Claims as Amended—70168WO004

1. (Previously presented) A barrier film, comprising:
a substrate;
a base polymer layer adjacent to the substrate;
an oxide layer adjacent to the base polymer layer;
a vapor-deposited adhesion-modifying layer adjacent to the oxide layer; and
a top coat polymer layer adjacent to the adhesion-modifying layer.

2. (Original) The barrier film of claim 1, further comprising a plurality of the alternating layers of the base polymer layer and the oxide layer between the substrate and the top coat polymer.

3. (Original) The barrier film of claim 1 or 2, wherein the substrate comprises a flexible transparent film.

4. (Original) The barrier film of any of claims 1-3, wherein the base polymer layer comprises an acrylate.

5. (Original) The barrier film of any of claims 1-4, wherein the oxide layer comprises a layer of an inorganic silicon aluminum oxide.

6. (Original) The barrier film of any of claims 1-5, further comprising an inorganic layer applied to the top coat polymer layer.

7. (Original) The barrier film of claim 6, wherein the inorganic layer comprise a layer of an inorganic silicon aluminum oxide.

8. (Original) The barrier film of any of claims 1-7, wherein the top coat polymer layer includes an acrylate.

9. (Original) The barrier film of any of claims 1-8, wherein the adhesion-modifying layer is an adhesion-promoting layer.

10. (Original) The barrier film of any of claims 1-9, wherein the adhesion-promoting layer includes a silane.

11. (Original) The barrier film of any of claims 1-10, wherein the adhesion-modifying layer is a release layer.

12. (Original) The barrier film of any of the preceding claims, wherein the adhesion-modifying layer is between one of the substrate and the base polymer layer, the base polymer layer and the oxide material, and the oxide material and the top coat polymer layer.

13. (Previously presented) A process for making a barrier film, comprising:
providing a substrate;
applying a base polymer material to the substrate;
applying an oxide material to the base polymer material;
vapor-depositing an adhesion-modifying material on the oxide material; and
forming a top coat polymer layer on the adhesion-modifying material.

14. (Original) The process of claim 13, wherein applying the base polymer material to the substrate comprises evaporating a base polymer material onto the substrate and curing the evaporated base polymer material to form a base polymer layer.

15. (Original) The process of claim 13 or 14, wherein applying the oxide material comprises sputter depositing an oxide material onto the base polymer material.

16. (Original) The process of any of claims 13-15, further comprising:
repeatedly applying a base polymer material to the substrate and applying an oxide material to the base polymer material to create alternating layers of the base polymer material and the oxide material between the substrate and the top coat polymer layer.

17. (Original) The process of any of claims 13-16, wherein the top coat polymer layer includes an acrylate and forming the top coat polymer layer comprises co-evaporating the adhesion-modifying material and the acrylate and curing the co-evaporated adhesion-modifying material and acrylate.

18. (Original) The process of any of claims 13-17, further comprising:
curing at least one of the adhesion-modifying material and the top coat polymer layer.

19. (Original) The process of any of claims 13-18, wherein the base polymer material includes an acrylate.

20. (Original) The process of any of claims 13-19, wherein applying the oxide material comprises applying a layer of an inorganic silicon aluminum oxide to the base polymer layer.

21. (Original) The process of any of claims 13-20, further comprising:
applying an inorganic material to the top coat polymer layer.

22. (Original) The process of claim 21, wherein applying the inorganic layer comprises applying a layer of an inorganic silicon aluminum oxide.

23. (Original) The process of any of claims 13-22, wherein the adhesion-modifying layer is disposed between one of the substrate and the base polymer layer, the base polymer layer and the oxide material, and the oxide material and the top coat polymer layer.

24. (Previously presented) A barrier film, comprising:
a substrate;
a base polymer layer;
an oxide layer;
a vapor-deposited adhesion-modifying layer; and
a top coat polymer layer.

25. (Original) The barrier film of claim 24, wherein the adhesion-modifying layer is disposed between one of the substrate and the base polymer layer, the base polymer layer and the oxide material, and the oxide material and the top coat polymer layer.

26. (Original) The barrier film of claim 24, wherein the adhesion-modifying layer is disposed on the top coat polymer layer.

27. (Original) The barrier film of any of claims 1-12 or 24-26, wherein the substrate is selected from a (co)polymeric film or an electronic device, the electronic device further comprising an organic light emitting device (OLED), an electrophoretic light emitting device, a liquid crystal display, a thin film transistor, a photovoltaic device, or a combination thereof.

