

## CNC MACHINING

# PEEK | FR & FDA

Flame retardant UL 94 V-0, Food contact (FDA & (EU) 10/2011 approved)

## PRODUCT DESCRIPTION

PEEK (polyetheretherketone) is in the family of polyaryletherketones (PAEK) including PEK, PEKEKK and PEKK. Classified as part of the thermoplastic high-temperature group, it's properties are largely maintained at temperatures above 100 °C.

## APPLICATIONS

The go to do-all plastic for high end aerospace, F1 and medical applications. Sliding components, guide rollers, chain guides in ovens, tank linings, thermoformed parts, various components for food, drinking water, medical, pharmaceutical and biotechnological use, packaging plants, semi-conductor technology and microelectronics, nuclear and x-ray technology, gas and oil exploration and conveying, aerospace applications, gears and engine building.



## KEY PRODUCT BENEFITS

- Good sliding friction properties
- High thermal stability, FR:UL94 V-0, low-toxicity gas if burnt
- Resistant to radiation, chemicals, hydrolysis and moisture
- Minimal thermal expansion
- Very low outgassing rates in a vacuum

## ALTERNATIVES

PEEK has such a large number of excellent characteristics, it is hard to find a better plastic. The only downside is the material cost, POM or PTFE offer many of the advantages for less.

## TRADE NAME(S) SUPPLIED\*

TECAPEEK® or SustaPEEK®

<https://www.ensingerplastics.com/en/shapes/products/peek-tecapeek-natural>

<https://www.roechling.com/industrial/materials/thermoplastics/detail/sustapeek-196>

## COMMONLY USED TRADE NAMES

KetaSpire®, Ketron®, LNP Luvocom®, SustaPEEK®, TECAPEEK®, VESTAKEEP®, Victrex PEEK.

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## PROPERTIES

MECHANICAL PROPERTIES*	VALUE	UNITS
Colour	Natural (Light Brown) only	
Density	1.32	g/cm <sup>3</sup> (Specific)
Ultimate Tensile Strength (at break)	Not applicable	MPa
Tensile yield strength	100	MPa
Modulus of elasticity in tension (Young's Modulus)	3500	MPa
Hardness	99	MPa Rockwell M
Elongation at yield	Not applicable	%
Elongation at break	22	%
Unnotched impact strength (Charpy)	No break	kJ/m <sup>2</sup>
Notched impact strength ASTM D256 (Charpy)	4	kJ/m <sup>2</sup>
Water absorption (plastic) / corrosion (metal)	0.15	%

THERMAL PROPERTIES*	VALUE	UNITS
Melting temperature	343	°C
Heat deflection (plastic) or service temp (metal)	152	°C
Thermal conductivity	0.25	W/(K*m)
Coefficient of thermal expansion	50	×10 <sup>-6</sup> /K (µm/m/°C)
Flammability (UL 94)	V-0	<a href="#">UL 94 classification</a>

ELECTRICAL PROPERTIES*	VALUE	UNITS
Specific surface resistivity	>10 <sup>15</sup>	Ω
Specific volume resistivity	>10 <sup>15</sup>	Ω*cm
Dielectric strength	20	kV/mm

MACHINING PROPERTIES*	VALUE	UNITS
Machinability rating	16 - Good	<a href="#">Metal AISI Plastic 1-20</a>
Protolabs general tolerance	± 0.1	mm
Relative material cost	£££££	Per unit weight
Recyclability	7	<a href="#">EU RIC codes</a>
Basic safety information #	-	Refer to SDS

# A limited summary, refer to the Safety Data Sheet (SDS) for comprehensive instruction. Available on request.

## PROPERTIES CODES

<b>ESD</b> Electrostatic dissipative	<b>FDA</b> Food and drug administration / food safe
<b>FR</b> Flame retardant (UL 94 V-0)	<b>GF</b> Glass filled (% by weight)
<b>TR</b> Transparent (only when polished)	<b>UV</b> Ultraviolet (sun) light and weather resistant

\* All materials are purchased from audited major suppliers, to ensure consistent properties and quality. More than one supplier may be used, for identical grades, in which case we can not offer a specific choice. All properties are average/approximate, for specific ranges refer to the following suppliers data sheets. Protolabs makes no warranties regarding the content, and excludes liability for any inaccuracies in this document.