Technical data
KEBAPEAK PEEK XW1730

PEEK-X30, tribologically modified

Polymer: PEEK

ISO designation: PEEK-X

Productgroup: PEEK, 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

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, Medical Technology

Physical properties

Water absorption in % | in Anlehnung an ISO 62	0.3
Humidity absorption 23°C/50% r.h. in %. | in Anlehnung an ISO 62	0.04
Density in kg/m³ | ISO 1183-1	1440

Mechanical properties

Tensile modulus in MPa | ISO 527-1	14100
Stress at break in MPa | ISO 527-1	140
Strain at break in % | ISO 527-1	2.2
Impact strength (Charpy) at 23°C in kJ/m² | ISO 179-1eU	48
Notched impact strength (Charpy) at 23°C in kJ/m² | ISO 179-1eA	13
Shore D hardness | DIN ISO 7619-1	83

Rheological properties

Melt flow rate MFR (test condition) |	380°C / 5kg
Melt flow rate MFR in g/10min | ISO 1133	2.5

Rheological properties

Molding shrinkage in flow direction in % | ISO 294-4	0.3
Molding shrinkage transverse to the flow direction in % | ISO 294-4	0.7

Thermal properties

Melting temperature (DSC, 10°C/min) in °C | ISO 11357-1/-3	343
Maximum service temperature long term in °C | ISO 2578	240
Temp. of deflection under load, 1.80 MPa in °C | ISO 75-1/-2	315
Coeff. of linear therm. expansion in flow direction in E-6/K | ISO 11359-1/-2	15
Burning behavior at thickness 0.8 mm | IEC 60695-11-10	V0
Glass transition temperature in °C | DIN EN ISO 11357-1	155

Electrical properties

Volume resistivity in Ohm*m | IEC 60093	1e+8

Processing instructions:

Pre-drying:

Dryer type: dry air dryer.
Temperature: 150 – 160°C
Drying time: 2 – 4 h
Residual moisture: < 0.02%.

Temperatures:

Melt temperature: 365 – 400°C
Mold temperature: 170 – 200°C
Injection: 60-80°C

Injection molding machine equipment:

Wear- and corrosion-protected injection units have proven their worth when processing KEBAPEAK. 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.

Basic settings:

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 involved in processing 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 the 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 screw and clean mechanically

Application engineering support:

Our application engineers are at your disposal for all questions concerning the processing of KEBAPEAK. We will also be pleased to support you on site at your injection molding machine, especially in problem solving and process optimization.

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.

Created at: 22.05.2026

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