

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

Modulus

1.400 MPa

Strength

60 MPa

Impact

180 kJ/m²

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/m²

23°C | conditioned

15 kJ/m²

-30°C | d.a.m.

4,5 kJ/m²

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

 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/cm³

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

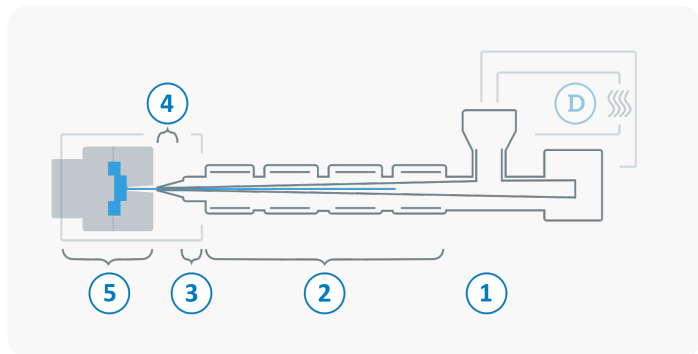
Volume resistivity IEC 62631-3-1	d.a.m. conditioned	$10^{13} \Omega \times \text{cm}$ $10^{10} \Omega \times \text{cm}$
Surface resistivity IEC 62631-3-2	d.a.m. conditioned	$10^{13} \Omega$ $10^{10} \Omega$
Comparative tracking index IEC 60112	Test liquid A	600 V

Rheological Properties

MVR ISO 1133	240°C/2,16kg	6 cm ³ /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 liners, 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.