WHAT IS CLAIMED IS:

1. A method of preparing a porous graphene oxide material, the method comprising:

~~(1)~~ preparing graphene oxide sheets from graphite by reacting graphite flakes with sodium nitrate, concentrated sulfuric acid, and $KMnO_4$ at 40 to 170 °C;

~~(2)~~ providing a graphene oxide suspension ~~containing~~ by suspending the graphene oxide sheets in a solvent;

~~(3)~~ heating the graphene oxide suspension with a base at 25 to 300 °C for 0.1 to 48 hours to obtain base-treated graphene oxide sheets; and

~~(4)~~ heating a mixture of the base-treated graphene oxide sheets and an acid at 25 to 300 °C for 0.1 to 48 hours to yield the porous graphene oxide material,

wherein the weight ratio of the base to the graphene oxide sheets is 1:1 to 50:1, the weight ratio of the acid to the graphene oxide sheets is 1:1 to 50:1, the base in the graphene oxide suspension has a concentration of 0.01 to 50 N, and the acid in the mixture has a concentration of 0.01 to 50 N~~.~~, the base being NaOH, KOH, LiOH, Na_2CO_3, $CsCO_3$, K_3PO_4, $NaHCO_3$, n-BuLi, t-BuOK, an amine, pyridine, bi-pyridine, or a combination thereof; and the acid being HCL HBr, HI, H_2SO_4 or its salt, HNO_3, a carboxylic acid, a sulfonic acid, a phosphoric acid or its salt, P_2O_5, a metal chloride, or a combination thereof.

2. The method of claim 1, wherein the graphene oxide suspension is heated with the base at 60 to 170 °C for 1 to 24 hours, the base-treated graphene oxide sheets are heated with the acid at 60 to 170 °C for 1 to 24 hours, the weight ratio of the base to the graphene oxide sheets is 2:1 to 25:1, the weight ratio of the acid to the graphene oxide sheets is 2:1 to 25:1, the base in the graphene oxide suspension has a concentration of 0.02 to 20 N, and the acid in the mixture has a concentration of 0.02 to 20 N.

3. The method of claim 2, wherein the base-treated graphene oxide sheets are heated with the acid at 100 to 120 °C for 2 to 10 hours, the weight ratio of the base to the graphene oxide sheets is 3:1 to 10:1, the weight ratio of the acid to the graphene oxide sheets is 3:1 to 10:1, the base in the graphene oxide suspension has

a concentration of 0.05 to 10 N, and the acid in the mixture has a concentration of 0.05 to 10 N.

4. The method of claim 2, wherein the graphene oxide suspension is heated with the base at 100 to 120 °C for 2 to 10 hours, the base-treated graphene oxide sheets are heated with the acid at 60 to 170 °C for 1 to 24 hours, the weight ratio of the base to the graphene oxide sheets is 2:1 to 25:1, the weight ratio of the acid to the graphene oxide sheets is 2:1 to 25:1, the base in the graphene oxide suspension has a concentration of 0.02 to 20 N, and the acid in the mixture has a concentration of 0.02 to 20 N.

5. The method of claim 4, wherein the base-treated graphene oxide sheets are heated with the acid at 100 to 120 °C for 2 to 10 hours, the weight ratio of the base to the graphene oxide sheets is 3:1 to 10:1, the weight ratio of the acid to the graphene oxide sheets is 3:1 to 10:1, the base in the graphene oxide suspension has a concentration of 0.05 to 10 N, and the acid in the mixture has a concentration of 0.05 to 10 N.

6. The method of claim 1, wherein the base-treated graphene oxide sheets are heated with the acid at 60 to 170 °C for 1 to 24 hours.

7. The method of claim 6, wherein the weight ratio of the acid to the graphene oxide sheets is 2:1 to 25:1, and the acid in the mixture has a concentration of 0.02 to 20 N.

