Claims:

1. A chemical mechanical polishing (CMP) composition, comprising

(A) at least one type of inorganic particles which are dispersed in the liquid medium (C),

(B) at least one type of polymer particles which are dispersed in the liquid medium (C),

(C) a liquid medium,

wherein the zeta-potential of the inorganic particles (A) in the liquid medium (C) and the zeta-potential of the polymer particles (B) in the liquid medium (C) are positive,
and the polymer particles (B) have at least one type of functional group which is a dialkylamino group or an imidazole group.

2. The CMP composition according to claim 1, wherein the concentration of the polymer particles (B) is not more than 0.4 % by weight of the CMP composition.

3. The CMP composition according to claim 1, wherein the concentration of the polymer particles (B) is not more than 0.2 % by weight of the CMP composition.

4. The CMP composition according to claim 1, wherein the concentration of inorganic particles (A) is not more than 1 % by weight of the CMP composition.

5. The CMP composition according to claim 1, wherein the concentration of inorganic particles (A) is not more than 0.6 % by weight of the CMP composition.

6. The CMP composition according to claim 1, wherein the ratio of the mean particle size of the inorganic particles (A) to the mean particle size of the polymer particles (B) is in the range of from 0.1 to 5.0.

7. The CMP composition according to claim 1, wherein the weight ratio of polymer particles (B) to inorganic particles (A) is in the range from 0.001 to 0.2.

8. The CMP composition according to anyone of the claims 1 to 7, wherein the inorganic particles (A) are alumina, ceria, silica, titania, or zirconia, or a mixture thereof.

9. The CMP composition according to anyone of the claims 1 to 7, wherein the inorganic particles (A) are ceria.

10. The CMP composition according to anyone of the claims 1 to 7, wherein the pH value is in the range of from 4 to 6.

11. The CMP composition according to anyone of the claims 1 to 7 comprising

(A) ceria particles,
(B) polymer particles comprising at least one dialkylamino group or imidazole group,
(C) water,

wherein the ratio of the mean particle size of (A) to the mean particle size of (B) is in the range of from 0.1 to 5.0, the weight ratio of (B) to (A) is in the range of from 0.001 to 0.2, and the pH value is in the range of from 2.5 to 7.5.

12. A process for preparing a CMP composition, comprising

dispersing at least one type of inorganic particles (A) and at least one type of polymer particles (B) in a liquid medium (C), wherein
the zeta-potential of the inorganic particles (A) in the liquid medium (C) and the zeta-potential of the polymer particles in the liquid medium (C) are positive,
and the polymer particles (B) have at least one type of functional group which is a dialkylamino group or an imidazole group.

13. A process for the manufacture of semiconductor devices comprising the chemical mechanical polishing of a surface of a dielectric substrate in the presence of a CMP composition according to anyone of the claims 1 to 11.

14. Use of the CMP composition according to anyone of the claims 1 to 11 and of the process of anyone of the claims 12 to 13 for chemical mechanical polishing of surfaces of substrates which are used in the semiconductor industry.

15. Use of the CMP composition according to anyone of the claims 1 to 11 and of the process of anyone of the claims 12 to 13 for chemical mechanical polishing of surfaces of a substrate which is a shallow trench isolation (STI) device.

Claims:

1. A process for preparing a CMP composition, comprising

dispersing at least one type of inorganic particles (A) and at least one type of polymer particles (B) in a liquid medium (C), wherein

the zeta-potential of the inorganic particles (A) in the liquid medium (C) and the zeta-potential of the polymer particles in the liquid medium (C) are positive,

and the polymer particles (B) have at least one type of functional group which is a dialkylamino group or an imidazole group.