

X-RO Development Story

(See also DT Light-Post Development Story, and Macro-Lock Development Story)



Quartz Glass



X-RO Glass

Starting out with building materials specifically made for the specific challenge puts us miles ahead before the product ever reaches the dentist office.

RTD, who pioneered the fiber post made huge development investment and 5 years' time to obtain a special fiber exclusively for use in their range of endodontic posts and other potential dental reinforcement products.

This proprietary process involves creating a special Silica (Quartz) glass with an elevated content of radiopacifier, for added tensile strength and radiopacity. In developing its own expertise, RTD had concluded that it is more advantageous for radiopacity to make the base fibers more radiopaque, than to put the radiopacifiers into the resin matrix between the fibers.

Under a sophisticated heat & stretching process, the glass is turned into the patented X-RO fibers.

These fibers are industrially coated / saturated with a proprietary, coupling agent formulated for this application, to promote an exceptional bond between the 12 micron fibers and the epoxy resin matrix; Interlaminar Shear Strength.

	E-glass	Quartz	Quartz X-RO
SiO ₂	50-55%	99,8%	45-55%
Al ₂ O ₃	14-16%	-	3-5%
CaO	17-23%	-	4-8%
B ₂ O ₃	6-9%	-	-
MgO	1-4%	-	3-10%
BaO	-	-	5-10%
SrO	-	-	10-20%
ZnO	-	-	3-10%



The X-RO fibers, saturated in the matrix, are “pre-tensed” (under tension and heat) to create an industrial composite mass that is several millimeters in diameter and more than 99% cross-linked, as confirmed by DSC testing.

The move from one fiber to the next generation was done without sacrificing Flexural Strength, (~1800 MPa) or Fatigue Resistance (>10 million cycles)

Corrosion potential and corrosion by-product are significant and persistent drawbacks to base metal cast posts, steel prefabricate posts, and amalgam cores. In contrast, fiber posts are corrosion – free and the X-RO fiber posts have been subjected to all relative ISO biocompatibility testing protocols #10993.

