What is claimed is:

1. An aqueous coating composition comprising:
particles comprising
an inorganic core,
a surface on the outside of the core,
an agent comprising a hydrophobic moiety adhering to the surface, and
an agent comprising a hydrophilic moiety adhering to the surface, and
a film forming polymer composition comprising a polymer and water;
wherein the particles are mixed with the polymer composition.

2. The aqueous coating composition of claim 1, the agent comprising a hydrophobic moiety comprising a silane compound.

3. The aqueous coating composition of claim 1, the agent comprising a hydrophobic moiety comprising a trialkoxy silane compound.

4. The aqueous coating composition of claim 1, the agent comprising a hydrophobic moiety comprising a compound of the formula X^1-L^1-R^1, wherein X^1 is an alkoxysilane or chlorosilane group, L^1 is a linking group, and R^1 is a hydrophobic moiety.

5. The aqueous coating composition of claim 1, the hydrophobic moiety comprising a chain length of C_2 to C_{40}.

6. The aqueous coating composition of claim 1, the agent comprising a hydrophilic moiety comprising a silane compound.

7. The aqueous coating composition of claim 1, the agent comprising a hydrophilic moiety comprising a trialkoxy silane compound.

8. The aqueous coating composition of claim 1, the agent comprising a hydrophilic moiety comprising a compound of the formula X^2-L^2-R^2, wherein X^2 is an alkoxysilane or chlorosilane group, L^2 is a linking group, and R^2 is a hydrophilic moiety.

9. The aqueous coating composition of claim 1, the hydrophilic moiety selected from the group consisting of nonionic and ionic hydrophilic moieties.

10. The aqueous coating composition of claim 1, the particles having an average diameter of between about 5 nm and about 200 nm.

11. The aqueous coating composition of claim 1, the ratio of the agent comprising a hydrophilic moiety to the agent having a hydrophobic moiety comprising from about 80:1 to about 2:1 (mole:mole).

12. The aqueous coating composition of claim 1, the agent comprising a hydrophilic moiety covering from 5 to 99.9 percent of the particle surface.

13. The aqueous coating composition of claim 1, the agent comprising a hydrophobic moiety covering from 0.1 to 10 percent of the particle surface.

14. The aqueous coating composition of claim 1, wherein the weight ratio of the polymer composition to the particles is from 0.7:1 to 8:1.

15. The aqueous coating composition of claim 1, wherein the total solids in the aqueous coating composition is from about 10 wt. % to about 50 wt. %.

16. The aqueous coating composition of claim 1, wherein the polymer composition comprises the polymer dispersed within the water.

17. The aqueous coating composition of claim 1, wherein the polymer composition comprises the polymer in solution with the water.

18. The aqueous coating composition of claim 1, wherein the polymer composition comprises at least about 10% by weight of the polymer.

19. The aqueous coating composition of claim 1, the polymer selected from the group consisting of polyurethane, polyacrylate, polyurethane-polyacrylate, epoxide, polyacrylate-epoxide and combinations thereof.

20. The aqueous coating composition of claim 1, further comprising a wetting agent.

21. The aqueous coating composition of claim 1, wherein the agent comprising a hydrophobic moiety is covalently bonded to the surface and the agent comprising a hydrophilic moiety is covalently bonded to the surface.

22. The aqueous coating composition of claim 1, exhibiting a coefficient of friction when dried on the surface of a substrate that is greater than about 0.6.

23. The aqueous coating composition of claim 1, exhibiting a water resistance when dried that is greater than an otherwise identical composition including only particles with an agent comprising a hydrophilic moiety adhering to the surface and lacking an agent comprising a hydrophobic moiety adhering to the surface.

24. A method of coating a substrate surface comprising:

applying an aqueous coating composition to a substrate surface, the aqueous coating composition comprising particles, the particles comprising

an inorganic core,

a surface on the outside of the core,

an agent comprising a hydrophobic moiety adhering to the surface, and

an agent comprising a hydrophilic moiety adhering to the surface, and

a film forming polymer composition comprising a polymer and water;

wherein the particles are mixed with the polymer composition; and

drying the aqueous coating composition.

25. The method of claim 24, the substrate surface comprising a material selected from the group consisting of cementitious materials and natural stone.

26. The method of claim 24, the resulting coating on the substrate surface comprising a gloss (60° – ASTM D523) of at least about 70.

27. The method of claim 24, the resulting coating on the substrate surface comprising a Distinctness of Image (60°- ASTM D5767) of at least about 86.

