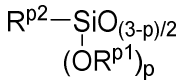
Claims

1. A dispersion for treating a surface of a substrate comprising
   A) at least one butyl silane selected from the group consisting of *iso*-butyltrialkoxysilane and *n*-butyltrialkoxysilane;
   B) at least one silane-based compound comprising at least two building blocks represented by formula (P)

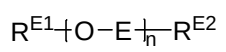


(P)

   wherein
   R^{p1} is selected from the group consisting of hydrogen, alkyl group and aryl group,
   R^{p2} is selected from the group consisting of an C3-C18-alkyl group and alkenyl group,
   p is selected from 0, 1 and 2; and
   C) water.

2. The dispersion according to claim 1 characterized in that it comprises:
   D) at least one non-ionic emulsifier.

3. The dispersion according to claim 2 characterized in that the at least one non-ionic emulsifier is represented by formula (E):



(E)

   wherein
   R^{E1} is a C8-C22-alkyl group;
   R^{E2} is selected from the group consisting of hydrogen, alkyl group, hydroxyl group and oxyalkyl group;
   each E independently is an alkanediyl group; and
   n is an integer ranging from 1 to 100.

4. The dispersion according to any one of the preceding claims characterized in that the at least one silane-based compound comprises 2 to 40, preferably 2 to 20, more preferably 2 to 8, building blocks according to formula (P).

5. The dispersion according to any one of the preceding claims characterized in that the butyl silane is an *iso*-butyltrialkoxysilane, preferably *iso*-butyltriethoxysilane.

6. The dispersion according to any one of the preceding claims characterized in that the amount of the at least one silane-based compound ranges from to 1 to 60 weight-%, preferably from 5 to 50 weight-%, more preferably from 10 to 40 weight-%, based on the total weight of the dispersion.

7. The dispersion according to any one of the preceding claims characterized in that the amount of the at least one butyl silane ranges from 1 to 60 weight-%, preferably from 5 to 50 weight-%, more preferably from 10 to 40 weight-%, based on the total weight of the dispersion.

8. The dispersion according to any one of the preceding claims characterized in that weight ratio of the at least one butyl silane and the at least one silane-based compound ranges from 0.1 to 10, preferably from 0.2 to 5, more preferably from 0.25 to 4.

9. The dispersion according to any one of the preceding claims characterized in that the amount of the at least one non-ionic emulsifier ranges from 0.1 to 10 weight-%, preferably from 0.5 to 5 weight-%, more preferably from 1.0 to 2.0 weight-%, based on the total dispersion.

10. The dispersion according to any one of the preceding claims characterized in that the amount of water ranges from 1 to 60 weight-%, preferably from 10 to 55 weight-%, more preferably from 30 to 50 weight-%, based on the total weight of the dispersion.

11. The dispersion according to any one of the preceding claims characterized in that the dispersion comprises at least one anionic emulsifier, preferably represented by formula (A)

$$R^A—A \qquad (E)$$

wherein

R^A is a C8-C22-alkyl group; and

A is selected from the group consisting of carboxylic acid group, sulfonic acid group and phosphonic acid group or a salt thereof.

12. A method of preparing the dispersion according to any one of claims 1 to 11, comprising the method steps

A1) providing an aqueous phase comprising water;

A2) providing the at least one butyl silane and the at least one silane-based compound;

A3) mixing the aqueous phase and the at least one butyl silane and the at least one silane-based compound; and

A4) applying a first pressure stage and a second pressure stage on the mixture of the aqueous phase and the at least one butyl silane and the at least one silane-based compound in a high pressure homogenizer.

13. A method for treating a surface of a substrate comprising the method steps

B1) providing the substrate having the surface;

B2) treating the surface of the substrate with the dispersion according to claims 1 to 11;

such that a treated surface is obtained.

14. An article comprising

i) a substrate having at least one surface, preferably a mineral substrate, more preferably the mineral substrate is selected from the group consisting of concrete, limestone, sandstone, terracotta, marble, loam, cement, granite, sand, shale, artificial stone, plaster, clay and mixtures of the aforementioned; and

ii) at least one layer obtained by treating the substrate with the dispersion according to claims 1 to 11.