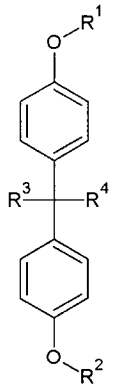
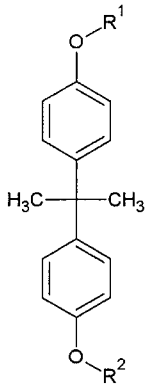
CLAIMS

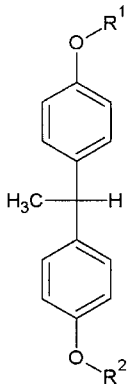
1. A radome comprising a plurality of plies coupled to each other, in which at least one of the plurality of plies comprises a substrate and a cured resin blend produced from a cyanate monomer and a cyanate ester oligomer to provide a dielectric constant of less than 2.7, a glass transition temperature of at least 150 °C and a moisture absorption of less than 1.5% for the radome, wherein the cyanate monomer is a compound of formulae (I) –(IX):



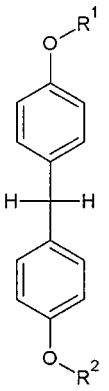
(I)



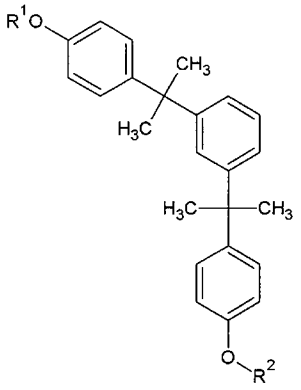
(II)



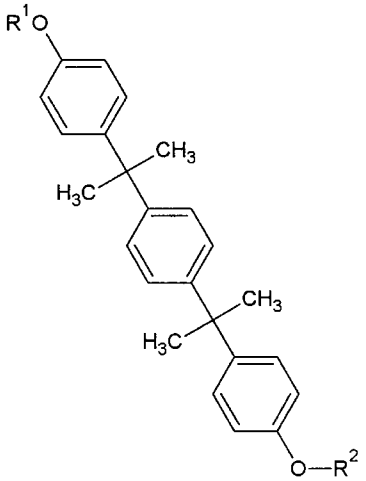
(III)



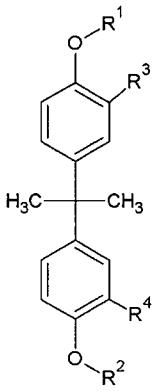
(IV)



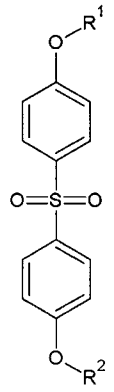
(V)



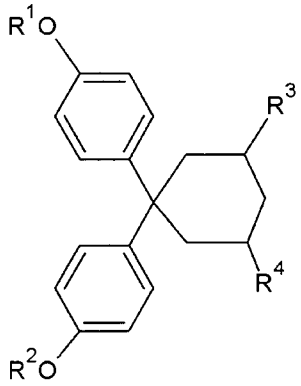
(VI)



(VII)



(VIII)



(IX)

wherein at least one of R^1 and R^2 is –CN and the other of R^1 and R^2 is selected from hydrogen, -CN, -COOH, a hydrocarbon group comprising 1 to 6 carbon atoms, a hydrocarbonyl group comprising 1 to 6 carbon atoms, a halohydrocarbon group comprising 1 to 6 carbon atoms, a halohydrocarbonyl group comprising 1 to 6 carbon atoms and phenyl,

and wherein R^3 and R^4 are independently selected from hydrogen, -CN, -COOH, a hydrocarbon group comprising 1 to 6 carbon atoms, a hydrocarbonyl group comprising 1 to 6 carbon atoms, a halohydrocarbon group comprising 1 to 6 carbon atoms, a halohydrocarbonyl group comprising 1 to 6 carbon atoms and phenyl.

2. The radome of claim 1, in which the oligomer is a cyanate ester oligomer comprising two or more monomeric units each selected from a compound having the formula (I)-(IX).

3. The radome of claim 1, further comprising at least one phenol added to the resin or at least one metal catalyst added to the resin.

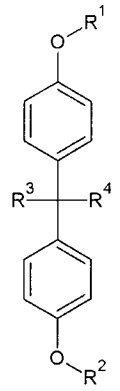
4. The radome of claim 1, in which the cyanate monomer comprises a bisphenol dicyanate group, a dicyclopentadienyl bisphenol dicyanate, a dicyclopentadienyl bisphenol dicyanate, and the cyanate ester oligomer comprises a diphenylcyanate group.

5. The radome of claim 1, wherein the resin blend is produced from an amount of the cyanate monomer within the range of 50 wt.% to 70 wt.%, and an amount of the oligomer within the range of 30 wt% to 50 wt.%.

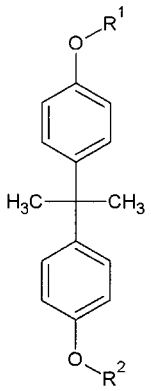
6. The radome of claim 1, wherein the cyanate monomer comprises a compound having the formula (V) or a compound having the formula (VI), and the oligomer comprises at least one monomeric unit selected from a compound having the formula (V)-(VI).

