For the pasty compositions obtained by kneading a fixed amount of a monomer and a fixed amount of a surface-treated inorganic filler, it can be said that the lower the viscosity of the paste is, the larger the maximum incorporation amount of the filler will be.

In the Examples, the value measured in the following manner was defined as "consistency" and used as an index of the amount of the filler incorporated or to be incorporated in the monomer composition. 0.5 ml of the paste was weighed and allowed to stand in a constant temperature room at 25° C. for 24 hours. Then the paste was heaped in the middle of a glass plate (5×5 cm). Another glass plate (5×5 cm) was then gently placed thereon under a load of 40 g or 1 kg. After 120 seconds, the major axis and minor axie of the ovally spread paste body were measured through the upper glass plate. The arithmetic mean of both the values was taken as the consistency. The measurement was conducted at 25° C., and the consistency values shown in Tables are each the mean of the three independent measurements.

(iii) Flexural strength

A paste specimen was filled into a 2×2×30 mm mold and cured under prescribed conditions, and the cured article was then taken out of the mold. The thus obtained specimen was stored in water at 37° C. for 24 hours and then subjected to a three-point flexural test (span between terminal bearing edges=20 mm; cross head speed=1 mm/min) on an Instron Universal tester. The data shown in Tables are each the mean of 10 measurements (10 test specimens).

(iv) Compressive strength

A paste specimen was filled into a cylindrical mold, 4 mm in diameter and 4 mm in height, and cured by polymerization in a prescribed manner. The molded article was taken out of the mold, immersed in water at 37° C. for 24 hours and then tested on an Instron universal tester at a cross head speed of 2 mm/min. The values are each the mean of 10 specimens.

(v) Brinell hardness

A paste specimen was filled into a mold having a diameter of 10 mm and a thickness of 5 mm, a cover glass was brought into contact with the upper surface of the specimen under pressure, and curing by polymerization was conducted under prescribed conditions.

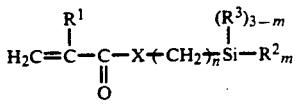
The cured specimen was taken out of the mold, and the face that had been kept in contact with the glass was polished with an abrasive paper with 220 grit to a depth of 0.5 mm and subjected to testing.

Obviously, numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

What is claimed is:

1. A dental restorative material comprising:

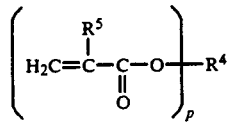
(a) an ultrafine inorganic filler with a size of 0.1 μm or less which is insoluble in water and surface-treated with a silane coupling agent represented by the following general formula (I) in an amount of at least 3% by weight based on the weight of the filler:



(I)

wherein R^1 is a hydrogen atom or a methyl group, R^2 is a hydrolyzable group, R^3 is a hydrocarbon group having 1 to 6 carbon atoms, X is an oxygen or sulfur atom, m is 2 or 3 and n is an integer of 8 to 20; and

(b) a (meth)acrylate monomer composition containing at least 50% by weight based on the weight of the composition of at least one hydrophobic multifunctional (meth)acrylate represented by the following general formula (II)



(II)

wherein R^4 is an organic group having 7 to 40 carbon atoms, composed of 1 to 8 hydrocarbon groups having 2 to 40 carbon atoms, at least one of said hydrocarbon groups having at least 4 carbon atoms, the ratio of the number of total carbon atoms, x, contained in the hydrocarbon groups to the number of the hydrocarbon groups, y, contained in said organic group satisfying: $x/y>3$; R^5 is a hydrogen atom or a methyl group and p is an integer of 2 to 8;

wherein said surface-treated inorganic filler is incorporated in an amount of at least 100 parts by weight based on 100 parts by weight of said monomer composition.

2. A dental restorative material according to claim 1, said material further comprising an inorganic filler having a particle size of 0.1 μm to 100 μm.

3. A dental restorative material according to claim 1, said material further comprising a prepolymerized microfiller having a particle size of 0.1 μm to 100 μm.

4. A dental restorative material according to claim 1, said material further comprising a polymerization initiator.

5. A dental restorative material according to claim 1, wherein said silane coupling agent is represented by the general formula (I) wherein R^1 is a methyl group, R^2 is an alkoxy group, X is an oxygen atom and m is an integer of 3.

6. A dental restorative material according to claim 1, wherein said inorganic filler is silica.

7. A dental restorative material according to claim 1, wherein said inorganic filler is alumina.

8. A dental restorative material according to claim 1, wherein said hydrophobic multifunctional (meth)acrylate is represented by the general formula (II) wherein R^4 is an organic group represented by the following general formula: