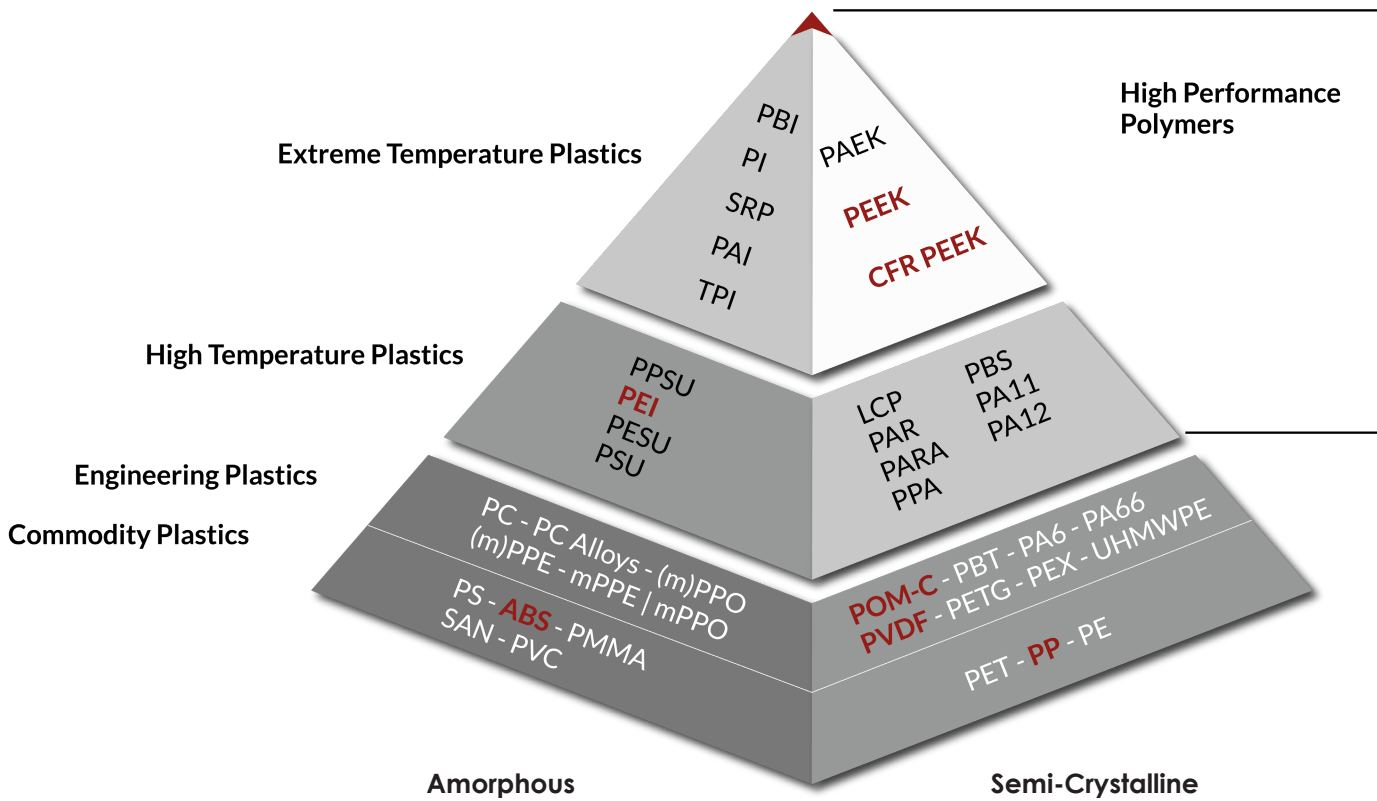


TECHNICAL GRADE MATERIALS

# Apium Specialty Filaments - PEEK CF30



High Performance Solutions

# PEEK CF30 - Material Properties

## Role of Carbon Fiber Reinforcement

PEEK CF30 is 30 wt. % carbon fiber reinforced PEEK. It is a high performance specialty polymer. PEEK CF30 exhibits the excellent material properties of PEEK with improvement. It has higher stiffness, better abrasion resistance and better temperature resistance compared to neat PEEK.

