Claims

1. A multi-layered coating having a plurality of cavities therein, said multi-layered coating comprising:
   a. a first layer comprising an oxide-containing polymer; and
   b. a second layer disposed on said first layer, said second layer comprising an oxide.

2. The multi-layered coating according to claim 1, wherein the size of said cavities is in the nanometer scale.

3. The multi-layered coating according to claim 2, wherein said size of said cavities is in the range of 100nm to 380nm.

4. The multi-layered coating according to any one of the preceding claims, wherein said cavities have a shape selected from a dimple shape, a cylindrical shape, a conical shape, or a conical frustum shape.

5. The multi-layered coating according to any one of the preceding claims, wherein the oxide of said oxide-containing polymer and the oxide in said second layer is the same.

6. The multi-layered coating according to claim 5, wherein said oxide is selected from the group consisting of silica (SiO_2), titanium oxide (TiO_2) and zinc oxide (ZnO).

7. The multi-layered coating according to any one of the preceding claims, wherein said polymer is a UV-cured resin.

8. The multi-layered coating according to claim 7, wherein said UV-cured resin comprises a monomer selected from the group consisting of (meth)acrylates, esters, epoxy resins, urethanes, silicones, ethers and vinyl ethers.

9. The multi-layered coating according to any one of the preceding claims, wherein said first layer has a thickness in the range of 1µm to 100µm and said second layer has a thickness in the range of 1nm to 50nm.

10. The multi-layered coating according to any one of the preceding claims, wherein said multi-layered coating is substantially optically clear.

11. A process of forming a multi-layered coating having a plurality of cavities therein, the process comprising the steps of:
    a. applying an oxide-containing UV-curable resin onto a substrate to form a first layer;
    b. contacting said oxide-containing UV-curable resin with a mold to imprint a plurality of cavities therein said first layer;
    c. polymerizing said oxide-containing UV-curable resin while in contact with said mold; and
    d. oxidizing said first layer to form a second layer disposed on said first layer,

said second layer comprising an oxide.

12. The process according to claim 11, wherein said contacting step is undertaken at a room temperature under pressure of 5bars to 20bars.

13. The process according to any one of claim 11 or 12, wherein said polymerizing step is undertaken at a room temperature under pressure of 5bars to 20bars.

14. The process according to any one of claims 11 to 13, wherein said oxidizing step is undertaken at a room temperature of under pressure of less than 1mbar.

15. An article comprising a multi-layered coating thereon, said multi-layered coating having a plurality of cavities therein and comprises:
    a. a first layer comprising an oxide-containing polymer; and
    b. a second layer disposed on said first layer, said second layer comprising an oxide.