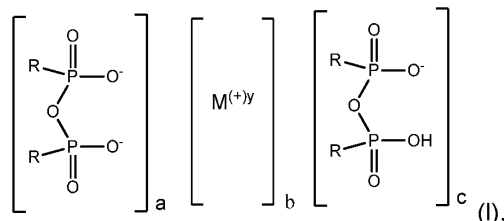


What is claimed is:

1. A flame retardant and stabilizer additive composition, for thermoplastic polymers, comprising

(A) at least one phosphorus-containing flame retardant of empirical formula (I):

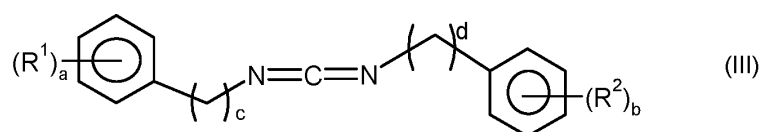


wherein R is H, an alkyl, aryl, alkylaryl, or arylalkyl group, M is a metal and y is 2 or 3, such that  $\text{M}^{(+y)}$  is a metal cation where (+)y represents the charge formally assigned to the cation, a, b, and c represent the ratio of the components to which they correspond relative to one another in the compound, and satisfy the charge-balance equation  $2(a)+c=b(y)$ , and c is not zero, and

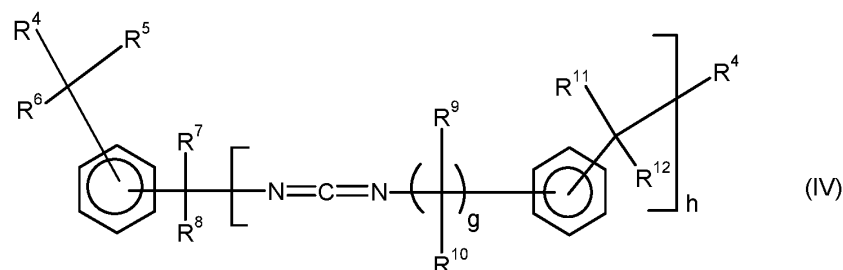
(B) at least one carbodiimide.

2. The flame retardant and stabilizer additive composition of claim 1, wherein in the empirical formula (I), a is 0, 1 or 2, b is from 1 to 4 and c is 1 or 2.
3. The flame retardant and stabilizer additive composition of claim 1, wherein y is 3, a is 1, b is 1 and c is 1.
4. The flame retardant and stabilizer additive composition of claim 3, wherein M is chosen from Al, Ga, Sb, Fe, Co, B, and Bi.
5. The flame retardant and stabilizer additive composition of claim 4, wherein M is Al or Fe.
6. The flame retardant and stabilizer additive composition of any one of claims 1-5, wherein in the empirical formula (I) R is H,  $\text{C}_{1-12}$  alkyl,  $\text{C}_{6-10}$  aryl,  $\text{C}_{7-18}$  alkylaryl, or  $\text{C}_{7-18}$  arylalkyl, wherein the alkyl, aryl, alkylaryl, or arylalkyl are unsubstituted or are substituted by halogen, hydroxyl, amino,  $\text{C}_{1-4}$  alkylamino, di- $\text{C}_{1-4}$  alkylamino,  $\text{C}_{1-4}$  alkoxy, carboxy or  $\text{C}_{2-5}$  alkoxycarbonyl.
7. The flame retardant and stabilizer additive composition of claim 6, wherein R is unsubstituted  $\text{C}_{1-12}$  alkyl,  $\text{C}_6$  aryl,  $\text{C}_{7-10}$  alkylaryl, or  $\text{C}_{7-10}$  arylalkyl.
8. The flame retardant and stabilizer additive composition of claim 6, wherein R is unsubstituted  $\text{C}_{1-6}$  alkyl.
9. The flame retardant and stabilizer additive composition of claim 8, wherein R is chosen from methyl, ethyl, propyl, isopropyl, butyl, and t-butyl.

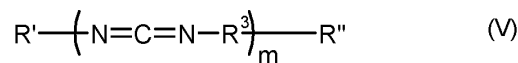
10. The flame retardant and stabilizer additive composition according to any one of claims 1-9, wherein M is Al, y is 3, a is 1, b is 1 and c is 1.
11. The flame retardant and stabilizer additive composition of claim 10, wherein R is H or C<sub>1-6</sub> alkyl.
- 5 12. The flame retardant and stabilizer additive composition of claim 11, wherein R is chosen from methyl and ethyl.
13. The flame retardant and stabilizer additive composition of claim 1 further comprising (C) at least one flame retardant synergist and/or additional flame retardant.
14. The flame retardant and stabilizer additive composition of claim 13, wherein
- 10 component (C) comprises a nitrogen-containing flame retardant synergist.
15. The flame retardant and stabilizer additive composition of claim 14, wherein the nitrogen-containing synergist is chosen from melamine, melam, melem, melon, melamine cyanurate, dimelamine phosphate, dimelamine pyrophosphate, melamine phosphate, melamine pyrophosphate, melamine polyphosphate, melam polyphosphate, melon
- 15 polyphosphate, melem polyphosphate, and mixed polysalts thereof.
16. The flame retardant and stabilizer additive composition of claim 1, wherein the at least one carbodiimide is of the formula (III), (IV) or (V):