7. The radome of claim 1, wherein at least one monomeric unit of the oligomer is different than the cyanate monomer.

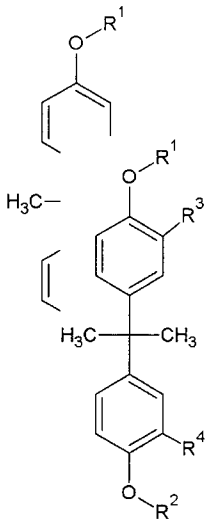
8. A prepreg comprising a plurality of plies coupled to each other, in which at least one of the plurality of plies comprises a substrate and a resin blend comprising a cyanate monomer and a cyanate ester oligomer to provide a cured resin comprising a dielectric constant of less than 2.7, a glass transition temperature of at least 150 ^{o}C and a moisture absorption of less than 1.5%, wherein the cyanate monomer is a compound of formulae (I) –(IX):



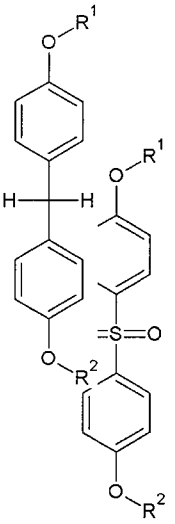
(I)



(II)

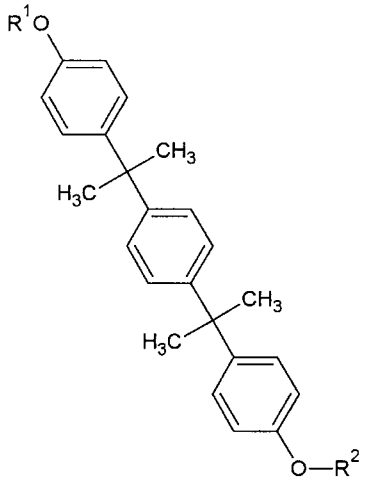


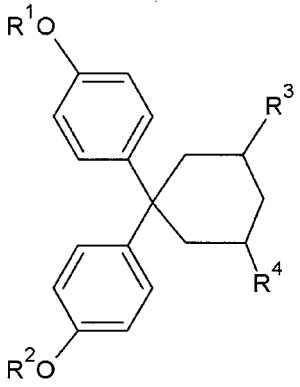
(III)



(IV)

(V)



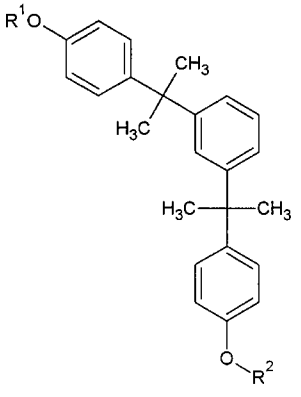


(VI)

(VII)

(VIII)

(IX)



wherein at least one of R^1 and R^2 is –CN and the other of R^1 and R^2 is selected from hydrogen, -CN, -COOH, a hydrocarbon group comprising 1 to 6 carbon atoms, a hydrocarbonyl group comprising 1 to 6 carbon atoms, a halohydrocarbon group comprising 1 to 6 carbon atoms, a halohydrocarbonyl group comprising 1 to 6 carbon atoms

and phenyl, wherein R^3 and R^4 are each independently selected from hydrogen, -CN, -COOH, a hydrocarbon group comprising 1 to 6 carbon atoms, a hydrocarbonyl group comprising 1 to 6 carbon atoms, a halohydrocarbon group comprising 1 to 6 carbon atoms, a halohydrocarbonyl group comprising 1 to 6 carbon atoms and phenyl.

9. The prepreg of claim 8, in which the oligomer is a cyanate ester oligomer comprising two or more monomeric units each selected from a compound having the formula (I)-(IX).

10. The prepreg of claim 8, in which the cyanate monomer comprises a bisphenol dicyanate group and the cyanate ester oligomer comprises a diphenylcyanate group.

11. The prepeg of claim 8, further comprising at least one phenol added to the resin or at least one metal catalyst added to the resin.

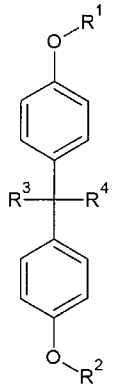
12. The prepeg of claim 8, in which the cyanate monomer comprises a bisphenol dicyanate group, a dicyclopentadienyl bisphenol dicyanate, a dicyclopentadienyl bisphenol dicyanate, and the cyanate ester oligomer comprises a diphenylcyanate group.

13. The prepreg of claim 8, wherein the resin blend is produced from an amount of the cyanate monomer within the range of 50 wt.% to 70 wt.%, and an amount of the oligomer within the range of 30 wt% to 50 wt.%.

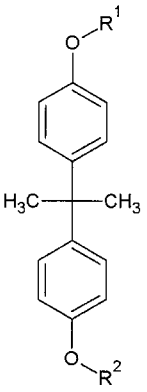
14. The prepreg of claim 8, wherein the cyanate monomer comprises a compound having the formula (V) or a compound having the formula (VI), and the oligomer comprises at least one monomeric unit selected from a compound having the formula (V)-(VI).

