What is claimed is:

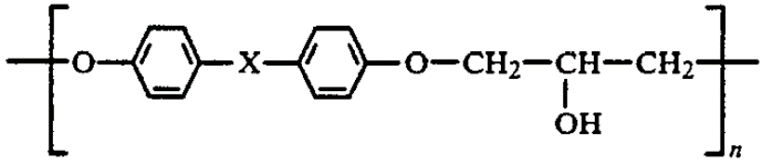
1. A method of forming a dry powder thermoplastic resin composition, the method comprising:

dissolving a solid thermoplastic resin having an average molecular weight of at least 1000 Dalton selected from the group consisting of a solid epoxy resin and a solid phenoxy resin in a blend of a protic solvent and an aprotic solvent to form a slurry; and

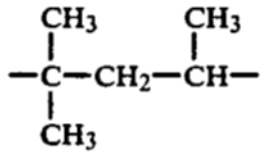
spray drying the slurry to form the dry powder thermoplastic resin composition.

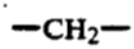
2. The method of claim 1, wherein the solid epoxy resin comprises a bisphenol A epoxy resin, a bisphenol F epoxy resin, a bisphenol AF based epoxy resin, an o-cresol novolak epoxy resin, a phenol novolak epoxy resin, a modified phenol epoxy resin, a naphthalene epoxy resin, a triphenolmethane epoxy resin, an alkyl modified triphenolmethane epoxy resin, a triazine nucleus-containing epoxy resin, a dicyclopentadiene epoxy resin, a glycidylamine epoxy resin, a biphenyl epoxy resin, a biphenylaralkyl epoxy resin, a hydrogenated bisphenol A epoxy resin, an aliphatic epoxy resin, a stilbene epoxy resin, a triglycidyl ether of trisphenol-methane, an isocyanate-modified bisphenol A based epoxy resin, an isocyanate-modified bisphenol F based epoxy resin, an isocyanate modified bisphenol AF based epoxy resin, an isocyanate modified bisphenol A novolak epoxy resin, a bisphenol F novolak epoxy resin, or a bisphenol AF novolak epoxy resin.

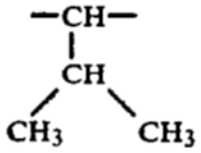
3. The method of claim 1, wherein the solid phenoxy resin has a structural formula

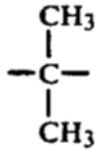


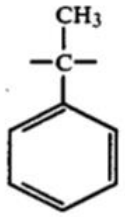
where n is an integer from 8 to 400 and X is selected from

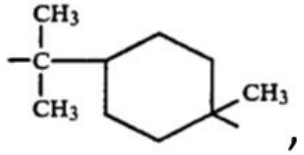

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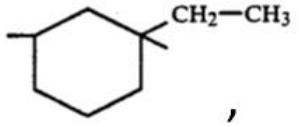

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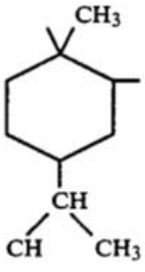

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4. The method of claim 1, wherein the protic solvent is selected from a C_1-C_6-alkanol, a C_2-C_4-alkandiol, an ether alkanol, water, acetic acid, formic acid, and a mixture thereof.

5. The method of claim 4, wherein the aprotic solvent is selected from an aromatic solvent, an alkane solvent, an ether solvent, an ester solvent, acetone, acetonitrile, dimethylformamide and a mixture thereof.

6. The method of claim 1, wherein the the blend includes the protic solvent and aprotic solvent at a weight ratio (protic solvent:aprotic solvent) of 30:70 (w/w) to 70:30 (w/w).

7. The method of claim 6, wherein the slurry contains between 5 weight percent to 10 weight percent of epoxy or phenoxy resin, based on the total weight of the slurry.

8. The method of claim 1, wherein the solid phenoxy resin is obtained by a condensation reaction between a dihydric phenol compound and epichlorohydrin, or by a polyaddition reaction between a dihydric phenol compound and a difunctional epoxy resin.

9. A method of forming a dry powder thermoplastic resin, the method comprising:

dissolving a solid thermoplastic resin having an average molecular weight of at least 1000 Dalton selected from a solid phenoxy resin in a blend of a protic solvent and an aprotic solvent to form a slurry; and

spray drying the slurry to form the dry powder thermoplastic resin composition, wherein the dry powder thermoplastic resin composition comprises a plurality of phenoxy resin particles having an average particle size of between 3 μm to 25 μm and a residual moisture

content of from 0.01% (w/w) to 1.5% (w/w) and wherein the spray drying is performed in a closed cycle spray dryer.

10. A method to form a powdered epoxy or phenoxy resin, the method comprising:

providing a solid epoxy or phenoxy resin with an average molecular weight of at least 1000 Dalton;

dissolving the solid epoxy or phenoxy resin in a blend of an alcohol solvent and an aprotic solvent to form a resulting solution, wherein the alcohol solvent has two to six carbon atoms, the blend has a weight ratio of the alcohol solvent to the polar aprotic solvent of between 30:70 to 70:30, and the resulting solution has between 1 weight percent to 10 weight percent epoxy or phenoxy resin, based on the total weight of the resulting solution; and

spray-drying the resulting solution in a closed-cycle spray drier to form the powdered epoxy or phenoxy resin.

11. The method of claim 10, wherein the solid epoxy or phenoxy resin has an average molecular weight of between 10,000 Dalton and 50,000 Dalton.

12. The method of claim 10, wherein the ratio of the alcohol solvent to the aprotic solvent is between 40:60 to 60:40.

13. The method of claim 10, wherein the resulting solution contains between 5 weight percent to 10 weight percent epoxy or phenoxy resin.

14. The method of claim 10, wherein the powdered epoxy or phenoxy resin comprises no more than 5 weight percent residual solvent, based on the total weight of the powdered epoxy or phenoxy resin.

15. The method of claim 10, wherein the powdered epoxy or phenoxy resin has an average particle size of no more than 20 μm.

16. A powdered epoxy or phenoxy resin, comprising:

no more than 5 weight percent residual solvent; and

at least 95 weight percent solid epoxy or phenoxy resin, wherein the solid epoxy or phenoxy resin has an average molecular weight of at least 1000 Dalton; and

an average particle size of no more than 20 μm and wherein the weight percent is based on the total weight of the powdered epoxy or phenoxy resin.

17. The powdered epoxy or phenoxy resin of claim 16, wherein the powdered epoxy or phenoxy resin comprises no more than 1.5 weight percent residual solvent.

18. The powdered epoxy or phenoxy resin of claim 16, wherein the solid epoxy or phenoxy resin has an average molecular weight of at least 50,000 Dalton.

19. The powdered epoxy or phenoxy resin of claim 16, wherein the solid epoxy or phenoxy resin has an average particle size of no more than 12 μm.