We claim:

1. A coating composition comprising: (a) photocatalytic titanium dioxide particles; (b) an opacifying agent; (c) a silicone compound; (d) de-HNO_3 particles; (e) styrene resin hollow microspheres; and (f) a solvent.

2. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles are anatase, rutile or mixtures thereof.

3. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles are predominantly anatase.

4. The coating composition of claim 3 wherein photocatalytic titanium dioxide particles have a mean particle size of between 2 and 100 nm.

5. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles are present in an amount ranging from 0.5 to 20%, by weight of the total composition.

6. The coating composition of claim 1 wherein the opacifying agent is pigmentary titanium dioxide.

7. The coating composition of claim 1 wherein the silicone compound is a polysiloxane.

8. The coating composition of claim 1 wherein the de-HNO_3 particles are selected from the group consisting of calcium carbonate, zinc carbonate, magnesium carbonate, and mixtures thereof.

9. The coating composition of claim 1 wherein the de-HNO_3 particles are calcium carbonate.

10. The coating composition of claim 1 wherein the styrene resin hollow microspheres are selected from the group consisting of polystyrene, poly-α-methylstyrene, and styrene-acrylic copolymer resins.

11. The coating composition of claim 1 wherein the styrene resin hollow microspheres are styrene-acrylic copolymer resins.

12. The coating composition of claim 1 wherein the solvent comprises water.

13. The coating composition of claim 1 further comprising an organic polymer.

14. The coating composition of claim 13 wherein the organic polymer is selected from the group consisting of acrylic polymers, polyvinyl acetates, and styrene-butadienes.

The embodiments of the present invention for which an exclusive property or privilege is claimed are defined as follows:

1. A coating composition comprising:

(a) from 0.5% to 20% by weight, based on the total weight of the composition, of photocatalytic titanium dioxide particles having a mean particle size between 2 nm and 100 nm;

(b) from 0.05% to 40% by weight of calcium carbonate particles, wherein the ratio of calcium carbonate particles to photocatalytic titanium dioxide particles is from 0.01 to 50;

(c) a polysiloxane;

(d) a solvent selected from water, an organic solvent or a mixed solvent consisting of water and an organic solvent; and

(e) from 0.1% to 20% dry weight, based on the total weight of the composition, of hollow styrene resin microspheres having an outside diameter of from 0.1 μm to 10 μm, wherein

(i) opacity of a first dry film coating formed from the coating composition is greater than the opacity of a second dry film coating formed from a second coating composition which is the same as the coating composition except is absent hollow styrene resin microspheres, and

(ii) the percent weight loss of the first dry film coating over a defined time period is less than a percent weight loss of the second dry film coating formed from the second coating composition.

2. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles are anatase, rutile or mixtures thereof.

3. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles are at least 50% anatase.

4. The coating composition of claim 1 further comprising pigmentary titanium dioxide as an opacifying agent.

5. The coating composition of claim 1 wherein the styrene resin hollow microspheres are selected from the group consisting of polystyrene, poly-α-methylstyrene, and styrene-acrylic copolymer resins.

6. The coating composition of claim 1 wherein the styrene resin hollow microspheres are styrene-acrylic copolymer resins.

7. The coating composition of claim 1 wherein the solvent is water.

8. The coating composition of claim 1 further comprising an organic polymer.

9. The coating composition of claim 8 wherein the organic polymer is selected from the group consisting of acrylic polymers, polyvinyl acetates, and styrene-butadienes.

10. The coating composition of claim 1 wherein the mean particle size of the photocatalytic titanium dioxide particles is between 5 nm and 50 nm.

11. The coating composition of claim 10 wherein the mean particle size of the photocatalytic titanium dioxide particles is between 4 nm and 40 nm.

12. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles have a surface area greater than 30 m^2/g.

13. The coating composition of claim 12 wherein the surface area is above 50 m^2/g.

14. The coating composition of claim 13 wherein the surface area is above 100 m^2/g.

15. The coating composition of claim 1 wherein the photocatalytic titanium dioxide particles are from 1% to 15% based on the total weight of the composition.

16. The coating composition of claim 15 wherein the photocatalytic titanium dioxide particles are from 1% to 12% based on the total weight of the composition.

17. The coating composition of claim 1 wherein the polysiloxane is present in an amount of 0.05% to 20% dry weight based on the total weight of the composition.

18. The coating composition of claim 17 wherein the polysiloxane is present in an amount of 0.1% to 16% dry weight based on the total weight of the composition.

19. The coating composition of claim 1, wherein the ratio of calcium carbonate particles to photocatalytic titanium dioxide particles is from 0.1 to 20.

20. The coating composition of claim 19, wherein the ratio of calcium carbonate particles to photocatalytic titanium dioxide particles is from 0.2 to 5.

21. The coating composition of claim 1 wherein the weight of calcium carbonate particles is from 0.1% to 15%.

22. The coating composition of claim 1 wherein the micropheres comprise an outer diameter of from 0.1 μm to 1 μm.

23. The coating composition of claim 22 wherein the microspheres comprise an outer diameter of from 0.2 μm to 1 μm.

24. The coating composition of claim 1 wherein the hollow styrene resin microspheres are from 2% to 15% dry weight based on the total weight of the composition.