Apium P220 Series 3D printers are equipped with Apium Advanced Extruders which enable the processing of higher filled materials such as PEEK CF30. Having the highest reinforcement degree in the material, Apium's 3D printed PEEK CF30 shows functionalities similar to metals in terms of stiffness, abrasion resistance and temperature resistance, and therefore can be used in a variety of applications including metal replacement.

## Characteristics of 3D Printed PEEK CF30

The professional PEEK CF30 3D printers of Apium are the only 3D printers which are capable of processing industrial grade PEEK CF30 filaments with the highest quality.

Characteristics of 3D printed PEEK CF30 with Apium:

- High Stiffness
- Good Wear Resistance
- High Temperature Resistance
- Good Chemical Resistance
- Lightweight
- High Compressive Strength
- Good fatigue resistance



PEEK CF30 Filament - High Performance Material



High Performance Solutions

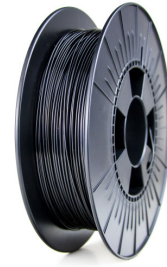
# PEEK CF30 - Mechanical Tests



MECHANICAL PROPERTIES	CONDITIONS	TEST METHOD	VALUE
Tensile Strength XY	23 °C, 48% Humidity	DIN EN ISO 527	65 MPa
Tensile Strength YZ	23 °C, 48% Humidity	DIN EN ISO 527	87,2 MPa
Tensile Strength Z	23 °C, 48% Humidity	DIN EN ISO 527	19,7 MPa
Tensile Elongation XY	23 °C, 48% Humidity	DIN EN ISO 527	1,2 %
Tensile Elongation YZ	23 °C, 48% Humidity	DIN EN ISO 527	0,9 %
Tensile Elongation Z	23 °C, 48% Humidity	DIN EN ISO 527	1 %
Tensile Modulus XY	23 °C, 48% Humidity	DIN EN ISO 527	6,6 GPa
Tensile Modulus YZ	23 °C, 48% Humidity	DIN EN ISO 527	11 GPa
Tensile Modulus Z	23 °C, 48% Humidity	DIN EN ISO 527	2,1 GPa
Charpy Impact Strength XY	23 °C, 48% Humidity	DIN EN ISO 179	7,73 kJ/m <sup>2</sup>
Charpy Impact Strength YZ	23 °C, 48% Humidity	DIN EN ISO 179	9,93 kJ/m <sup>2</sup>
Charpy Impact Strength Z	23 °C, 48% Humidity	DIN EN ISO 179	2,43 kJ/m <sup>2</sup>

# High Performance Solutions

## PEEK CF30 - Applications



### Aerospace

With its excellent thermal properties, CFR PEEK is the best solution for several aircraft applications such as interior fittings (tables and fasteners) and other equipment (hydraulic cylinders and C/C brakes). In addition, Apium's CFR PEEK can be used in door brackets and motor casings as well as for satellites, which include antennas and tube truss structures.



### Automotive

CFR PEEK's uncompromising strength-to-weight ratio is essential for high-performance automotive applications. High operating temperatures as well as a good fatigue performance in combination with the ability to easily produce individual parts, make it imperative to benefit from 3D printed CFR PEEK while working in the Automotive Industry. Possessing following characteristics CFR PEEK is the suitable material to manufacture drive shafts, engine parts, body-panel parts and more.



### Oil & Gas

CFR PEEK represents a promising alternative material for several application in this industry, either for offshore oil excavation where it can be used as risers, impellers, antenna sleeves or for pressure vessels like compressed gas cylinders. Various oil and gas processing equipment can be realized using CFR PEEK especially regarding the ability to withstand extreme operating conditions.



### Semiconductors and Electronics

PEEK CF30 is applicable for purposes like electrical insulators, valve components, wafer handling parts or bearings and bushings due to its long-term temperature capabilities, high tensile strength and very good chemical resistance.