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Technical data
KEBAPEAK FE 150304

KEBAPEAK FE 150304 is a high-performance compound based on PEK (polyetherketone) with optimized sliding and wear properties and outstanding wear resistance at high temperatures and high surface pressure.

Polymer: PEK

ISO designation: PEK-S-X

Productgroup: PEEK, PEK, PEKK

Brief description of the product family:

KEBAPEAK is the trade name for a group of high-performance compounds based on polyaryletherketones (PEEK, PEK and PEKK). KEBAPEAK products exhibit exceptionally high thermal resistance, extremely good chemical resistance, and excellent sliding and wear characteristics. They are inherently flame retardant and are particularly suitable for aerospace applications due to very low smoke toxicity.

Properties:

dimensionally stable, good gliding properties, good aging behavior, good fire behavior, High strength, High wear resistance, Very high continuous used temperature, semi-crystalline, PFAS-free

Typical areas of application:

Fasteners, Housing, Sliding elements, Piston, Rotors, Plug, Valves, Gears

Industries:

Automotive, Electrical and electronics industry, Household appliances, Aviation Industry, Mechanical Engineering

Physical properties

Moisture absorption 23°C/50% r.h. in %. | in Anlehnung an ISO 62	0.10
Density in kg/m³ | ISO 1183-1	1410.00

Mechanical properties

E-modulus in MPa | ISO 527-1	12500
Breaking stress in MPa | ISO 527-1	120.0
Elongation at break in % | ISO 527-1	1.5

Thermal properties

Melting temperature (DSC, 10°C/min) in °C | ISO 11357-1/-3	372.0
Heat deflection temperature HDT (1.80 MPa) in °C | ISO 75-1/-2	350.0
Fire behavior (0.8 mm wall thickness) | IEC 60695-11-10	V0
Glass transition temperature in °C | DIN EN ISO 11357-1	152

Processing instructions:

Pre-drying:

Dryer type: dry air dryer.
Temperature: 150 – 160°C
Drying time: 4 – 6 h
Residual moisture: < 0.02%.

Temperatures:

Melt temperature: 365 – 400°C
Mold temperature: 200 – 220°C
Injection: 60-80°C

Injection molding machine equipment

In the processing of KEBAPEAK, wear- and corrosion-protected injection units have proven their worth. Nitrided screws and barrels should be avoided, since under unfavorable conditions the nitrided layer may flake off. Barrel heating should be done with ceramic heating bands and allow temperatures up to 420°C. Extended nozzles should be avoided, open nozzles preferred. For maximum processing reliability and service life, the use of bimetallic screws and barrels is recommended.
The injection unit should be selected so that the shot volume is 30 – 70% of the maximum metering volume.

The back pressure should be selected low to medium to avoid excessive shear. We recommend 50 – 300 bar (specific) as the basic setting. The injection speed should be set as a slow – fast – slow profile. The basic principle is: as fast as possible, as slow as necessary. Depending on the part geometry, injection pressures between 1000 and 2000 bar can be expected. If the pressure requirement is high, an increase in mold and/or melt temperature can reduce the required injection pressure.
The holding pressure level and time should be selected so that the best possible compensation for volume shrinkage can be achieved in order to avoid sink marks and blowholes. It is advisable to determine the sealing time by weighing out the components in a test series. A value of 500 – 700 bar (specific) can serve as an orientation for the holding pressure level; in individual cases, higher values may also be appropriate.
The metering time should be selected in such a way that the cooling time is utilized as fully as possible. If the screw speed becomes too low for this purpose, a metering delay time can be set.

Material change

Due to the high temperatures during the processing of KEBAPEAK, the barrel must be cleaned particularly carefully when changing material in order to remove the material without leaving any residue. Suitable, temperature-resistant cleaning granules (e.g. based on PEI or PES) must be used for this purpose, and it is recommended that the screw be pulled and mechanically cleaned each time material is changed.

A typical material change takes place in the following steps:
– Empty the hopper and allow the screw to run empty.
– Fill in cleaning granulate (see above) and rinse until no more residues of KEBAPEAK are visible
– Reduce temperatures to 350°C while continuously rinsing with cleaning granules
– Change cleaning material to PC and further reduce temperatures to approx. 250°C.
– If necessary, continue rinsing with PE while lowering temperatures further

– Pull out screw and clean mechanically

Application engineering support

Our application engineers are at your disposal for all questions concerning the processing of KEBAPEAK. Especially for problem solving and process optimization, we are also happy to support you on site at your injection molding machine.

Legal notices:

The information in this data sheet is based on our current knowledge and experience. Due to the wide range of possible influences during processing and application of our products, they do not exempt the processor from carrying out his own tests and trials. A legally binding assurance of certain properties or suitability for a specific application cannot be derived from our information.

* FE products are development products which are still in the trial phase. Technical data may still change in the course of product and process development. No final decision has yet been made on the commercialization of FE products. We reserve the right to discontinue the manufacture of FE products without giving further reasons.

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