CLAIMS:

1. A dry film structure, comprising:

a carrier substrate; and

a dielectric film supported by the carrier substrate, the dielectric film comprising at least one dielectric polymer, wherein the at least one dielectric polymer comprises a fully imidized polyimide polymer that was isolated or purified without precipitation,

wherein the total amount of aluminum, chromium, cobalt, copper, iron, magnesium, manganese, nickel, silver, and zinc in the dielectric film is less than 300 ppb of the dielectric film and the amount of each of these metals in the dielectric film is less than 100 ppb of the dielectric film.

2. A dry film structure, comprising:

a carrier substrate; and

a dielectric film supported by the carrier substrate, the dielectric film comprising at least one dielectric polymer, wherein the at least one dielectric polymer comprises a fully imidized polyimide polymer that was isolated or purified without precipitation,

wherein the total amount of aluminum, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, and zinc in the dielectric film is less than 300 ppb of the dielectric film.

3. The dry film structure of claim 1 or 2, wherein the amount of aluminum in the dielectric film is less than 30 ppb of the dielectric film.

4. The dry film structure of claim 1 or 2, wherein the amount of chromium in the dielectric film is less than 60 ppb of the dielectric film.

5. The dry film structure of claim 1 or 2, wherein the amount of cobalt in the dielectric film is less than 30 ppb of the dielectric film.

6. The dry film structure of claim 1 or 2, wherein the amount of copper in the dielectric film is less than 60 ppb of the dielectric film.

7. The dry film structure of claim 1 or 2, wherein the amount of iron in the dielectric film is less than 80 ppb of the dielectric film.

8. The dry film structure of claim 1 or 2, wherein the amount of magnesium in the dielectric film is less than 60 ppb of the dielectric film.

9. The dry film structure of claim 1 or 2, wherein the amount of manganese in the dielectric film is less than 30 ppb of the dielectric film.

10. The dry film structure of claim 1 or 2, wherein the amount of nickel in the dielectric film is less than 60 ppb of the dielectric film.

11. The dry film structure of claim 1 or 2, wherein the amount of silver in the dielectric film is less than 40 ppb of the dielectric film.

12. The dry film structure of claim 1 or 2, wherein the dielectric film is photosensitive.

13. The dry film structure of claim 1 or 2, wherein the dielectric film further comprises a cross-linker.

14. The dry film structure of claim 1 or 2, wherein the dielectric film further comprises a catalyst.

15. The dry film structure of claim 14, wherein the catalyst is a photoinitiator or a thermal initiator.

16. The dry film structure of claim 1 or 2, wherein the dielectric film further comprises an adhesion promoter.

17. The dry film structure of claim 1 or 2, wherein the fully imidized polyimide polymer is purified without using an ion exchange resin.

18. A process for preparing the dry film structure of claim 1 or 2, comprising the steps of:

coating the carrier substrate with a dielectric film forming composition comprising at least one dielectric polymer and at least one solvent to form a coated composition;

drying the coated composition; and

optionally, applying a protective layer to the dielectric film;

wherein the process is performed in a clean room.

19. The process of claim 18, wherein the clean room is a class 10000 clean room.

20. The process of claim 18, wherein the clean room is a class 1000 clean room.

21. The process of claim 18, wherein the clean room is a class 100 clean room.

22. The process of claim 18, wherein the clean room is a class 10 clean room.

23. A process for preparing the dry film structure of claim 1 or 2, comprising the steps of:

a) synthesizing a dielectric polymer in an organic solution containing at least one polar, aprotic polymerization solvent;

b) adding at least one purification solvent to the organic solution to form a diluted organic solution, the at least one purification solvent is less polar than the at least one

polymerization solvent and has a lower water solubility than the at least one polymerization solvent at 25ºC;

c) washing the diluted organic solution with water or an aqueous solution to obtain a washed polymer-containing organic solution;

d) removing a portion of the at least one purification solvent in the washed polymer-containing organic solution to obtain a solution containing a purified dielectric polymer;

e) optionally adding other components of a dielectric film forming composition to the solution;

f) in a clean room, coating a carrier substrate with the solution containing a purified dielectric polymer to form a coated composition;

g) drying the coated composition to form a dielectric film; and

h) optionally, applying a protective layer to the dielectric film.

24. The process of claim 23, wherein the clean room is class 10000 clean room.

25. The process of claim 23, wherein the clean room is class 1000 clean room.

26. The process of claim 23, wherein the clean room is class 100 clean room.

27. The process of claim 23, wherein the clean room is class 10 clean room.

28. The process of claim 23, wherein the removing comprise vacuum distillation.