

METHOD FOR MANUFACTURING BRAIDED FIBER REINFORCED COMPOSITE DENTAL POSTS

Technology for Licensing

Keywords:

Dental post, fiber reinforced composite, thermoplastic, fiberglass

Description:

Continuous fiber composite materials have been demonstrated as cutting edge structural materials with a wide range of applications, such as the dental fiber post. These posts, made of a material similar to dentin, prevent most vertical fractures of the tooth root, while being aesthetically superior to metal posts. Even though many manufacturing methods exist for the fabrication of FRC posts, they carry some common problems in the manufacturing process.

Given these limitations, a new fiber-reinforced composite (FRC) dental post manufacturing process has been developed. The resulting dental posts are suitable for use in dentistry and this method solves the two main problems that current FRC dental posts present: fiber agglomeration in some places within the fiber posts and a heterogeneous distribution of its components along the post. This will allow us to manufacture FRC posts with improved characteristics.

The new developed FRC posts consist of a core of one or more thermoplastic yarns, which forms a matrix, surrounded by a plurality of reinforcement fiber yarns. During the manufacturing process, these yarns are first braided and then melted, so the molten thermoplastic can be distributed homogeneously along the post.

In this way, the two main problems current FRC dental posts present are solved, while its functional properties (Young's and shear modulus) are maintained.

An economic, fast, and high-performance method for manufacturing FRC dental posts has been developed. The resulting product is suitable for its use in dentistry and solves the two main problems in the existing manufacturing processes: fiber agglomeration and heterogeneity, while maintaining its advantages.

Advantages and Benefits

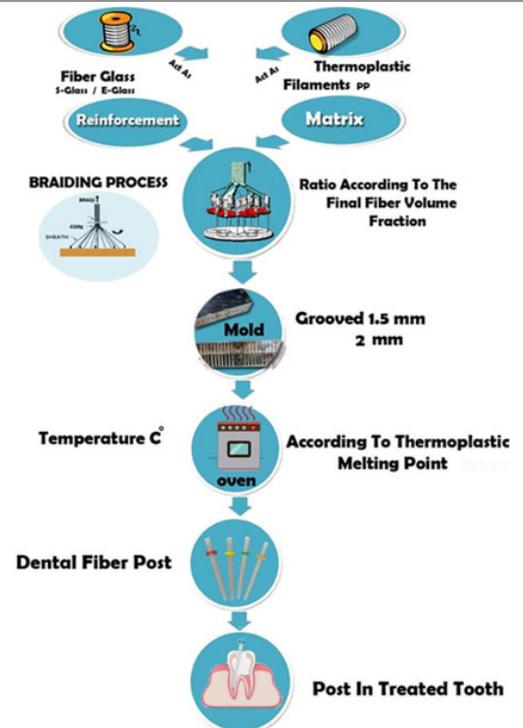
» FRC dental posts with improved characteristics.

This new manufacturing method overcomes the heterogeneity and agglomerations problems of existing FRC dental posts in the market, while keeping their functional properties.

» Reduced production costs.

The resulting posts are more economical thanks to the use of thermoplastics instead of thermosets

» The manufacturing process is fast and high performance



Scheme of the method of this invention

Actuación en el marco de los Proyectos R-PDTC-2018 y PAIDI AT17_6096_OTRI UGR

Patent status:

Patent application: P202130436
Priority date: 11/05/2021

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