

(ii) from about 0.1 to about 10 weight percent of a polythiol material selected from the group consisting of pentaerythritol tetra-(3-mercaptopropionate); pentaerythritol tetra(thioglycolate); trimethylolethane tris-(3-mercaptopropionate); trimethylolpropane tris-(3-mercaptopropionate); dipentaerythritol hexa-(3-mercaptopropionate); dipentaerythritol hexa(thioglycolate); polyethylene glycol and polypropylene glycol di-(3-mercaptopropionate); oligomeric multifunctional mercaptans containing terminal and grafted thiol groups, polymeric multi-functional mercaptans containing terminal and grafted thiol groups; polyesters of 3-mercaptopropionic acid; and glycol dimercaptopropionates that will accelerate the decomposition of said organic hydroperoxide into polymerization initiating free radical at ambient temperatures,

(iii) up to about 0.05 weight percent of an inhibitor, and

(iv) up to about 90 weight percent of a particulate inorganic filler.

6. The product of claim 5, wherein said organic hydroperoxide is a member selected from the group consisting of cumene hydroperoxide; tertiary butyl hydroperoxide; tertiary amyl hydroperoxide; p-methane hydroperoxide; 2,5-dihydroperoxy-2,5-dimethylhexane; and mixtures thereof.

7. The dental composite formulation of claim 6, wherein the particulate inorganic filler is a member selected from the group consisting of silica and glass.

8. The product of claim 7, wherein the inhibitor is 2,6-di-tert-butyl-p-cresol.

9. A method of forming a dental composite, comprising mixing together at ambient temperatures two paste-like components, the first of said paste-like components comprising a polymerizable acrylate-containing monomer and an organic hydroperoxide initiator having a ten-hour half-life temperature of at least about 100° C., and the second comprising a polymerizable acrylate-containing monomer and an accelerating amount of a polythiol material selected from the group consisting of pentaerythritol tetra(thioglycolate); trimethylolethane tris-(3-mercaptopropionate); trimethylolpropane tris-(3-mercaptopropionate); dipentaerythritol hexa-(3-mercaptopropionate); dipentaerythritol hexa(thioglycolate); polyethylene glycol and polypropylene glycol di-(3-mercaptopropionate); oligomeric multi-functional mercaptans containing terminal and grafted thiol groups, polymeric multifunctional mercaptans containing terminal and grafted thiol groups; polyesters of 3-mercaptopropionic acid; and glycol dimercaptopropionates, which is capable of accelerating the decomposition of said organic hydroperoxide into polymerization initiating free radicals at ambient temperatures.

10. The method of claim 7, wherein said first paste-like component further comprises an inhibitor and a particulate inorganic filler, and wherein said organic hydroperoxide is a member selected from the group consisting of cumene hydroperoxide, tertiary butylhydroperoxide, tertiary amyl hydroperoxide; p-methane hydroperoxide and 2,5-dihydroperoxy-2,5-dimethylhexane and mixtures thereof.

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