15. The prepreg of claim 8, wherein at least one monomeric unit of the oligomer is different than the cyanate monomer

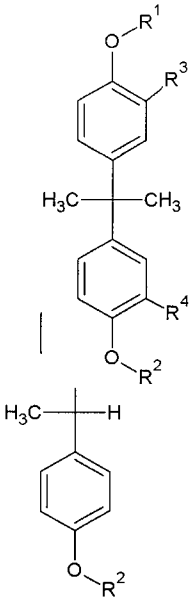
16. A resin blend comprising one or more cyanate monomer(s) and a cyanate ester oligomer to provide a cured resin comprising a dielectric constant of less than 2.7, a glass transition temperature of at least 150 ^{o}C and a moisture absorption of less than 1.5%, wherein the cyanate monomer(s) is a compound of formulae (I) –(IX):



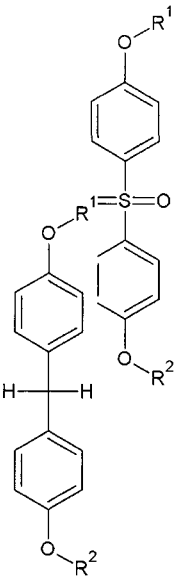
(I)



(II)

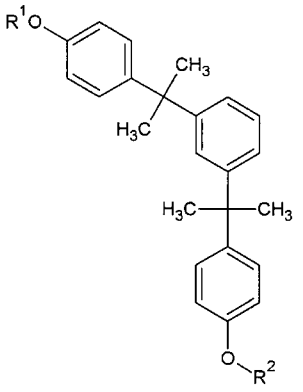


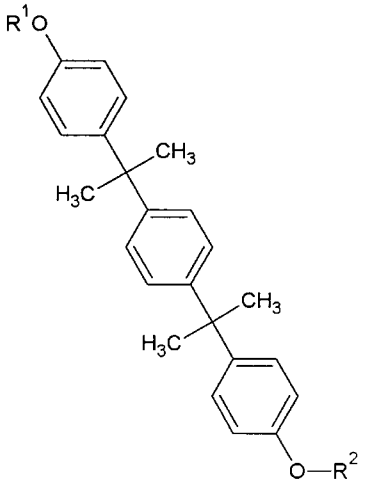
(III)



(IV)

(V)

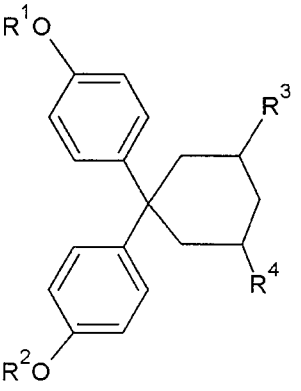




(VI)

(VII)

(VIII)



(IX)

wherein at least one of R^1 and R^2 is –CN and the other of R^1 and R^2 is selected from hydrogen, -CN, -COOH, a hydrocarbon group comprising 1 to 6 carbon atoms, a hydrocarbonyl group comprising 1 to 6 carbon atoms, a halohydrocarbon group comprising 1 to 6 carbon atoms, a halohydrocarbonyl group comprising 1 to 6 carbon atoms and phenyl, and wherein R^3 and R^4 are independently selected from hydrogen, -CN, -COOH, a hydrocarbon group comprising 1 to 6 carbon atoms, a hydrocarbonyl group comprising 1 to 6 carbon atoms, a halohydrocarbon group comprising 1 to 6 carbon atoms, a halohydrocarbonyl group comprising 1 to 6 carbon atoms and phenyl.

17. The resin blend of claim 16, further comprising at least one phenol added to the resin.

18. The resin blend of claim 16, further comprising at least one metal catalyst added to the resin.

19. The resin blend of claim 16, in which the cyanate monomer comprises a bisphenol dicyanate group, a dicyclopentadienyl bisphenol dicyanate, a dicyclopentadienyl bisphenol dicyanate, and the cyanate ester oligomer comprises a diphenylcyanate group.

20. The resin blend of claim 16, wherein the resin blend is produced from an amount of the cyanate monomer within the range of 50 wt.% to 70 wt.%, and an amount of the oligomer within the range of 30 wt% to 50 wt.%.

21. The resin blend of claim 16, wherein the cyanate monomer comprises a compound having the formula (V) or a compound having the formula (VI), and the oligomer comprises at least one monomeric unit selected from a compound having the formula (V)-(VI).

22. The resin blend of claim 16, wherein at least one monomeric unit of the oligomer is different than the cyanate monomer.

23. A system comprising:

the radome of any of claims 1-7; and

an electronic device covered by the radome.

24. A method of producing a radome comprising:

disposing the resin blend of any of claims 16-22 on a substrate; and

polymerizing the disposed resin to provide a radome comprising a dielectric constant of less than 2.7, a glass transition temperature of at least 150°C and a moisture absorption of less than 1.5%.