28. A particle comprising:

an inorganic core

a surface on the outside of the core;

a plurality of agents comprising a hydrophobic moiety adhering to the surface; and

a plurality of agents comprising a hydrophilic moiety adhering to the surface;

wherein the particle has a diameter of between about 5 nm and about 200 nm;

wherein at least about 20% of the particle surface is covered by the agents comprising a hydrophilic moiety and the agents comprising a hydrophobic moiety; wherein the ratio of agents comprising a hydrophilic moiety to agents having a hydrophobic moiety is from about 80:1 to about 2:1 (mole:mole).

CLAIMS

1. An aqueous coating composition comprising:

particles comprising

an inorganic core,

a surface on the outside of the core,

an agent comprising a hydrophobic moiety adhering to the surface, and

an agent comprising a hydrophilic moiety adhering to the surface, and

a film forming polymer composition comprising a polymer and water;

wherein the particles are mixed with the polymer composition.

2. The aqueous coating composition of claim 1, the agent comprising a hydrophobic moiety comprising a trialkoxy silane compound.

3. The aqueous coating composition of claim 1, the agent comprising a hydrophobic moiety comprising a compound of the formula X^1-L^1-R^1, wherein X^1 is an alkoxysilane or chlorosilane group, L^1 is a linking group, and R^1 is a hydrophobic moiety.

4. The aqueous coating composition of claim 1, the hydrophobic moiety comprising a chain length of C_2 to C_{40}.

5. The aqueous coating composition of claim 1, the agent comprising a hydrophilic moiety comprising a trialkoxy silane compound.

6. The aqueous coating composition of claim 1, the agent comprising a hydrophilic moiety comprising a compound of the formula X^2-L^2-R^2, wherein X^2 is an alkoxysilane or chlorosilane group, L^2 is a linking group, and R^2 is a hydrophilic moiety.

7. The aqueous coating composition of claim 1, the hydrophilic moiety selected from the group consisting of nonionic and ionic hydrophilic moieties.

8. The aqueous coating composition of claim 1, the particles having an average diameter of between about 5 nm and about 200 nm.

9. The aqueous coating composition of claim 1, the ratio of the agent comprising a hydrophilic moiety to the agent having a hydrophobic moiety comprising from about 80:1 to about 2:1 (mole:mole).

10. The aqueous coating composition of claim 1, wherein the polymer composition comprises the polymer dispersed within the water.

11. The aqueous coating composition of claim 1, the polymer selected from the group consisting of polyurethane, polyacrylate, polyurethane-polyacrylate, epoxide, polyacrylate-epoxide and combinations thereof.

12. The aqueous coating composition of claim 1, further comprising a wetting agent.

13. The aqueous coating composition of claim 1, wherein the agent comprising a hydrophobic moiety is covalently bonded to the surface and the agent comprising a hydrophilic moiety is covalently bonded to the surface.

14. The aqueous coating composition of claim 1, exhibiting a coefficient of friction when dried on the surface of a substrate that is greater than about 0.6.

15. The aqueous coating composition of claim 1, exhibiting a water resistance when dried that is greater than an otherwise identical composition including only particles with an agent comprising a hydrophilic moiety adhering to the surface and lacking an agent comprising a hydrophobic moiety adhering to the surface.

16. A method of coating a substrate surface comprising:

applying an aqueous coating composition to a substrate surface, the aqueous coating composition comprising particles, the particles comprising

an inorganic core,

a surface on the outside of the core,

an agent comprising a hydrophobic moiety adhering to the surface, and

an agent comprising a hydrophilic moiety adhering to the surface, and

a film forming polymer composition comprising a polymer and water;

wherein the particles are mixed with the polymer composition; and

drying the aqueous coating composition.

17. The method of claim 16, the substrate surface comprising a material selected from the group consisting of cementitious materials and natural stone.

18. The method of claim 16, the resulting coating on the substrate surface comprising a gloss (60^{o} – ASTM D523) of at least about 70.

19. The method of claim 16, the resulting coating on the substrate surface comprising a Distinctness of Image (60^{o}- ASTM D5767) of at least about 86.

20. A particle comprising:

an inorganic core

a surface on the outside of the core;

a plurality of agents comprising a hydrophobic moiety adhering to the surface; and

a plurality of agents comprising a hydrophilic moiety adhering to the surface;

wherein the particle has a diameter of between about 5 nm and about 200 nm;

wherein at least about 20% of the particle surface is covered by the agents comprising a hydrophilic moiety and the agents comprising a hydrophobic moiety; wherein the ratio of agents comprising a hydrophilic moiety to agents having a hydrophobic moiety is from about 80:1 to about 2:1 (mole:mole).