

TABLE 5-continued

Sample No.	Filler or Product	Filler wt %	Cuttability: Avg Depth (mm)	% Increase of Cuttability Compared to Sample 8	Barcol-avg
Comparative 10	Vita Mark II A3C/I12 (no heat treatment)		0.83	44	—

Sample 11

3M F2000 shade A2 (3M Co.; St. Paul, Minn.), fluoride-releasing material, was extruded into a cuvet to about ¾ full. The filled cuvet was placed standing vertically in a Hanau Sun-Test box with a xenon lamp and exposed to light for 30 min. The cuvet was rotated lengthwise and exposed to light another 30 min. The cured block was heat treated in a Despatch oven at 100° C./60 min., then allowed to cool in the oven.

X-Ray Analysis of Samples

Examples X1-X8 were fabricated in the same way as Samples E-I except that they were centrifuged at 2700 RPM, and light cured for 30 minutes immersed in water; and not heat-treated.

Examples X9-X12 were fabricated in the same way as Sample E-I except that they were centrifuged at 2700 RPM, and light cured for 41 minutes immersed in water; and heat-treated in the same way as samples 1-9.

Examples X13-X22 were fabricated in the same way as Samples E-I except that they were centrifuged at 2700 RPM, and light cured for 30 minutes immersed in water; and heat-treated in the same way as samples 1-9.

Example X23 was fabricated in the same way as Samples E-I except that it was centrifuged at 2400 RPM, and light cured for 30 minutes immersed in water; and heat-treated in the same way as samples 1-9.

Examples X24-28 are commercial Vita Mark II Vitablocs.

Examples X29-X32 were fabricated in the same way as Samples A-D except that the paste was heated to 45° C. for filling.

TABLE 6

Sample #	Exposure time (sec)	Observation
X1	1/30	many pores, ~0.5-2 mm
X2	1/30	no cracks or other discontinuities visible
X3	1/30	no cracks or other discontinuities visible
X4	1/30	no cracks or other discontinuities visible
X5	1/30	several pores 1-4 mm
X6	1/30	no cracks or other discontinuities visible
X7	1/30	no cracks or other discontinuities visible
X8	1/30	no cracks or other discontinuities visible
X9	1/30	no cracks or other discontinuities visible
X10	1/30	no cracks or other discontinuities visible
X11	1/30	large pit at end open to surface
X12	1/30	large pit at end open to surface
X13	1/30	flat pores, about 0.1 mm thick x 3 mm long
X14	1/30	flat pores, about 0.1 mm thick x 3 mm long
X15	1/30	flat pores, about 0.1 mm thick x 3 mm long
X16	1/30	flat pores, about 0.1 mm thick x 3 mm long
X17	1/30	no cracks or other discontinuities visible
X18	1/30	no cracks or other discontinuities visible
X19	1/30	no cracks or other discontinuities visible
X20	1/30	no cracks or other discontinuities visible
X21	1/30	flat pores, about 0.1 mm thick x 3 mm long
X22	1/30	flat pores, about 0.1 mm thick x 3 mm long
X23	1/30	one pore ~3 mm; one crack ~5 mm long
X24	1/30	no cracks or other discontinuities visible

TABLE 6-continued

Sample #	Exposure time (sec)	Observation
5		
X25	1/30	no cracks or other discontinuities visible
X26	1/30	no cracks or other discontinuities visible
X27	1/30	no cracks or other discontinuities visible
X28	1/30	no cracks or other discontinuities visible
X29	1/30	no cracks or other discontinuities visible
10		
X30	1/30	narrow longitudinal crack 0.1 mm wide top to bottom
X31	1/30	small crack ~0.1 mm wide
X32	1/30	small crack <0.1 mm wide

What is claimed:

1. A method of making a dental prosthetic suitable for the oral environment, the method comprising:

providing a dental mill blank comprising a cured resin and a filler;

heating the dental mill blank to a temperature at or above the Tg of the resin for a time sufficient to relieve internal stresses in the blank; and

carving the heated blank into a desired shape and morphology for a dental prosthetic,

wherein the dental prosthetic, when immersed in liquid nitrogen for about two minutes, does not explode and no cracks are observed upon visual inspection.

2. The method of claim 1 wherein the dental prosthetic is selected from the group consisting of restoratives, replacements, inlays, onlays, veneers, full crowns, partial crowns, bridges, implants, and posts.

3. The method of claim 1 further comprising milling the blank on a milling machine.

4. The method of claim 1 wherein the filler is at least about 50% by weight of the total weight of the mill blank.

5. The method of claim 1 further comprising attaching the carved blank to a tooth or bone structure.

6. The method of claim 1 further comprising attaching a handle to the cured mill blank.

7. The method of claim 1 wherein the cured resin is derived from a resin selected from the group consisting of a free radically curable monomer, a free radically curable oligomer, a free radically curable polymer, a cationically curable monomer, a cationically curable oligomer, a cationically curable polymer, and combinations thereof.

8. The method of claim 7 wherein the cured resin is an acrylate or methacrylate resin.

9. The method of claim 7 wherein the cured resin is an epoxy resin.

10. The method of claim 1 wherein the filler is derived from a sol-gel process.

11. The method of claim 1 wherein the filler is selected from the group consisting of quartz; colloidal silica; pyrogenic silica; glasses containing one or more of Ce, Sb, Sn, Zr, Sr, Ba, La, Y, Al, or Zn; fluoroaluminosilicate glass; bioactive glasses and ceramics; fluoride-releasing materials; rare earth fluorides; and combinations thereof.

12. The method of claim 1 wherein the dental mill blank is suitable for use in a CAD/CAM milling device.

13. A method of making a dental prosthetic suitable for the oral environment, the method comprising:

mixing components comprising a resin and a filler;

shaping the mixture into a desired configuration;

minimizing material discontinuities;

curing the mixture into a blank;