

# AKROTEK®

## PK-VM GF 30 black (8655)

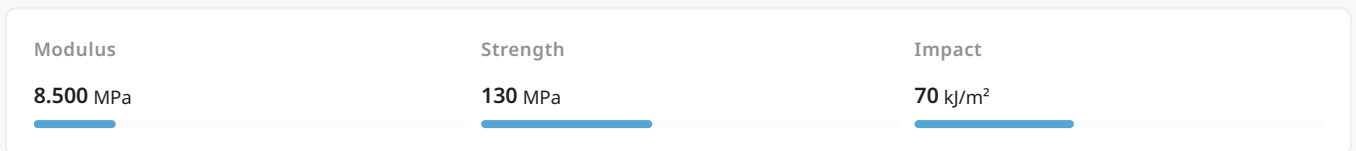
PK GF30

AKROTEK® PK-VM GF 30 black (8655) is a 30% glass fiber reinforced Polyketone with average stiffness and strength. Due to its very good media resistance, the material is suitable for the use in applications that carry cooling water. The material can be laser marked. This type was developed as the successor to PK-VM GF 30 black (4896) in order to meet the requirements for a larger processing window during processing.

### Features

hydrolysis / chemically stabilised   E-Mobility

### Properties



## Mechanical Properties

<b>Tensile modulus</b> ISO 527-2	1 mm/min   d.a.m.	<b>8500 MPa</b>
	1 mm/min   conditioned	<b>8200 MPa</b>
<b>Tensile stress at break</b> ISO 527-2	5 mm/min   d.a.m.	<b>130 MPa</b>
	5 mm/min   conditioned	<b>130 MPa</b>
<b>Tensile strain at break</b> ISO 527-2	5 mm/min   d.a.m.	<b>3,0 %</b>
	5 mm/min   conditioned	<b>3,0 %</b>
<b>Flexural modulus</b> ISO 178	2 mm/min   d.a.m.	<b>8200 MPa</b>
<b>Flexural strength</b> ISO 178	2 mm/min   d.a.m.	<b>210 MPa</b>
<b>Charpy impact strength</b> ISO 179-1/1eU	23°C   d.a.m.	<b>70 kJ/m²</b>
	-30°C   d.a.m.	<b>70 kJ/m²</b>
	-40°C   d.a.m.	<b>70 kJ/m²</b>

## Charpy notched impact strength

ISO 179-1/1eA

23°C | d.a.m.

11 kJ/m<sup>2</sup>

23°C | conditioned

14 kJ/m<sup>2</sup>

-30°C | d.a.m.

11 kJ/m<sup>2</sup>

-40°C | d.a.m.

10 kJ/m<sup>2</sup>

## Thermal Properties

### Temperature of deflection under load HDT/A

ISO 75

1,8 MPa

215 °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

0,18 10<sup>-4</sup>/K

23°C to 80°C | transverse

1,16 10<sup>-4</sup>/K

## Flammability

### Flammability

UL 94

1,6 mm Wall thickness

HB Class

### GWFI

IEC 60695-2-12

0,8 mm Wall thickness

725 °C

1,6 mm Wall thickness

725 °C

### HWI

UL 746A

1,6 mm Wall thickness

1 PLC

## General Properties

### Density

ISO 1183

23°C

1,48 g/cm<sup>3</sup>

### Humidity absorption

ISO 1110

70°C, 62% r.H.

0,6 - 0,7 %

### Molding shrinkage

ISO 294-4

flow

0,3 - 0,5 %

transverse

0,8 - 1,0 %

## Electrical Properties

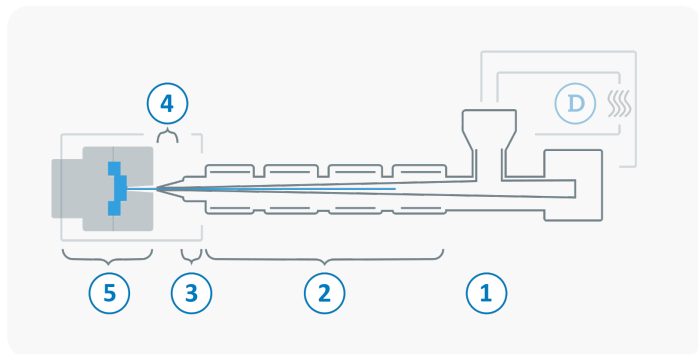
<b>Volume resistivity</b> IEC 62631-3-1	d.a.m.	<b><math>10^{13} \Omega \times \text{cm}</math></b>
<b>Surface resistivity</b> IEC 62631-3-2	d.a.m.	<b><math>10^{12} \Omega</math></b>
<b>Comparative tracking index</b> IEC 60112	Test liquid A	<b>600 V</b>

## Rheological Properties

<b>MVR</b> ISO 1133	240°C/2,16kg	<b><math>4 \text{ cm}^3/10 \text{ min}</math></b>
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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.



<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>220 - 260 °C</b>
<b>3</b>	<b>Nozzle temperature</b>	<b>230 - 260 °C</b>
<b>4</b>	<b>Melt temperature</b>	<b>230 - 260 °C</b>
<b>5</b>	<b>Mold temperature</b>	<b>60 - 120 °C</b>
<b>→</b>	<b>Holding pressure, spec.</b>	<b>300 - 800 bar</b>
<b>←</b>	<b>Back pressure, spec.</b>	<b>30 - 70 bar</b>
	<b>Injection speed</b>	<b>medium to high</b>
	<b>Screw speed</b>	<b>8 - 15 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 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.