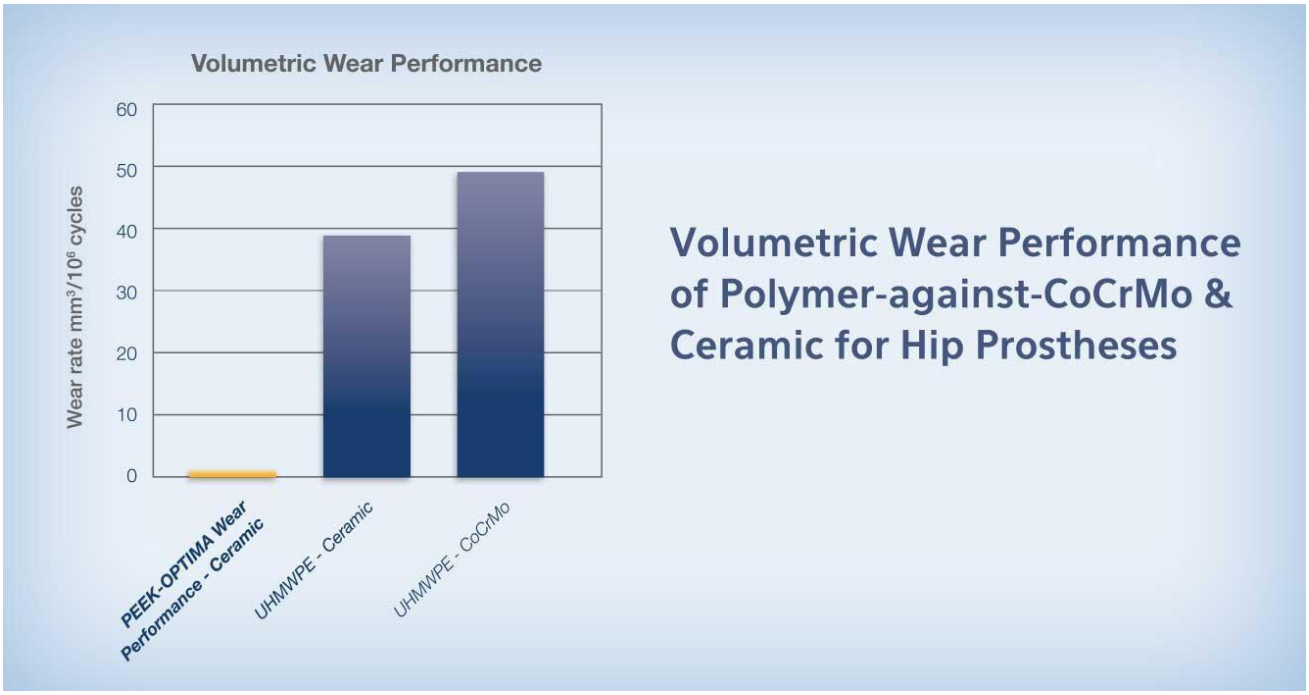
Invibio BIOMATERIAL SOLUTIONS

PEEK-OPTIMA® Wear Performance

Redefining orthopedic device performance possibilities.

Designed for bearing applications against hard counter faces, such as metal and ceramics, PEEK-OPTIMA Wear Performance* combines the material properties of PEEK-OPTIMA Natural with carbon fiber technology. In order to meet the critical demands of orthopedic joint arthroplasty, PEEK-OPTIMA Wear Performance offers:

- Superior wear performance against hard counter faces
- Backed by accepted and validated wear-screening tests
- Design and processing versatility ideal for new arthroplasty devices
- High resistance to creep and fatigue
- Modulus similar to bone for reduced stress shielding and to stimulate bone healing
- Sterilize repeatedly with no degradation using steam, ethylene oxide, gamma or Sterrad® plasma
- Compatible with x-ray, CT and MRI imaging techniques



*Previously marketed as Motis

Typical Material Properties

Granule Form

Property	Method	Units	PEEK-OPTIMA Wear Performance	
			G	LV
Color			Black	Black
Melt Viscosity	**Capillary Rheometer	kNs/m^2	0.71	0.37
Density	ISO 1183	$g\ cm^{-3}$	1.43	1.42
Tensile Strength (Yield)	ISO 527	MPa	162	155
Tensile Elongation (Break)	ISO 527	%	2.2	2
Flexural Modulus	ISO 178	GPa	12	15
Flexural Strength	ISO 178	MPa	246	230
Shear Strength	ASTM D732	MPa	95	94
Shear Modulus	ISO 15310	GPa	2.2	2.2
Compressive Strength	ISO 604	MPa	200	200
Compressive modulus	ISO 604	GPa	12	12
Poisson's Ratio	ASTM D638	N/A	0.41	0.41
Rockwell Hardness	ASTM D785	M Scale	104	105
Izod Impact (Unnotched)	ISO 180	kJm^{-2}	37	30
Izod Impact (Notched)	ISO 180	kJm^{-2}	6.4	5.5
Water Absorption (24 hours)	ISO 62	Wt. %	0.5	0.5
Melt Temperature	DSC	ºC (ºF)	340 (644)	343 (649)
Mold Shrinkage	In flow direction Mold temp. 210ºC (410ºF)	%	0.3	0.1
	Across flow direction Mold temp. 210ºC (410ºF)		0.7	0.9
Coefficient of Thermal Expansion *Below Tg* *Above Tg*	ASTM D696	10^{-5}°C^{-1}	 0.8 1.5	 1.2 1.5

*Mechanical properties as molded
**Melt viscosity measurement carried out according to internal Invibio test method

Rod Forms

Property	Method	Units	PEEK-OPTIMA Wear Performance
Tensile Strength (Yield)	ISO 527	MPa	97
Tensile Elongation (Break)	ISO 527	%	2.4
Flexural Modulus	ISO 178	GPa	6.3
Flexural Strength	ISO 178	MPa	160
Izod Impact (Unnotched)	ISO 180	kJm^{-2}	30
Izod Impact (Notched)	ISO 180	kJm^{-2}	3.6

Invibio®
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