28. (Original) The process of any of claims 13-23, wherein the substrate is selected from a (co)polymeric film or an electronic device, the electronic device further comprising an organic light emitting device (OLED), an electrophoretic light emitting device, a liquid crystal display, a thin film transistor, a photovoltaic device, or a combination thereof.

CLAIMS

1. A barrier film, comprising:
a substrate;
a base polymer layer adjacent to the substrate;
an oxide layer adjacent to the base polymer layer;
a vapor-deposited adhesion-modifying layer adjacent to the oxide layer; and
a top coat polymer layer adjacent to the adhesion-modifying layer.

2. The barrier film of claim 1, further comprising a plurality of the alternating layers of the base polymer layer and the oxide layer between the substrate and the top coat polymer.

3. The barrier film of claim 1 or 2, wherein the substrate comprises a flexible transparent film.

4. The barrier film of any of claims 1-3, wherein the base polymer layer comprises an acrylate.

5. The barrier film of any of claims 1-4, wherein the oxide layer comprises a layer of an inorganic silicon aluminum oxide.

6. The barrier film of any of claims 1-5, further comprising an inorganic layer applied to the top coat polymer layer.

7. The barrier film of claim 6, wherein the inorganic layer comprise a layer of an inorganic silicon aluminum oxide.

8. The barrier film of any of claims 1-7, wherein the top coat polymer layer includes an acrylate.

9. The barrier film of any of claims 1-8, wherein the adhesion-modifying layer is an adhesion-promoting layer.

10. The barrier film of any of claims 1-9, wherein the adhesion-promoting layer includes a silane.

11. The barrier film of any of claims 1-10, wherein the adhesion-modifying layer is a release layer.

12. The barrier film of any of the preceding claims, wherein the adhesion-modifying layer is between one of the substrate and the base polymer layer, the base polymer layer and the oxide material, and the oxide material and the top coat polymer layer.

13. A process for making a barrier film, comprising:
providing a substrate;
applying a base polymer material to the substrate;
applying an oxide material to the base polymer material;
vapor-depositing an adhesion-modifying material on the oxide material; and
forming a top coat polymer layer on the adhesion-modifying material.

14. The process of claim 13, wherein applying the base polymer material to the substrate comprises evaporating a base polymer material onto the substrate and curing the evaporated base polymer material to form a base polymer layer.

15. The process of claim 13 or 14, wherein applying the oxide material comprises sputter depositing an oxide material onto the base polymer material.

16. The process of any of claims 13-15, further comprising:
repeatedly applying a base polymer material to the substrate and applying an oxide material to the base polymer material to create alternating layers of the base polymer material and the oxide material between the substrate and the top coat polymer layer.

17. The process of any of claims 13-16, wherein the top coat polymer layer includes an acrylate and forming the top coat polymer layer comprises co-evaporating the adhesion-modifying material and the acrylate and curing the co-evaporated adhesion-modifying material and acrylate.

18. The process of any of claims 13-17, further comprising:
curing at least one of the adhesion-modifying material and the top coat polymer layer.

19. The process of any of claims 13-18, wherein the base polymer material includes an acrylate.

20. The process of any of claims 13-19, wherein applying the oxide material comprises applying a layer of an inorganic silicon aluminum oxide to the base polymer layer.

21. The process of any of claims 13-20, further comprising:
applying an inorganic material to the top coat polymer layer.

22. The process of claim 21, wherein applying the inorganic layer comprises applying a layer of an inorganic silicon aluminum oxide.

23. The process of any of claims 13-22, wherein the adhesion-modifying layer is disposed between one of the substrate and the base polymer layer, the base polymer layer and the oxide material, and the oxide material and the top coat polymer layer.

24. The barrier film of any of claims 1-12, wherein the substrate is selected from a (co)polymeric film or an electronic device, the electronic device further comprising an organic light emitting device (OLED), an electrophoretic light emitting device, a liquid crystal display, a thin film transistor, a photovoltaic device, or a combination thereof.

25. The process of any of claims 13-23, wherein the substrate is selected from a (co)polymeric film or an electronic device, the electronic device further comprising an organic light emitting device (OLED), an electrophoretic light emitting device, a liquid crystal display, a thin film transistor, a photovoltaic device, or a combination thereof.