Fillers

And Radio-opaque Tubing

Radio-opaque PEEK tubing combines the biocompatibility with visibility that physicians need to precisely place implantable devices.

Overview

Serving various industries for over 50 years, extruded tubing from Zeus has become a cornerstone, especially within medical markets. There are many times when you may want to further elevate the performance of your polymer tubing for more specialized uses. For the majority of medical device applications, properly placing the tubing or "seeing" it during a procedure is critical. PTFE tubing with bismuth added aids visualization for minimally invasive procedures. The radio-opaque (RO) nature of this product allows physicians to precisely place surgically implantable devices. Zeus provides RO tubing with barium and bismuth fillers in FEP, PFA, PEEK, and PTFE while THV is available with bismuth. Should you need a filler in one area of the tubing only and not throughout, RO striping can be added down the length of the product. We can also provide tubing made with RO titanium dioxide-filled Pebax, selected nylons, PTFE, and FEP. Finally, tungsten-filled RO tubing can be manufactured upon request.

For non-medical uses, we offer glass fillers to increase tubing abrasion resistance and bondability for resins such as PTFE. Bronze can be added to increase resistance to creep while improving machinability of the finished tubing product. Lastly, carbon aids in static dissipation and increases wear resistance.* At Zeus, customization is what we do. Contact our technical sales team to see how our RO tubing or other fillers can advance your next project.

Applications

- *Catheter componentry*
- *Implantable devices*
- *Furcation tubing*
- *Electrical insulation*

Capabilities and Sizing

- *RO fillers available:*
  - *Barium*
  - *Bismuth*
  - *Titanium dioxide*
  - *Tungsten*
- *Co-extrusions*
- *Striping*
- *Bronze*
- *Glass*
- **Carbon*

Key Properties

- *Visible under x-ray / fluoroscopy*
- *Biocompatible*
- *Sterilizable*
- *Chemically resistant*
- *Abrasion resistance*
- *Static dissipation*
- *Improved creep resistance*

**Carbon-filled tubing is black in color.*

BIOCOMPATIBILE

CHEMICAL RESISTANCE

ZEUS®

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With Radio-Opaque Tubing

The information presented is believed to be accurate and is not intended to constitute a specification. Property characteristics are dramatically impacted by geometry and processing method, thus properties of extruded parts may vary. These tables are meant to serve as a general guideline only. Users should evaluate the material to determine suitability for their own particular application.

PEEK/Radio-opaque PEEK Comparison Chart		
	PEEK	RO PEEK
PHYSICAL		
Density (g/cc) (ASTM D792)	1.3	1.63
Water Absorpton (%) (ASTM ISO 62)	0.07 - 0.45	0.02
MECHANICAL		
Hardness, Shore D (ASTM D2240)	> 85	88
Tensile Strength, Ultimate (MPa) (ISO 527)	98 - 100	69
Elongation at Break (%) (ISO 527)	40 - 45	70-120
Modulus of Elasticity (MPa) (ASTM D527)	3700 - 4000	1300
Flexural Modulus (MPa) (ISO 178)	3800 - 4200	5200
ELECTRICAL		
Volume Resistivity (Ω-cm) (ASTM D257)	1×10^{16}	5.0×10^{16}
Dielectric Constant (1 MHz) (ASTM DIN 53483)	3.1	3.69
Dielectric Strength (V/mil) (ASTM EIC 60243-1)	584.2	300
THERMAL		
Melt Temperature (°C) (ASTM ISO 12086)	343	341
Decomposition Temperature (°C) (AIR)	541 - 542.6	475
Specific Heat 25°C (J/gK)	1.14	0.92
Specific Heat 100°C (J/gK)	1.45	1.14
Specific Heat 200°C (J/gK)	1.91	1.40
C.T.E. Linear (ASTM D4702)	45	23