

# AKROTEK® PRELIMINARY

## PK-VM GF 10 FR orange (8745)

PK GF10 FR(40)

AKROTEK® PK-VM GF 10 FR orange (8745) is a 10% glass fibre reinforced, flame retardant and process improved Polyketone compound, colored in orange similar to RAL 2003. The flame retardant system is free of red phosphorous and halogens. Due to its good chemical resistance, good dimensional stability and high elongation at break it is suitable for high voltage components in e-mobility.

### Features

hydrolysis / chemically stabilised   flame retardant   process improved   E-Mobility

### Properties

#### Modulus

4.000 MPa

#### Strength

70 MPa

#### Impact

48 kJ/m<sup>2</sup>

## Mechanical Properties

### Tensile modulus

ISO 527-2

1 mm/min | d.a.m.

4000 MPa

### Tensile stress at break

ISO 527-2

5 mm/min | d.a.m.

70 MPa

### Tensile strain at break

ISO 527-2

5 mm/min | d.a.m.

5,5 %

### Charpy impact strength

ISO 179-1/1eU

23°C | d.a.m.

48 kJ/m<sup>2</sup>

### Charpy notched impact strength

ISO 179-1/1eA

23°C | d.a.m.

8 kJ/m<sup>2</sup>

## Thermal Properties

### Melting temperature

ISO 11357-3

DSC, 10K/min

220 °C

## Flammability

<b>Flammability</b>	0,8 mm Wall thickness	<b>V-0 Class</b>
UL 94	1,6 mm Wall thickness	<b>V-0 Class</b>
	3,2 mm Wall thickness	<b>V-0 Class</b>
<b>GWFI</b>	0,8 mm Wall thickness	<b>960 °C</b>
IEC 60695-2-12	1,6 mm Wall thickness	<b>960 °C</b>
	3,2 mm Wall thickness	<b>960 °C</b>
<b>GWIT</b>	0,8 mm Wall thickness	<b>825 °C</b>
IEC 60695-2-13	1,6 mm Wall thickness	<b>850 °C</b>
<b>Burning rate (&lt;100 mm/min)</b>	> 1 mm Thickness	<b>+</b>
FMVSS 302		

## General Properties

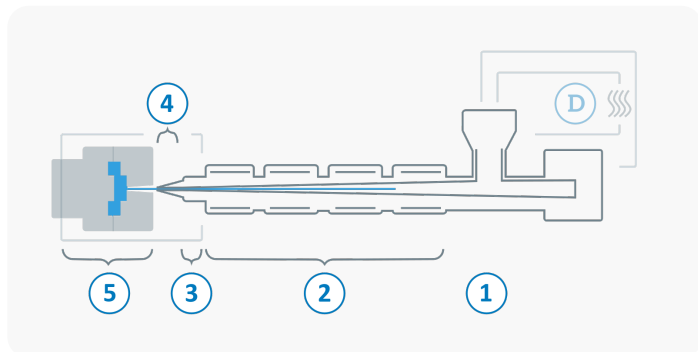
<b>Density</b>	23°C	<b>1,34 g/cm<sup>3</sup></b>
ISO 1183		
<b>Humidity absorption</b>	70°C, 62% r.H.	<b>0,5 - 0,7 %</b>
ISO 1110		
<b>Molding shrinkage</b>	flow	<b>0,5 - 0,7 %</b>
ISO 294-4	transverse	<b>1,1 - 1,3 %</b>

## Electrical Properties

<b>Comparative tracking index</b>	Test liquid A	<b>600 V</b>
IEC 60112		

## 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>	<b>Drying time</b>	<b>0 - 4 h</b>
	<b>Drying temperature (<math>\tau \leq -30^{\circ}\text{C}</math>)</b>	<b>80 °C</b>
	<b>Processing moisture</b>	<b>0,02 - 0,1 %</b>
<b>1</b>	<b>Feed section</b>	<b>60 - 80 °C</b>
<b>2</b>	<b>Temperature Zone 1 - Zone 4</b>	<b>210 - 240 °C</b>
<b>3</b>	<b>Nozzle temperature</b>	<b>230 - 240 °C</b>
<b>4</b>	<b>Melt temperature</b>	<b>230 - 240 °C</b>
<b>5</b>	<b>Mold temperature</b>	<b>60 - 100 °C</b>
<b>→</b>	<b>Holding pressure, spec.</b>	<b>300 - 800 bar</b>
<b>←</b>	<b>Back pressure, spec.</b>	<b>30 - 50 bar</b>
	<b>Injection speed</b>	<b>medium</b>
	<b>Screw speed</b>	<b>5 - 10 m/min</b>



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 240 °C and under no circumstances go beyond 250 °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 4 min. If interruptions of more than 4 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.