CLAIMS

The invention claimed is:

1. A compound represented by Formula (**I**):

$$[Ar(EHR^1R^2)(OR^3)]_d^+[M^{k+}Q_n]^{d-} \qquad (\mathbf{I})$$

wherein:

Ar is an aryl group;

E is nitrogen or phosphorous;

R^1 is a C_1-C_{30}, optionally substituted, linear alkyl group;

R^2 is a C_1-C_{30}, optionally substituted, linear alkyl group;

R^3 is a C_{10}-C_{30}, optionally substituted, linear alkyl group;

M is boron or aluminum;

d is 1, 2 or 3; k is 1, 2, or 3; n is 1, 2, 3, 4, 5, or 6; n - k = d; and

each Q is independently a perfluorophenyl, a perchlorophenyl, a perfluoronapthyl, or a perchloronapthyl.

2. The compound of claim 1, wherein R^1 is a C_1 to C_{10} linear alkyl group.

3. The compound of claim 1 or claim 2, wherein R^1 is methyl, ethyl, propyl, butyl, pentyl, or hexyl.

4. The compound of claim 1 or claim 2, wherein R^2 is a C_1-C_{20}, optionally substituted, linear alkyl group.

5. The compound of claim 1 or claim 2, wherein R^1 is methyl.

6. The compound of claim 1 or claim 2, wherein R^2 is methyl, ethyl, n-propyl, n-butyl, n-pentyl, n-hexyl, n-heptyl, n-octyl, n-nonyl, n-decyl, n-undecyl, n-dodecyl, n-tridecyl, n-tetradecyl, n-pentadecyl, n-hexadecyl, n-heptadecyl, n-octadecyl, n-nonadecyl, or n-icosyl.

7. The compound of claim 1 or claim 2, wherein R^3 is n-decyl, n-undecyl, n-dodecyl, n-tridecyl, n-tetradecyl, n-pentadecyl, n-hexadecyl, n-heptadecyl, n-octadecyl, n-nonadecyl, or n-icosyl.

8. The compound of claim 1 or claim 2, wherein E is nitrogen.

9. The compound of claim 1 or claim 2, wherein M is boron and k is 3.

10. The compound of claim 1 or claim 2, wherein R^1, R^2, and R^3 together comprise 20 or more carbon atoms.

11. The compound of claim 1 or claim 2, wherein Ar is a phenyl group.

12. A compound represented by Formula (**II**):

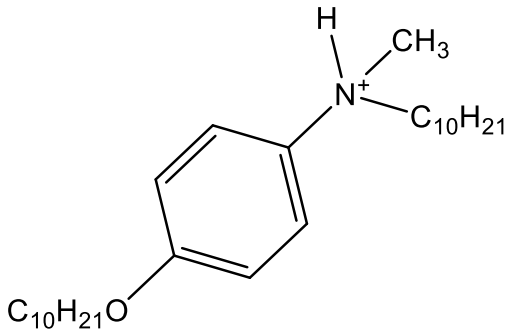
$$[Cat]^+[MQ_4]^- \qquad (\mathbf{II})$$

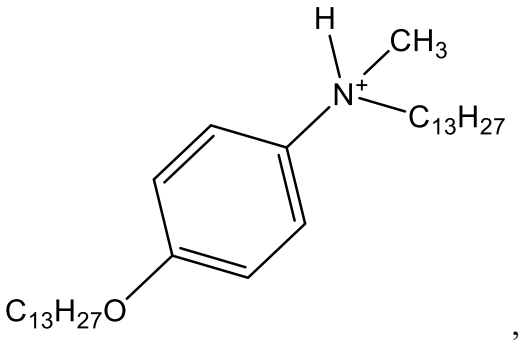
wherein:

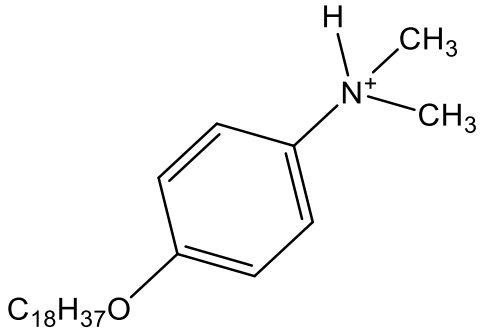
M is an element selected from group 13 of the Periodic Table of the Elements;

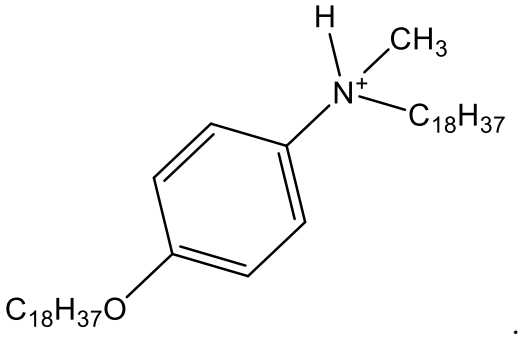
Q is a hydride, bridged or unbridged dialkylamido, halide, alkoxide, aryloxide, hydrocarbyl, substituted hydrocarbyl, halocarbyl, substituted halocarbyl, or halosubstituted-hydrocarbyl radical; and

$[Cat]^+$ is a cation represented by a structure selected from the group consisting of



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13. The compound of claim 12, wherein Q is a substituted aryl group.

14. The compound of claim 12 or claim 13, wherein M is boron.

15. A compound represented by Formula (**III**):

$$[R^{11}R^{12}R^{13}EH]^{+}[BR^{14}R^{15}R^{16}R^{17}]^{-} \qquad \textbf{(III)}$$

wherein:

E is nitrogen or phosphorous;

each of R^{11}, R^{12}, and R^{13} is independently a C_1-C_{30} linear alkyl group or an aryl group, wherein the aryl group is substituted with at least one C_{10}-C_{30} alkoxy group, wherein R^{11}, R^{12}, and R^{13} together comprise 26 or more carbon atoms; and

each of R^{14}, R^{15}, R^{16}, and R^{17} is independently an aryl group, wherein at least one of R^{14}, R^{15}, R^{16}, and R^{17} is substituted with from one to seven fluorine atoms.

16. The compound of claim 15, wherein each of R^{11} and R^{12} is independently a C_1-C_{30} linear alkyl, and R^{13} is an aryl group substituted with a C_{10}-C_{30} alkoxy group.

17. The compound of any one of claims 1, 2, 12, 13, 15 and 16, wherein the compound has a solubility of at least 10 mM at 25°C in methylcyclohexane.

18. The compound of any one of claims 1, 2, 12, 13, 15 and 16, wherein the compound has a solubility of at least 10 mM at 25°C in isohexane.

19. The compound of any one of claims 1, 2, 12, 13, 15 and 16 wherein the compound has a solubility of at least 10 mM at 25°C in methylcyclohexane and a solubility of at least 10 mM at 25°C in isohexane.

20. A catalyst system comprising a catalyst and an activator comprising the compound of any one of claims 1-20.

21. The catalyst system of claim 20, further comprising a support material.

22. A solution comprising the compound of any one of claims 1-19 and an aliphatic solvent; wherein aromatic solvents are absent.

23. A solution comprising the catalyst system of claim 20 or claim 21 and an aliphatic solvent; wherein aromatic solvents are absent.