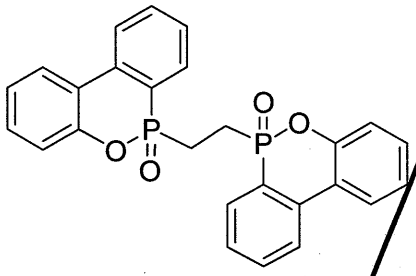
CLAIMS:

Claim 1 A compound having the following structure:



Claim 2 The compound of claim 1, which is substantially free of an organic base.

Claim 3 The compound of claim 1, wherein the d_{50} particle size is less than about 15 microns.

Claim 4 A flame retardant polymer composition comprising a polymer and the compound of Claim 1.

Claim 5 The composition of Claim 4, wherein said polymer is polyolefins, polyesters, polyethers, polyketones, polyamides, polyvinylchlorides, natural and synthetic rubbers, polyurethanes, polystyrenes, poly(meth)acrylates, phenolic resins, polybenzoxazine, polyacetals, polyacrylonitriles, polybutadienes, polystyrenes, polyimides, polyamideimides, polyetherimides, polyphenylsulfides, polyphenylene oxide, polycarbonates, cellulose, cellulose derivatives, cyanate esters, polyphenylene esters, polybutadiene resins, butadiene-styrene resins, butadiene-divinylbenzene-styrene resins, epoxy-modified polybutadiene resins, acrylic or vinyl acetate adhesives, carboxyl-terminated butadiene-acrylonitrile copolymers, phenylene ethers, maleic anhydride-grafted butadiene-styrene copolymers, maleic anhydride-modified 4-methyl-1pentene resins, maleated 1-butene-ethylene copolymers, resins derived from vinylbenzyl ether compounds, epoxy resins or mixtures thereof.

Claim 6 The composition of claim 4, wherein said polymer is polyesters or polyamides.

Claim 7 The composition of claim 4, wherein said polymer is a phenolic

resin or an epoxy resin, and wherein said composition further contains a curing or polymer initiation agent.

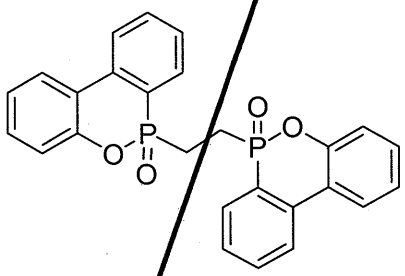
Claim 8 A prepreg or laminate comprising an organic or inorganic reinforcing material and the composition of claim 7.

Claim 9 The composition of claim 4, wherein the organic phosphorous content of the composition is about 0.1 wt% to about 10wt%, based on the total weight of the composition.

Claim 10 The composition of claim 4, further comprising a melamine polyphosphate.

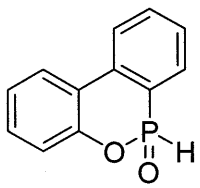
Claim 11 The composition of claim 4, further comprising silica.

Claim 12 A process for preparing the compound of Formula I:



Formula I

comprising reacting a compound of Formula A



Formula A

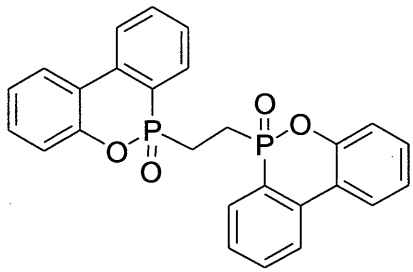
with dihaloethane in the presence of a base.

Claim 13 The process of claim 12, wherein said base is potassium methoxide, sodium methoxide, lithium methoxide, potassium ethoxide, sodium ethoxide, lithium ethoxide, potassium t-butoxide, sodium t-butoxide, lithium diisopropyl amide or mixtures thereof.

Claim 14 The compound of claim 4, further comprising a nitrogen-containing synergists.

CLAIMS

Claim 1 A compound having the following structure:



Claim 2 A composition comprising the compound of claim 1, wherein said composition is substantially free of an organic base.

Claim 3 The compound of claim 1 in the form of a solid material, wherein the d_{50} particle size of said solid material is less than about 15 microns

Claim 4 A flame retardant polymer composition comprising a polymer and the compound of Claim 1.

Claim 5 The composition of Claim 4, wherein said polymer is polyolefins, polyesters, polyethers, polyketones, polyamides, polyvinylchlorides, natural and synthetic rubbers, polyurethanes, polystyrenes, poly(meth)acrylates, phenolic resins, polybenzoxazine, polyacetals, polyacrylonitriles, polybutadienes, polyimides, polyamideimides, polyetherimides, polyphenylsulfides, polyphenylene oxide, polycarbonates, cellulose, cellulose derivatives, cyanate esters, polyphenylene esters, butadiene-styrene resins, butadiene-divinylbenzene-styrene resins, acrylic or vinyl acetate adhesives, carboxyl-terminated butadiene-acrylonitrile copolymers, phenylene ethers, maleic anhydride-grafted butadiene-styrene copolymers, maleic anhydride-modified 4-methyl-1pentene resins, maleated 1-butene-ethylene copolymers, resins derived from vinylbenzyl ether compounds, or mixtures thereof

Claim 6 The composition of claim 4, wherein said polymer is polyesters or polyamides.

Claim 7 The composition of claim 4, wherein said polymer is a phenolic resin or an

epoxy resin, and wherein said composition further contains a curing or polymer initiation agent.

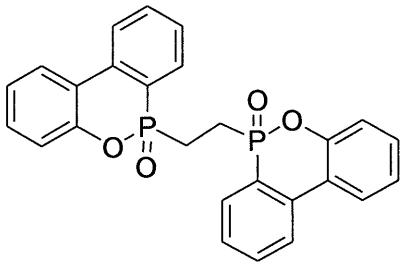
Claim 8 A prepreg or laminate comprising an organic or inorganic reinforcing material and the composition of claim 7.

Claim 9 The composition of claim 4, wherein the organic phosphorous content of the composition is about 0.1 wt% to about 10wt%, based on the total weight of the composition.

Claim 10 The composition of claim 4, further comprising a melamine polyphosphate.

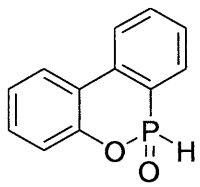
Claim 11 The composition of claim 4, further comprising silica.

Claim 12 A process for preparing the compound of Formula I:



Formula I

comprising reacting a compound of Formula A



Formula A

with dihaloethane in the presence of a base, wherein said base is not an organic base.

Claim 13 The process of claim 12, wherein said base is potassium methoxide, sodium methoxide, lithium methoxide, potassium ethoxide, sodium ethoxide, lithium ethoxide, potassium t-butoxide, sodium t-butoxide, lithium diisopropyl amide or mixtures thereof.

Claim 14 The compound of claim 4, further comprising a nitrogen-containing synergists.

Claim 15 A composition comprising the compound of claim 1, wherein said composition has an unreacted DOPO concentration of less than about 50,000 ppm.

Claim 16 A composition comprising the compound of claim 1, wherein said composition has a solvent concentration less than about 1,000 ppm.

Claim 17 A composition comprising the compound of claim 1, wherein said composition has greater than about 95wt% of the compound of claim 1.

Claim 18 A composition comprising the compound of claim 1, wherein said composition has a 5% TGA weight loss at a temperature of greater than about 245°C.

Claim 19 A composition comprising the compound of claim 1, wherein said composition has a peak melting point at a temperature of greater than about 245°C.

Claim 20 A composition comprising the compound of claim 1, wherein said composition has a total chlorine or bromine concentration less than about 1000 ppm.