

AKROTEK®

PK-HM natural (4773)

PK

PK-HM natural (4773) is an unreinforced Polyketone with average flowability. The outstanding friction and wear properties enable the use for demanding components exposed to tribological stress. PK is characterized by its outstanding media resistance, which qualifies it to be used for components that are in contact with chemicals. The most important markets for AKROTEK® PK are the automotive and furniture industry and mechanical engineering.

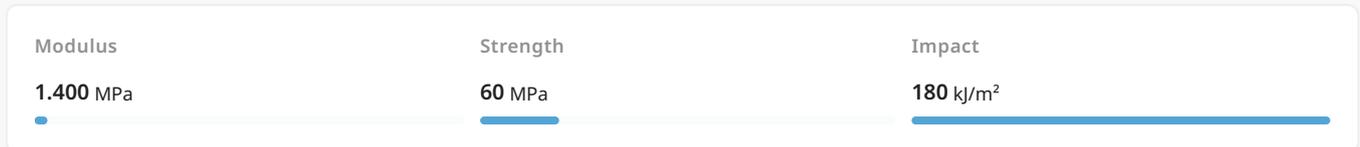
Features

hydrolysis / chemically stabilised

Regulatory



Properties



Mechanical Properties

Tensile modulus ISO 527-2	1 mm/min d.a.m.	1400 MPa
	1 mm/min conditioned	1400 MPa
Tensile stress at yield ISO 527-2	50 mm/min d.a.m.	60 MPa
	50 mm/min conditioned	60 MPa
Tensile strain at break ISO 527-2	50 mm/min d.a.m.	> 300 %
	50 mm/min conditioned	> 300 %
Flexural modulus ISO 178	2 mm/min d.a.m.	1600 MPa
	2 mm/min conditioned	1200 MPa
Flexural strength ISO 178	2 mm/min d.a.m.	60 MPa
	2 mm/min conditioned	60 MPa
Charpy impact strength ISO 179-1/1eU	23°C d.a.m.	no break
	23°C conditioned	no break
	-30°C d.a.m.	no break

Charpy notched impact strength ISO 179-1/1eA	23°C d.a.m.	15 kJ/m ²
	23°C conditioned	15 kJ/m ²
	-30°C d.a.m.	4,5 kJ/m ²

Thermal Properties

Temperature of deflection under load HDT/A ISO 75	1,8 MPa	100 °C
Temperature of deflection under load HDT/B ISO 75	0,45 MPa	190 °C
Melting temperature ISO 11357-3	DSC, 10K/min	220 °C
Coefficient of linear thermal expansion ISO 11359-1/2	23°C to 80°C parallel	1,1 10 ⁻⁴ /K
	23°C to 80°C transverse	1,1 10 ⁻⁴ /K
Thermal conductivity DIN 52612		0,255 W/mK

Flammability

Flammability UL 94	UL 1,6 mm Wall thickness	HB Class
Burning rate (<100 mm/min) FMVSS 302	> 1 mm Thickness	+

General Properties

Density ISO 1183	23°C	1,24 g/cm ³
Humidity absorption ISO 1110	70°C, 62% r.H.	0,8 - 0,9 %
Water absorption ISO 62	23°C, saturated	2,2 %
Molding shrinkage ISO 294-4	flow	1,7 - 1,9 %
	transverse	1,9 - 2,1 %

Electrical Properties

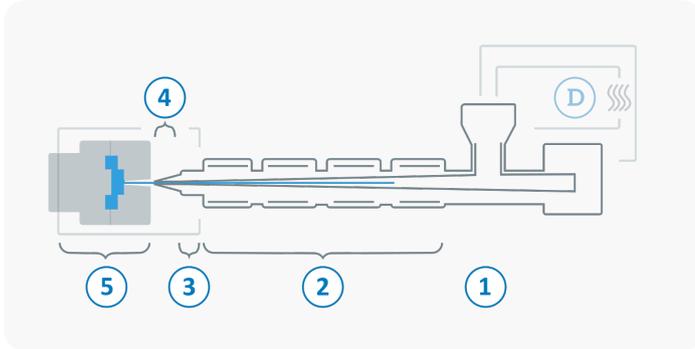
Volume resistivity IEC 62631-3-1	d.a.m. conditioned	10¹³ Ω x cm 10¹⁰ Ω x cm
Surface resistivity IEC 62631-3-2	d.a.m. conditioned	10¹³ Ω 10¹⁰ Ω
Comparative tracking index IEC 60112	Test liquid A	600 V

Rheological Properties

MVR ISO 1133	240°C/2,16kg	6 cm³/10 min
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Processing

The values mentioned are recommendations. We only recommend desiccant / dry air dryers or vacuum dryers. Too long a drying time and the resulting residual moisture content below the lower limit can lead to filling problems and surface defects. The specified drying time refers to closed and undamaged bagged material. When processing from previously opened bags or from octabins with polyolefin inliners, a longer drying time may be necessary. It is recommended to check the residual moisture content after the drying process.



D	Drying time	0 - 4 h
	Drying temperature ($\tau \leq -30^{\circ}\text{C}$)	80 °C
	Processing moisture	0,02 - 0,1 %
1	Feed section	60 - 80 °C
2	Temperature Zone 1 - Zone 4	220 - 250 °C
3	Nozzle temperature	230 - 250 °C
4	Melt temperature	230 - 250 °C
5	Mold temperature	60 - 120 °C
→	Holding pressure, spec.	300 - 800 bar
←	Back pressure, spec.	30 - 70 bar
	Injection speed	medium to high
	Screw speed	8 - 15 m/min



Polyketones crosslink depending on time and temperature, crosslinking is noticed by an increase of viscosity and/or dark spots in natural colored compounds. The melt temperature should be at or below 260 °C and under no circumstances go beyond 270 °C because crosslinking speed will increase. The use of a hot runner system is not recommended when processing polyketon. However, if it is used, it should be noted that the residence time in the barrel including the hot runner should not exceed 10 min. If interruptions of more than 10 minutes are expected, the barrel and hot runner need to be purged and cleaned with polyolefins. The molding machine needs to be purged with polyolefins before and after processing of AKROTEK® PK! There is a risk of cross linking caused by reactions with POM or PA as well as unsuitable masterbatches or cleaning compounds! Crosslinking is noticed by an increase of viscosity and or dark spots in natural colored compounds. In this case purge immediately with polyolefins. Further processing instructions are available on request.