- 20 where R<sup>1</sup> and R<sup>2</sup> are independently hydrogen or C<sub>1</sub>-C<sub>10</sub>-alkyl, C<sub>6</sub>-C<sub>12</sub>-aryl, C<sub>7</sub>-C<sub>13</sub>-aralkyl, or C<sub>7</sub>-C<sub>13</sub>-alkylaryl,
- a and b are mutually independently a whole number from 1 to 5 and
- c and d are mutually independently a whole number from 0 to 10;



- 25 where R<sup>4</sup> is NCO,
- R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, R<sup>12</sup> are independently hydrogen or C<sub>1</sub>-C<sub>10</sub>-alkyl, C<sub>6</sub>-C<sub>12</sub>-aryl, C<sub>7</sub>-C<sub>13</sub>-aralkyl, or C<sub>7</sub>-C<sub>13</sub>-alkylaryl,
- g is a whole number from 0 to 5, and
- h is a whole number from 1 to 100;



where m is a whole number from 1 to 5000,

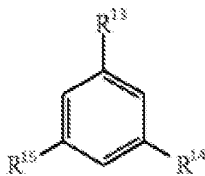
$R^3$  is arylene, alkyl-substituted arylene, alkylaryl-substituted arylene, or aralkyl-substituted arylene,

5  $R'$  is aryl, alkylaryl, aralkyl or  $R^3$ -NCO, and

$R''$  is -N=C=N-aryl, -N=C=N-alkylaryl, -N=C=N-aralkyl or -NCO.

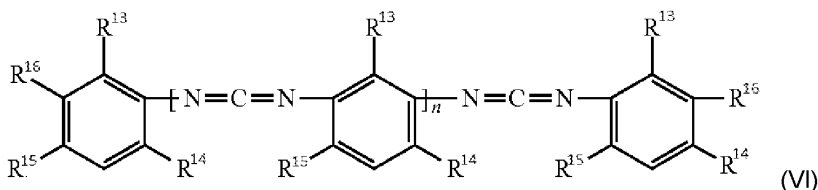
17. The flame retardant and stabilizer additive composition of claim 16, wherein the at least one carbodiimide is of the formula (V) and  $R^3$  is chosen from arylene,  $C_1$ - $C_{12}$ -alkyl-substituted arylene,  $C_7$ - $C_{18}$ -alkylaryl-substituted arylene,  $C_7$ - $C_{18}$ -aralkyl-substituted arylene, 10 and  $C_1$ - $C_{12}$ -alkyl-substituted  $C_1$ - $C_8$ -alkylene-bridged arylene comprising a total of 7 to 30 carbon atoms.

18. The flame retardant and stabilizer additive composition of claim 17, wherein  $R^3$  is



, where  $R^{13}$ ,  $R^{14}$  and  $R^{15}$  are independently  $C_1$ - $C_3$  alkyl.

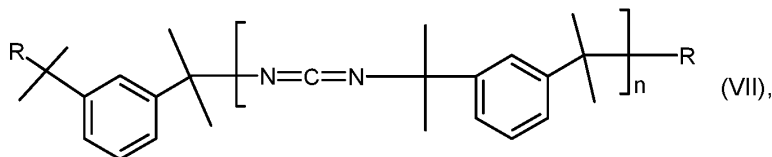
19. The flame retardant and stabilizer additive composition of claim 1, wherein the at 15 least one carbodiimide is of the formula (VI):

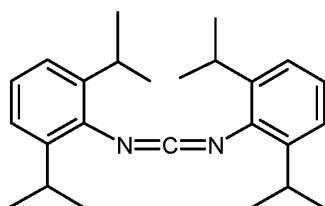


where  $R^{13}$ ,  $R^{14}$  and  $R^{15}$  are independently  $C_1$ - $C_3$  alkyl,  $R^{16}$  is -NCO, and n is from 0 to 200.

20. The flame retardant and stabilizer additive composition of claim 19, wherein in 20 formula (VI)  $R^{13}$ ,  $R^{14}$  and  $R^{15}$  are each independently methyl, ethyl or isopropyl.

21. The flame retardant and stabilizer additive composition of claim 1, wherein the at least one carbodiimide is of the formula (VII) or (VIII):





(VIII)

where R in formula (VII) is  $\text{-NCO}$ , and  
n is a whole number from 1 to 200.

22. A flame retardant thermoplastic composition comprising at least one thermoplastic polymer and the flame retardant and stabilizer additive composition according to any one of claims 1-21.
23. The flame retardant thermoplastic composition of claim 22, wherein the at least one thermoplastic polymer is chosen from the group consisting of polyesters and polyamides.
24. The flame retardant thermoplastic composition of claim 23, wherein the at least one thermoplastic polymer is a polyamide chosen from the group consisting of polyamide-4,6, polyamide-6, polyamide-6,6, polyamide-6,10, polyamide-6,12, polyamide-11, polyamide-12, polyamide-4,T, polyamide-MXD,6, polyamide-12,T, polyamide-10,T, polyamide-9,T, polyamide-6,T/6,6, polyamide-6,T/D,T, polyamide-6,6/6,T/6,I, polyamide-6/6,T, polyamide-6,T/6,I, and mixtures thereof.
25. The flame retardant thermoplastic composition of claim 22, further comprising at least one inorganic filler.
26. The flame retardant thermoplastic composition of claim 25, wherein the inorganic filler comprises glass fiber.