

AKROTEK® PRELIMINARY

PK-VM GF 30 FR black (8604)

PK GF30 FR(40)

AKROTEK® PK-VM GF 30 FR black (8604) is a 30% glass fibre reinforced, flame retardant and process improved Polyketone compound, colored in black. 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. The compound is laser markable.

Features

hydrolysis / chemically stabilised flame retardant
laser markable process improved E&E E-Mobility

Regulatory



Properties

Modulus

8.600 MPa

Strength

125 MPa

Impact

70 kJ/m²

Mechanical Properties

Tensile modulus

ISO 527-2

1 mm/min | d.a.m.

8600 MPa

Tensile stress at break

ISO 527-2

5 mm/min | d.a.m.

125 MPa

Tensile strain at break

ISO 527-2

5 mm/min | d.a.m.

3,5 %

Charpy impact strength

ISO 179-1/1eU

23°C | d.a.m.

70 kJ/m²

Charpy notched impact strength

ISO 179-1/1eA

23°C | d.a.m.

13 kJ/m²

Thermal Properties

RTI electrical

UL 746B

UL	0,8mm Wall thickness	105 °C
UL	1,6mm Wall thickness	105 °C
UL	3,2mm Wall thickness	105 °C

RTI impact

UL 746B

UL	0,8mm Wall thickness	70 °C
UL	1,6mm Wall thickness	70 °C
UL	3,2mm Wall thickness	80 °C

RTI strength

UL 746B

UL	0,8mm Wall thickness	115 °C
UL	1,6mm Wall thickness	115 °C
UL	3,2mm Wall thickness	125 °C

Temperature of deflection under load HDT/A

ISO 75

1,8 MPa	213 °C
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Melting temperature

ISO 11357-3

DSC, 10K/min	220 °C
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Ball pressure test

IEC 60695-10-2

> 115 °C

Coefficient of linear thermal expansion

ISO 11359-1/2

23°C to 80°C parallel	0,14 10 ⁻⁴ /K
23°C to 80°C transverse	1,19 10 ⁻⁴ /K

Flammability

Flammability

UL 94

UL	0,8 mm Wall thickness	V-0 Class
UL	1,6 mm Wall thickness	V-0 Class
UL	3,2 mm Wall thickness	V-0 Class

GWFI

IEC 60695-2-12

UL	0,8 mm Wall thickness	960 °C
UL	1,6 mm Wall thickness	960 °C
UL	3,2 mm Wall thickness	960 °C

GWIT

IEC 60695-2-13

UL	0,8 mm Wall thickness	825 °C
UL	1,6 mm Wall thickness	825 °C
UL	3,2 mm Wall thickness	850 °C

HWI

UL 746A

UL	0,8 mm Wall thickness	0 PLC
UL	1,6 mm Wall thickness	0 PLC
UL	3,2 mm Wall thickness	0 PLC

HAI

UL 746A

UL	0,8 mm Wall thickness	0 PLC
UL	1,6 mm Wall thickness	0 PLC
UL	3,2 mm Wall thickness	0 PLC

Burning rate (<100 mm/min)

FMVSS 302

> 1 mm Thickness

+

General Properties

Density

ISO 1183

23°C

1,48 g/cm³

Humidity absorption

ISO 1110

70°C, 62% r.H.

0,4 - 0,6 %

Molding shrinkage

ISO 294-4

flow

0,3 - 0,5 %

transverse

0,8 - 1,0 %

Electrical Properties

Volume resistivity

IEC 62631-3-1

UL d.a.m.

10¹⁰ Ω x cm

Surface resistivity

IEC 62631-3-2

UL d.a.m.

10¹³ Ω

Comparative tracking index

IEC 60112

UL Test liquid A

600 V

Comparative tracking index

ASTM D3638

UL

0 PLC

Dielectric strength

IEC 60243

1 mm

29 kV/mm

Inclined-Plane Tracking, IPT

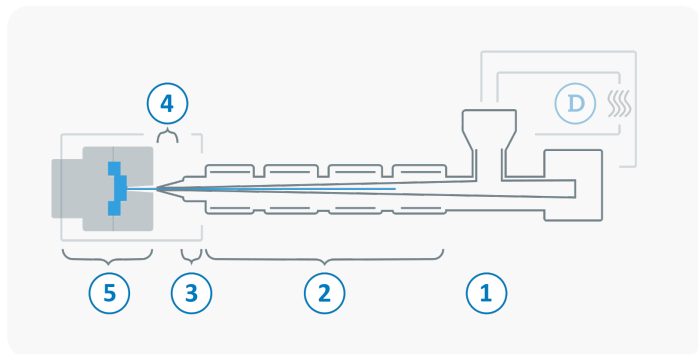
ASTM D2303-13

UL

1 kV

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	210 - 240 °C
3	Nozzle temperature	230 - 240 °C
4	Melt temperature	230 - 240 °C
5	Mold temperature	60 - 100 °C
→	Holding pressure, spec.	300 - 800 bar
←	Back pressure, spec.	30 - 50 bar
	Injection speed	medium
	Screw speed	5 - 10 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 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.