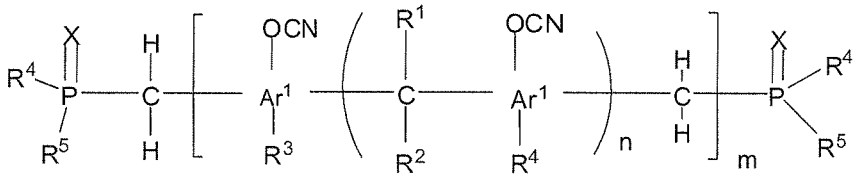
We Claim:

1. A thermosetting monomer comprising at least two of an aryl-cyanato group and at least two of a phosphorus group.

~~2. The thermosetting monomer of claim 1,~~ where the thermosetting monomer is represented by a compound of Formula (I):

Formula (I)



wherein m is an integer from 1 to 20;

wherein n is an integer from 0 to 20 with the proviso that when n is 0 then m is an integer from 2 to 20;

wherein X is selected from the group consisting of sulfur, oxygen, and a lone electron pair;

wherein each R^1 and R^2 is independently a hydrogen, an aliphatic moiety having 1 to 20 carbon atoms, or aromatic hydrocarbon moiety having 6 to 20 carbon atoms, where the aliphatic moiety and the aromatic hydrocarbon moiety can be joined to form a cyclic structure;

wherein R^3 is selected from the group consisting of a hydrogen, an aliphatic moiety having 1 to 20 carbon atoms, an aromatic hydrocarbon moiety having 6 to 20 carbon atoms, $R^4R^5P(=X)CH_2$-, and $ROCH_2$-, where R is an aliphatic moiety having 1 to 20 carbon atoms; and

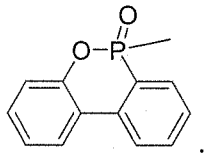
wherein each R^4 and R^5 is independently an aliphatic moiety having 1 to 20 carbon atoms, an aromatic hydrocarbon moiety having 6 to 20 carbon atoms, where the aliphatic moiety and the aromatic hydrocarbon moiety can be joined to form a cyclic structure, RX-, or wherein R^4 and R^5 together are Ar^2X-; and

wherein each Ar^1 and Ar^2 is independently a benzene, a naphthalene, or a biphenyl.

~~23~~. The thermosetting monomer of claim ~~12~~, wherein for the compound of Formula (I) X is oxygen, n is 1, m is 1, each R^1 and R^2 is a methyl group, R^3 is $R^4R^5P(=X)CH_2$-, and R^4 and

R^5 together are Ar^2X, wherein Ar^2 is biphenyl such that $R^4R^5P(=X)$- is represented by a compound of Formula (II):

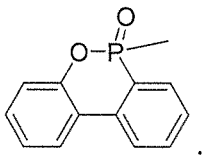
Formula (II)



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34. The thermosetting monomer of claim 12, wherein for the compound of Formula (I) X is oxygen, n is 0, m is 2 or 3, R^3 is $R^4R^5P(=X)CH_2$-, and R^4 and R^5 together are Ar^2X, wherein Ar^2 is biphenyl such that $R^4R^5P(=X)$- is represented by a compound of Formula (II):

Formula (II)



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45. The thermosetting monomer of any one of the preceding claims, where Ar^1 is benzene.

56. A composition, comprising the thermosetting monomer of any one of claims 1-45.

67. The composition of claim 56, including a formulation component selected from the group consisting of an epoxy resin, bismaleimide-triazine resin, a maleimide resin, a cyanate ester resin and combinations thereof.

78. The composition of claim 67, where the maleimide resin is bismaleimide of 4,4'-diaminodiphenylmethane.

89. The composition of claim 56, where the curable composition has a phosphorus content of 0.1 to 3.5 weight percent.

910. The composition of claim 56, where the curable composition has an onset to cure temperature of 180.2 °C and a cure enthalpy of 232.1 joules per gram of the curable composition.

composition.