WHAT IS CLAIMED IS:

1. A composition of matter comprising a mixture of a biochar, iron oxide and an additive formulation, wherein the mixture on a dry wt/wt basis comprises (a) iron oxide of between 9.5 to 80 percent by weight, (b) the additive formulation of between 0.001 and 5 percent by weight and (c) a biochar of between 20 to 90.5 percent by weight, wherein the biochar has a fixed carbon content of 70%; and wherein the additive formulation is selected from one or more of the following: a surfactant, a binder, a dispersant, a rheology modifier, a wetting agent, an anti-foaming agent and any combination thereof.

2. The composition as claimed in claim 1, wherein the mixture (dry wt/wt basis) comprises (a) iron oxide of between 19 to 67 percent by weight, (b) the additive formulation of between 0.001 and 5 percent by weight and (c) a biochar of between 33 to 81 percent by weight, wherein the biochar has a fixed carbon content of at least 70%.

3. The composition as claimed in claim 1 or claim 2, wherein the biochar in the mixture is in particulate form.

4. The composition as claimed in claim 3, wherein the initial particulate sizes of the biochar are less than 50 millimetres.

5. The composition as claimed in any one of claims 1 to 4, wherein the iron oxide in the mixture is in particulate form.

6. The composition as claimed in any one of claims 1 to 5, wherein the iron oxide and biochar are both in particulate form.

7. The composition as claimed in claim 1, claim 5 or claim 6, wherein the initial particulate sizes of the iron oxide are less than 5 millimetres.

8. The composition as claimed in any one of claims 1 to 7, wherein the initial particulate sizes of the biochar are less than 50 millimetres and the initial particulate sizes of the iron oxide are less than 5 millimetres.

9. The composition as claimed in any one of claims 3 to 5, wherein the particulate sizes of the biochar are less than 800 microns.

10. The composition as claimed in claim 1, wherein the composition further includes a liquid, the liquid and iron oxide are chosen to ensure that when the composition is in use there is minimal solubility of the iron oxide in the liquid.

11. The composition as claimed in claim 10 wherein the liquid is water.

12. The composition as claimed in any one of claims 1 to 11, wherein the additive formulation comprises two or more of a surfactant, a binder, a dispersant, a rheology modifier, a wetting agent, an anti-foaming agent or any combination thereof.

13. The composition as claimed in claim 12, wherein the additive formulation comprises one or more additives selected from one or more of: acResin®, ACRODUR®, ACROFLOR®, ACRONAL®, AEROSOL C-61, AG 6202, ALCOSPERSE 175, ALMIPAL P, Amidex®, Aminoethyl Ethanolamine, Ammonium Fluoride, AMMONYX M, AQACell®, Aquatreat BW30, Arkopal, Armac®, Armeen®, Armid O, Attagel®, Aziridine, BASONAT® polyisocyanates, Bronidox, BTBAB-90, BTBAC-50, Bteac-50, BTMAC-50, BTMAH-40, BUTOFAN® styrene-butadiene binders, BUTONAL® styrene-butadiene binders, Butyl Stearate, Calcium Stearate, Darvan®, Dispex®, Dodecandioic acid, DYSPERSE®, EDAPLAN®, EFKA®, ENORDET, Ethoduomeen T/25, EURAMAAT, EUR-AMID, EURANAAT, EURASOL, EUROGLYC, EUROQUAT, EUROWET, EUROXIDE, EXOdis PC30, FOAMASTER MO 2133, FOAMSTAR® , Heliogen Blue D 7079, HYDROPALAT®, JONCRYL®, Lauryl Alcohol, Lipal MSC, Lipal NTD, Magna Surf ®, MERPOL SE, METOLAT®, NANSA, Oleamid , Oleic acid, Pasatell M-182 (2-798), PEG-400, Pentaerythritol Oleate, POIZ 520, POIZ 530, Polyamides, Polyesters, POLYFON H, Polyglycols, Polyman®, Polymerizable Additives, Potassium Soyate, Quickpearl PK3, REAX®, REWOCID DU185 SE, Rewopol SB L 203, Rheovis®, ROKAmer 1010/50, Schercomid®, SDS, Sibet®, Sico 50BC, Sidos 70, Sodium dodecyl benzene sulphonate, Sodium N-hexadecanoyl-L-alaninate, Sodium silicate, Sorbitan Mono Oleate, Sorbitan Monopalmitate, Steamcare B12, Stearyl Chloride, STYROFAN®, SugaDet APG-10, Sulfoccinate LSS, Sulfochem®, Sulphated Butyl Oleate, Sunnol®, SURFACARE O ACID, TBAH-40, TBAHS-50, Tensol® DDM, TERGITOL®, TLMAC-30, TMAC-100 ARQUAD 41-100, Tomamine Amphoteric

