CLAIMS

1. A coating method using particle alignment, comprising:

preparing a cohesive polymer substrate; ~~and~~

coating the cohesive polymer substrate with a plurality of particles by pressing the particles to the cohesive polymer substrate to form a coating layer on the cohesive polymer substrate; and

the coating is performed while forming recesses respectively corresponding to the particles on the cohesive polymer substrate.

2. The coating method of claim 1, wherein the coating is performed in such a manner that the particles are pressed by rubbing the particles.

3. The coating method of claim 1, wherein the cohesive polymer substrate includes any one selected from among a silicon-based polymer material, a wrap, and a surface protecting film.

4. The coating method of claim 3, wherein the cohesive polymer substrate includes polydimethylsiloxane (PDMS), or the wrap including at least one selected from among polyethylene (PE) and polyvinylchloride (PVC).

5. The coating method of claim 1, wherein the coating

is performed by bringing the particles into direct contact with the cohesive polymer substrate.

6. The coating method of claim 1, wherein the coating is performed so that the particles are applied in a monolayer form.

7. The coating method of claim 1, wherein, when the particles have a non-spherical shape, a ratio of an average thickness of the coating layer relative to an average particle size of particles corresponding to the top 10% by size among the particles is 1.9 or less.

8. The coating method of claim 1, wherein a ratio of a depth of the recesses relative to an average particle size of the particles is 0.02 ~ 0.7.

9. The coating method of claim 1, wherein the particles have an average particle size ranging from 10 nm to 50 μm.

10. The coating method of claim 1, wherein the particles have a spherical shape or an oval spherical shape.

11. The coating method of claim 1, wherein the particles include a charged material.

12. The coating method of claim 1, wherein the

particles include a non-charged material.

13. The coating method of claim 1, wherein the particles include a mixture of particles having different properties.

14. The coating method of claim 1, wherein the recesses are reversible.

15. The coating method of claim 1, wherein the coating layer is transferred to another substrate having cohesion and adhesion greater than the cohesive polymer substrate.

16. A particle coated substrate, comprising:

a cohesive polymer substrate;

reversible recesses formed on the substrate; and

particles respectively positioned in the recesses and aligned on the substrate to form a coating layer.

17. The particle coated substrate of claim 16, wherein the cohesive polymer substrate includes any one selected from among a silicon-based polymer material, a wrap, and a surface protecting film.

18. The particle coated substrate of claim 17, wherein the cohesive polymer substrate includes polydimethylsiloxane (PDMS), or the wrap including at least one selected from among polyethylene (PE) and polyvinylchloride (PVC).

19. The particle coated substrate of claim 17, wherein the particles are in direct contact with the cohesive polymer substrate.

20. The particle coated substrate of claim 16, wherein the particles are applied in a monolayer form.

21. The particle coated substrate of claim 16, wherein, when the particles have a non-spherical shape, a ratio of an average thickness of the coating layer relative to an average particle size of particles corresponding to the top 10% by size among the particles is 1.9 or less.

22. The particle coated substrate of claim 16, wherein a ratio of a depth of the recesses relative to an average particle size of the particles is 0.02 ~ 0.7.

23. The particle coated substrate of claim 16, wherein the particles have an average particle size ranging from 10 nm to 50 μm.

24. The particle coated substrate of claim 16, wherein the particles have a spherical shape or an oval spherical shape.

25. The particle coated substrate of claim 16, wherein the particles include a charged material.

26. The particle coated substrate of claim 16, wherein the particles include a non-charged material.

27. The particle coated substrate of claim 16, wherein the particles include a hydrophobic material.

28. The particle coated substrate of claim 16, wherein the particles include a mixture of particles having different properties.