

AKROTEK® PRELIMINARY

PK-VM GF 15 natural (8680)

PK GF15

AKROTEK® PK-VM GF 15 natural (8680) is a 15% glass fibre reinforced Polyketone with average stiffness and strength. Due to its very good media resistance, the material is suitable for use in applications that carry cooling water. This type was developed as the successor to PK-VM GF 15 natur (4705) in order to meet the requirements for a larger processing window during processing.

Features

hydrolysis / chemically stabilised

Properties

Modulus

4.700 MPa

Strength

95 MPa

Impact

65 kJ/m²

Mechanical Properties

Tensile modulus

ISO 527-2

1 mm/min | d.a.m.

4700 MPa

Tensile stress at break

ISO 527-2

5 mm/min | d.a.m.

95 MPa

Tensile strain at break

ISO 527-2

5 mm/min | d.a.m.

4,5 %

Flexural modulus

ISO 178

2 mm/min | d.a.m.

4500 MPa

Flexural strength

ISO 178

2 mm/min | d.a.m.

130 MPa

Charpy impact strength

ISO 179-1/1eU

23°C | d.a.m.

65 kJ/m²

Charpy notched impact strength

ISO 179-1/1eA

23°C | d.a.m.

10 kJ/m²

23°C | conditioned

10 kJ/m²

-30°C | d.a.m.

7 kJ/m²

Ball indentation hardness

ISO 2039-1

358N/30s | d.a.m.

119 MPa

Thermal Properties

Temperature of deflection under load HDT/A

ISO 75

1,8 MPa

210 °C

Temperature of deflection under load HDT/B

ISO 75

0,45 MPa

220 °C

Melting temperature

ISO 11357-3

DSC, 10K/min

220 °C

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

1,35 g/cm³

Humidity absorption

ISO 1110

70°C, 62% r.H.

0,7 - 0,8 %

Molding shrinkage

ISO 294-4

flow

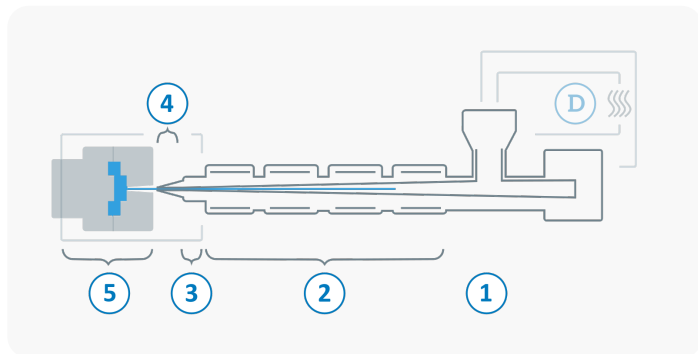
0,5 - 0,7 %

transverse

1,1 - 1,3 %

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 - 260 °C |
| 3 | Nozzle temperature | 230 - 260 °C |
| 4 | Melt temperature | 230 - 260 °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 polyketone. 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.