P is a flame-retarded, 30 percent glass-fiber-reinforced, advanced high-flow injection moulding grade with mechanical properties which classify it as an engineering thermoplastic. This high-modulus grade offers UL94 V-0 rating and high glow-wire index without the use of halogenated or red phosphorus flame retardants. The benign flame-retardant system used for POKETONE Polymer M93AG6P 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 M93AG6P 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 standard injection moulding equipment. Cycle times are generally short.

Parts show good mould definition with glossy mar-resistant surfaces. POKETONE Polymer's low moisture sensitivity means that no conditioning of parts before assembly or use is necessary.

Applications of POKETONE Polymer M93AG6P may be found in the electrical, electronics, industrial and consumer appliance markets.

TABLE 1 : TYPICAL MECHANICAL PROPERTIES OF POKETONE POLYMER M93AG6P – Measured at 23 °C

| | Test Method & Conditions | | ASTM Values | ISO Values |
|--------------------------------|---------------------------|---------|-------------|----------------------|
| | ASTM | ISO | SI | SI |
| | Tensile strength at yield | D638 | 527-1 | 140 MPa |
| Tensile modulus | D638 | 527-1 | 8,500 MPa | 8,000 MPa |
| Tensile elongation at break | D638 | 527-1 | 4.0 % | 4.0 % |
| Flexural strength | D790 | 178 | 190 MPa | 185 MPa |
| Flexural modulus | D790 | 178 | 6,850 MPa | 6,600 MPa |
| Notched Izod impact strength | D256 | 180/A | 135 J/m | 14 kJ/m ² |
| Notched Charpy impact strength | - | 179/1eA | - | 11 kJ/m ² |

TABLE 2: TYPICAL PHYSICAL PROPERTIES OF POKETONE POLYMER M93AG6P – Measured at 23 °C

| | Test Method & Conditions | | ASTM Values | ISO Values |
|--|--------------------------|------|-------------|------------------------|
| | ASTM | ISO | SI | SI |
| | Specific gravity | D792 | 1183 | 1.47 g/cm ³ |
| Shore D hardness | D2240 | 868 | - | 80 |
| Hardness Rockwell | D785 | - | 112 | - |
| Water absorption, 24 hours immersion | D570 | 62 | 0.4 % | 0.4 % |
| Water absorption equilibrium at 50% RH | D570 | 62 | 1.6 % | 1.6 % |
| Melt flow index 240 °C/2.16kg | D1238 | 1133 | 25 g/10 min | 23ml/10min |
| Mould shrinkage | D955 | | | |
| | MD, 3mm | | 0.1 % | |
| | TD, 3mm | - | 0.7 % | - |
| | MD, 2mm | | 0.4 % | |
| | TD, 2mm | | 1.0 % | |

TABLE 3: TYPICAL THERMAL PROPERTIES
OF POKETONE POLYMER M93AG6P

| | Test Method & Conditions | | ASTM Values | ISO Values |
|---|--------------------------|---------|----------------------|------------|
| | ASTM | ISO | SI | SI |
| Melting temperature | D3418 | 11357 | 222 °C | 222 °C |
| Coefficient of linear thermal expansion, 25°C to 55°C | E831 | | | |
| | TD | - | 8.9*10 ⁻⁵ | - |
| | MD | | 2.9*10 ⁻⁵ | |
| Vicat softening point | D1525 | 306/B50 | 210 °C | 210 °C |
| Heat deflection temperature | D648 | 75 | 215 °C | 215 °C |
| | 66psi | 0.45MPa | 210 °C | 210 °C |
| | 264psi | 1.8 MPa | | |

TABLE 4: TYPICAL ELECTRICAL PROPERTIES
OF POKETONE POLYMER M93AG6P

| | Test Method & Conditions | ASTM Values |
|---------------------------------|--------------------------|--------------------------|
| | ASTM | SI |
| Dielectric strength, Short term | D149 | |
| | 3 mm | 24 kV/mm |
| | 2 mm | 28 kV/mm |
| Volume resistivity | D257 | 10 ¹⁴ ohm cm |
| Surface resistivity | D257 | 10 ¹⁷ ohm/sq. |
| Dielectric constant at 60Hz | D150 | 5.8 |
| Dissipation factor at 60Hz | D150 | 0.009 |

TABLE 5: TYPICAL FLAMMABILITY PROPERTIES
OF POKETONE POLYMER M93AG6P

| | Test Method & Conditions | Values |
|------------------|--------------------------|--------|
| Flame resistance | UL94 | V-0 |

TABLE 6: RECOMMENDED PROCESSING
OF POKETONE POLYMER M93AG6P

| | | |
|--------------------|--------|-------------------|
| Drying | | 80 °C x 2 ~ 4 hrs |
| Barrel temperature | Rear | 220 ~ 225 °C |
| | Middle | 225 ~ 235 °C |
| | Front | 230 ~ 245 °C |
| | Nozzle | 240 ~ 245 °C |
| Tool temperature | | 80 ~ 120 °C |
| Injection pressure | | 4.0 ~ 7.0MPa |
| Holding pressure | | 3.0 ~ 4.0MPa |
| Back pressure | | 0.3 ~ 0.7MPa |
| Screw RPM | | 50 ~ 100 |
| Injection speed | | Slow ~ middle |

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