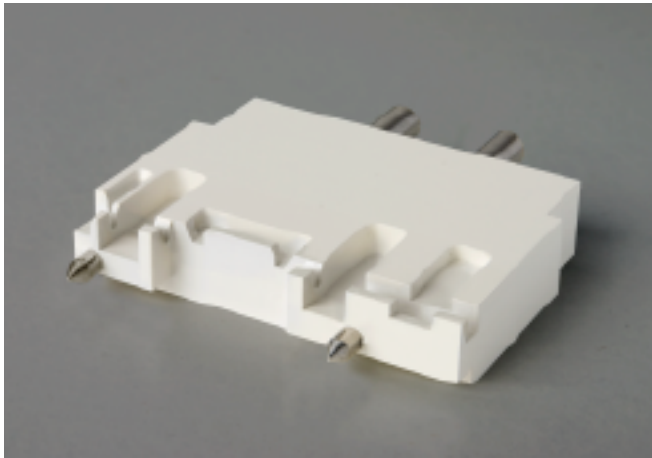


## TECAPEEK CMF Unique Properties Through Ceramic Modification



Workholder device and contact plate made from TECAPEEK CMF. Highest dimensional stability for the closest tolerances.

The continuing reduction of component sizes in semiconductor production has placed increasing demands on materials which will satisfy these high standards. Thin-walled and miniaturised components require materials with a pronounced degree of dimensional stability and excellent machinability.

With its new composite of PEEK and a technical ceramic, marketed under the name **TECAPEEK CMF**, ENSINGER fully complies with the exacting standards demanded by the semiconductor industry. The material's property profile is unique: due to its exceptionally low water uptake, it offers outstanding hardness and rigidity combined with excellent dimensional stability for very close tolerance.

Proven and tested properties of the allrounder TECAPEEK, such as its outstanding thermal stability and good processability, have been retained.

The incorporated silicate ceramic offers a high barrier to permeation by gases and liquids; the even distribution of ceramic discs throughout the material prolong the diffusion process of liquids and gases.

### Properties

- | Outstanding thermal stability
- | Very good hardness and rigidity
- | Good machinability, very low burring
- | Good dimensional stability
- | Low water absorption
- | Good corrosion resistance
- | High thermal resistance
- | Good dielectric properties

### Preferred fields

Semiconductor industry, high precision mechanical engineering, electrical technology, vacuum technology

### Applications

Testsockets and components for test sockets, contact plates, pressure bars, plug connector, lamp holders

## Property Values

Property Values		TECAPEEK CMF
DIN abbreviation		PEEK
Density (ASTM D 792, DIN 53 479)	$\rho$ g/cm <sup>3</sup>	1,60
Tensile strength at break (ASTM D 638)	$\sigma_R$ MPa	86
Elongation at break (ASTM D 638)	$\epsilon_R$ %	7
Modulus of elasticity after tensile test (ASTM D 638)	$E_z$ MPa	4500
Modulus of elasticity after flexural test (ASTM D 790)	$E_B$ MPa	4500
Impact resistance (Izod: ASTM D 256)	$a_n$ kJ/m <sup>2</sup>	50
Ball indentation hardness (DIN EN ISO 2039 Part 1)	$H_k$ N/mm <sup>2</sup>	263 <sup>(1)</sup>
Heat distortion temperature (ISO-R 75, method A, DIN 53 461)	°C	219
Heat distortion temperature (ISO-R 75, method B, DIN 53 461)	°C	260
Service temperature long term	°C	260
Service temperature short term	°C	300
Thermal conductivity (23 °C)	W/(Km)	0,43
Specific heat (23 °C)	J/gK	1,04
Coefficient of linear thermal expansion (23 °C, ASTM D 696, DIN 53 752, ASTM E 831)	10 <sup>-5</sup> 1/K	4,4
Volume resistance (ASTM D 257, EC 93, DIN IEC 60093)	$\rho_D$ Ωcm	>10 <sup>14</sup>
Surface resistance (ASTM D 257, EC 93, DIN IEC 60093)	$R_D$ Ω	>10 <sup>14</sup>
Dielectric constant (10 <sup>6</sup> Hz, ASTM D 150, DIN 43 483, IE-250)	$\epsilon_r$	4,1
Dielectric loss factor (10 <sup>6</sup> Hz, ASTM D 150, DIN 43 483, IE-250)	$\tan \delta$	<0,0050
Dielectric strength (ASTM D 149)	$E_D$ KV/mm	15,2
Water absorption (23 °C/50% relative humidity)	%	0,0002
Flammability acc. to UL		V0 (1,5 mm)

## Availability

## Rods



	Tolerance (mm)	TECAPEEK CMF
DIN-Abbreviation		PEEK
Density (g/cm <sup>3</sup> )		1,60
Diameter Ø (mm)		kg/m
20	+ 0,2 + 1,1	0,547

## Plates



	Tolerance (mm)	TECAPEEK CMF
DIN-Abbreviation		PEEK
Density (g/cm <sup>3</sup> )		1,60
Diameter Ø (mm)		kg/m
10 x 500	+ 0,2 +0,9	8,87
20 x 500	+ 0,3 +1,5	17,57

(1) Testing on semi-finished products.

The information corresponds with current knowledge and indicates our products and possible applications. We cannot give you a legally binding guarantee of the physical properties or the suitability for a specific application. Existing commercial patents are to be taken in account.

Please find information concerning the exclusion of liability and Terms and Conditions of Delivery in our Semi-finished products catalogue or at [www.ensinger-online.com](http://www.ensinger-online.com).

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