

TABLE 6

Ingredients	Low fusion compound for inner core (Parts per hundred)	High fusion compound for outer layer of the fillings (Parts per hundred)
Tone P-737*		20.4
Tone P-757*		10.2
Tone P-767*	10.2	
Tone P-787*	20.4	
UDMA	3.1	3.1
Bioactive glass	11.0	11.0
BaSO ₄	3.3	3.3
BiOCl	52.0	52
Bioactive glass	10.2	10.2
Red iron oxide pigments**	0.1	0.1

*Tone Polymers are polycaprolactones and Trademarks of the Dow Chemical Company.
 **The pigment is for illustration purpose. The outer layer and the inner core material can be made into different colors to distinguish the layers.

The following Table 7 sets forth the properties of the materials having the different melt flow indices.

TABLE 7

Polymer Matrix Components	Melt Flow Index (80° C., 44 psi, g/10 min.)	Molecular Weight, Number Average (approx.)	Melting Temperature, ° F.(° C.)
High Fusion Polymer: Tone P-737	13	32000	140 (60)
High Fusion Polymer: Tone P-757	5	43000	140 (60)
Low Fusion Polymer: Tone P-767	1.9	50000	140 (60)
Low Fusion Polymer: Tone P-787	0.5	80000	140 (60)

The difference in properties between the inner core, shaft or post section and the outer filling material section provides strength and rigidity to the core, shaft and post section while allowing slight molding or forming of the outer filling material. Additionally, should the material have to be removed, the inner core, shaft and post section are dissolvable in a root canal solvent making removal effortless and trouble-free.

While various descriptions of the present invention are described above, it should be understood that the various features can be used singly or in any combination thereof. Therefore, this invention is not to be limited to only the specifically preferred embodiments depicted herein. Further, it should be understood that variations and modifications within the spirit and scope of the invention may occur to those skilled in the art to which the invention pertains. Accordingly, all expedient modifications readily attainable by one versed in the art from the disclosure set forth herein that are within the scope and spirit of the present invention are to be included as further embodiments of the present invention. The scope of the present invention is accordingly defined as set forth in the appended claims.

What is claimed is:

1. A method for restoring the root canal of a tooth comprising:
 - preparing the root canal;
 - applying a sealant into the root canal;
 - inserting a filling material into the canal,

wherein the filling material comprises an inner core section comprising a first thermoplastic polymer matrix material, an outer layer of material disposed on and surrounding the inner core section, wherein the outer layer of material comprises a second thermoplastic polymer matrix material, wherein the filling material has a bond strength when bonded to a root canal sealant equal to or greater than about 3 MPa, and wherein the first and second thermoplastic polymeric matrices optionally comprise a bioactive filler,

wherein the first thermoplastic polymer matrix material and the second thermoplastic polymer matrix material comprise polymers having different melt flow indices, and wherein the polymer in the first thermoplastic polymer matrix has a lower melt flow index than the polymer in the second thermoplastic matrix.

2. The method of claim 1 wherein the step of preparing the root canal comprises applying an etchant to the walls of the root canal.

3. The method of claim 2 wherein the etchant is a self etchant.

4. The method of claim 2 wherein the self etchant comprises an adhesive material.

5. The method of claim 1 further comprising applying a bonding agent to the walls of the root canal after the root canal has been prepared.

6. The method of claim 5 wherein the bonding agent, sealant and filling material form a monoblock.

7. The method of claim 3 wherein the self-etchant, sealant and filling material form a monoblock.

8. The method of claim 1 wherein the filling material is softened prior to insertion into the canal.

9. The method of claim 1 wherein the filling material is removable.

10. The method of claim 1 wherein the filling material is dissolvable.

11. The method of claim 10 wherein the filling material is dissolvable in a dental solvent.

12. The method of claim 11 wherein the dental solvent comprises chlorinated solvents.

13. The filling material of claim 11 wherein the dental solvent comprises tetrahydrofuran, limonene, eucalyptus oil, chloroform, xylene, benzene, toluene or a mixture thereof.

14. The method of claim 1 wherein the filling material comprises single piece of material.

15. The method of claim 1 wherein the single piece of material is shaped and sized to fit snugly into the root canal.

16. The method of claim 1 wherein the filling material is shaped in the form of a cone.

17. The method of claim 1 further comprising, after inserting the filling material into the canal, heating and condensing the filling material to create more space, and inserting additional pieces of filling material into the space.

18. The method of claim 1 wherein the filling material is inserted into the root canal laterally and condensed and this step is repeated until the root canal is sufficiently filled.

19. The method of claim 1 wherein the filling material is inserted into the root canal vertically and condensed and this step is repeated until the root canal is sufficiently filled.

20. The method of claim 1 wherein the filling material comprises a single point of material that is inserted into the root canal to sufficiently fill the canal.

21. The method of claim 20 wherein the single point of material is disposed on a carrier and inserted into the canal via the carrier.

22. The method of claim 1 wherein the thermoplastic polymer matrix comprises polylactides, polyglycolides, polycaprolactones, polyanhydrides, polyamides, polyurethanes,