

## 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/m<sup>2</sup>

## 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<sup>2</sup>

23°C | conditioned

15 kJ/m<sup>2</sup>

-30°C | d.a.m.

4,5 kJ/m<sup>2</sup>

## 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<sup>-4</sup>/K

23°C to 80°C | transverse

1,1 10<sup>-4</sup>/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<sup>3</sup>

### 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

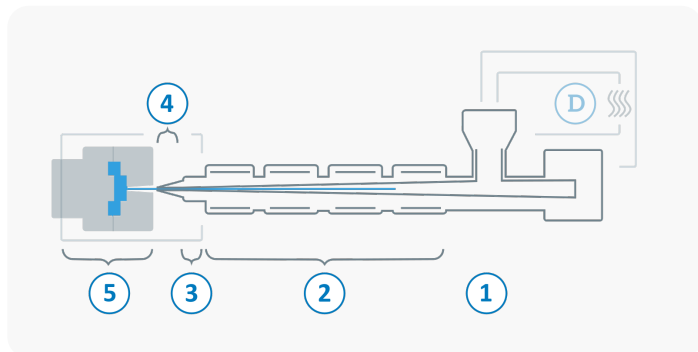
|                                   |               |                                                     |
|-----------------------------------|---------------|-----------------------------------------------------|
| <b>Volume resistivity</b>         | d.a.m.        | <b><math>10^{13} \Omega \times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

## Rheological Properties

|            |              |                                                   |
|------------|--------------|---------------------------------------------------|
| <b>MVR</b> | 240°C/2,16kg | <b><math>6 \text{ cm}^3/10 \text{ min}</math></b> |
| ISO 1133   |              |                                                   |

## 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.



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