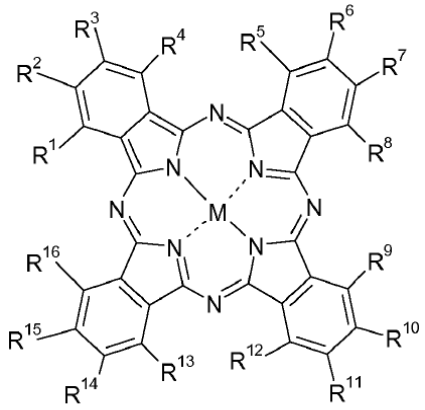
Claims

1. Use of a compound of Formula (I)



(I)

as a carbon dioxide sensor,

wherein:

M is any suitable metallic species; and

each of R^1 to R^{16} is independently a H or an organic moiety of Formula (II)

$$–X\text{-}Y\text{-}NR^{17}R^{18} \quad (II),$$

wherein:

X is a direct bond or a heteroatom selected from the group consisting of N, O, P, S, and Se;

Y is a linear or branched, substituted or unsubstituted C_1-C_{10} alkyl; linear or branched, substituted or unsubstituted C_2-C_{10} alkenyl; linear or branched, substituted or unsubstituted C_2-C_{10} alkynyl; linear or branched, substituted or unsubstituted C_1-C_{10} alkoxy; substituted or unsubstituted C_3-C_{10} cycloalkyl; substituted or unsubstituted C_3-C_{10} cycloalkenyl; substituted or unsubstituted C_6-C_{10} aryl; substituted or unsubstituted C_3-C_{10} heteroaryl; and

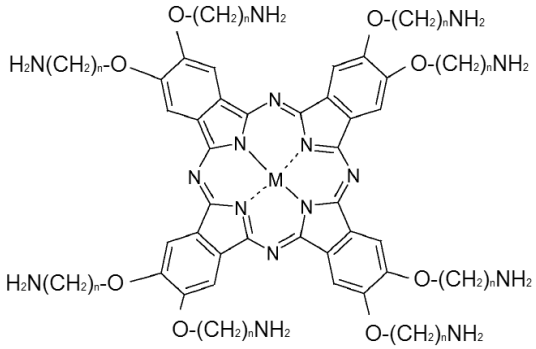
each of R^{17} and R^{18} is a H;

wherein more than two of R^1 to R^{16} are each the organic moiety of Formula (II).

2. Use of claim 1, wherein M is selected from the group consisting of Cu^{2+}, Mn^{2+}, Mg^{2+}, Ca^{2+}, B^{3+}, Fe^{3+}, Al^{3+}, Ga^{3+}, In^{3+}, Ce^{3+}, Sc^{3+}, Zr^{4+}, Ti^{4+}, Sn^{4+}, and V^{5+}.
3. Use of claim 1, wherein M is Cu^{2+}.
4. Use of claim 1, wherein R^2, R^3, R^6, R^7, R^{10}, R^{11}, R^{14}, and R^{15} are each the organic moiety of Formula (II).
5. Use of claim 1, wherein in the organic moiety of Formula (II),

   X is an O; and

   Y is a C_1-C_{10} alkyl, C_3-C_{10} cycloalkyl, or C_6-C_{10} aryl.
6. Use of claim 1, wherein the organic moiety of Formula (II) is $-O-(CH_2)_nNH_2$, wherein n is an integer of between 1 and 10.
7. Use of claim 1, wherein the compound of Formula (I) is



(I)

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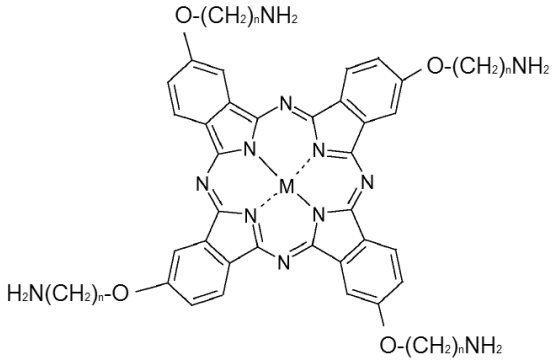
wherein n is an integer of between 1 and 10.

8. Use of claim 1, wherein the compound of Formula (I) is



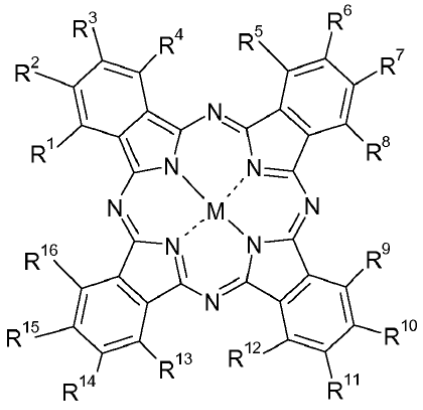
(I)

,

wherein n is an integer of between 1 and 10.

9. Use of claim 1, wherein the compound of Formula (I) is comprised as a sensing layer in a chemiresistor, a capacitor, a field effect transistor (FET), an optical-based sensor, or a mass-based sensor.

10. A sensor for detecting carbon dioxide, the sensor comprising a compound of Formula (I)



(I)

wherein:

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wherein:

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each of R^{17} and R^{18} is a H;

wherein more than two of R^1 to R^{16} are each the organic moiety of Formula (II).