8. The method of claim 6, wherein the base-treated graphene oxide sheets are heated with the acid at 100 to 120 °C for 2 to 10 hours

9. The method of claim 8, wherein the weight ratio of the acid to the graphene oxide sheets is 3:1 to 10:1, and the acid in the mixture has a concentration of 0.05 to 10 N.

10. The method of claim 2, wherein the weight ratio of the base to the graphene oxide sheets is 2:1 to 25:1, the weight ratio of the acid to the graphene oxide sheets is 2:1 to 25:1, the base in the graphene oxide suspension has a concentration of 0.02 to 20 N, and the acid in the mixture has a concentration of 0.02 to 20 N.

11. The method of claim 10, the weight ratio of the base to the graphene oxide sheets is 3:1 to 10:1, the weight ratio of the acid to the graphene oxide sheets is 3:1 to 10:1, the base in the graphene oxide suspension has a concentration of 0.05 to 10 N, and the acid in the mixture has a concentration of 0.05 to 10 N.

12. A porous graphene oxide material having a pore size of 0.2 to 100 nm, a pore volume of 0.01 to 5 mL/g, a surface area of 20 to 2600 m^2/g, a C/O molar ratio of 2/1 to 10/1, and a $-COO^-$ content of 0.

13. The porous graphene oxide material of claim 12, wherein the porous graphene oxide material has a pore size of 0.5 to 50 nm, a pore volume of 0.05 to 1 mL/g, a surface area of 50 to 1000 m^2/g, and a C/O molar ratio of 5/2 to 8/1.

14. The porous graphene oxide material of claim 13, wherein the porous graphene oxide material has a pore size of 1 to 20 nm, a pore volume of 0.1 to 0.4 mL/g, a surface area of 100 to 600 m^2/g, and a C/O molar ratio of 3/1 to 6/1.

15. The porous graphene oxide material of claim 12, further comprising a ~~second~~ catalyst. selected from the group consisting of Pd, Pt, Au, Cu, V_2O_5, Co, Rh, Ru, Ni, And Fe.

16. A porous graphene oxide material prepared by the method of claim 1, wherein the porous graphene oxide material has a pore size of 0.2 to 100 nm, a pore volume of 0.01 to 5 mL/g, a surface area of 20 to 2600 m^2/g, a C/O molar ratio of 2/1 to 10/1, and a $-COO^-$ content of 0.

17. The porous graphene oxide material of claim 16, wherein the porous graphene oxide material is prepared by the method of claim 5.

18. The porous graphene oxide material of claim 16, wherein the porous graphene oxide material is prepared by the method of claim 9.

19. A process of carrying out a chemical reaction by agitating a reaction medium containing a reactant or reactants, and a catalyst that is the porous graphene oxide material of claim 12, wherein the chemical reaction is an oxidation reaction, a reduction reaction, a Suzuki coupling reaction, an oxygen reduction reaction, or an oxidation-reduction tandem reaction~~.~~, the reactant or reactants being alcohols, amines, alkenes, or alkanes.

20. The process of claim 19, wherein the chemical reaction is an oxidation reaction, the porous graphene oxide material is 1 to 200 wt% of the reactant or reactants, and 20 to 98 % of the reactant or reactants are converted to a product.

21. A process of carrying out a chemical reaction by agitating a reaction medium containing a reactant or reactants, and a catalyst that is the porous graphene oxide material of claim 16, wherein the chemical reaction is an oxidation reaction, a reduction reaction, a Suzuki coupling reaction, an oxygen reduction reaction, or an oxidation-reduction tandem reaction~~.~~, the reactant or reactants being alcohols, amines, alkenes, or alkanes.

22. The process of claim 21, wherein the chemical reaction is an oxidation reaction, the porous graphene oxide material, 2 to 20 wt% of the reactant or reactants, is the material of claim 17, and 20 to 98 % of the reactant or reactants are converted to a product.

~~23. The process of claim 22, wherein the porous graphene oxide material is 2 to 20 wt% of the reactant or reactants.~~