12, Triethanolamine, Triethylbenzylammonium Chloride, TWEEN 80, UFACID K, Vitec®, YB-0100, YB-150, YB-191, YB-2000, YB-904, YBASD-200, or any combination thereof.

14. A method of heat treating the composition as defined in any one of claims 1 to 13, to a temperature above the reduction temperature of the iron oxide, thereby reducing it to an elemental metal or an alloy.

15. The method as claimed in claim 14, wherein the heat treatment results in the conversion of amorphous biochar into crystalline graphite.

16. The method as claimed in claim 14 or claim 15, wherein the conversion of amorphous char to crystalline graphite formed by the heat treatment of the mixture is greater than 50%.

17. The method as claimed in any one of claims 14 to 16, wherein the degree of crystallinity of the crystalline graphite formed by the heat treatment of the mixture is greater than 90%.

18. The method as claimed in any one of claims 14 to 17, wherein the specific surface area of the graphite formed by the heat treatment of the composition of matter defined above is less than 50 m^2/g.

19. A method of producing a composition as claimed in any one of claims 1 to 13, the method including the steps of:

i) thermally treating biomass in particulate form at a temperature of between 200 and 1000 degrees Celsius under inert conditions to form a particulate biochar using either dry pyrolysis or hydrothermal treatment;
ii) milling the biochar to obtain a particle size of less than 800 microns;
iii) milling iron oxide to obtain a particle size of less than 100 microns;
iv) combining the resulting biochar with the iron oxide, a liquid and an additive formulation; and.
v) heating the mixture to between 400 and 3000 degrees Celsius under inert conditions to create graphitic carbon.

20. The method as claimed in claim 19, wherein the biomass is selected from:

a. forestry residue;

b. sawdust;

c. lignocellulosic biomass or a lignin derivative, and

d. woodchip or any other wood-based material.

21. The method as claimed in any one of claims 19 to 20, wherein the liquid is water.

22. The method as claimed in any one of claims 19 to 21, wherein the liquid and iron oxide are chosen to ensure that when in use there is minimal solubility of the iron oxide in the liquid.

23. The method as claimed in any one of claims 19 to 22, wherein in step iv) the iron oxide is combined with either:

a. the biochar by wet blending together in a mixer with an additive formulation or

b. the biochar by wet milling together in a mill with an additive formulation.

24. The method as claimed in any one of claims 19 to 23, wherein the additive formulation for the mixed slurry includes two or more of: a surfactant, a binder, a dispersant, a rheology modifier, a wetting agent, an anti-foaming agent and any combination thereof.

25. The method as claimed in any one of claims 19 to 23, wherein in step iv) a particulate slurry in water is formed by combining the iron oxide in water with an additive formulation using a mixer to produce a particulate iron oxide slurry.

26. The method as claimed in any one of claims 19 to 23 and 25, wherein in step iv) a particulate slurry in water is formed by combining the biochar in water with additive formulation using a mixer to produce a particulate biochar slurry.

27. The method as claimed in either claim 25 or claim 26, wherein the additive formulation is selected from: a binder, a dispersant, a rheology modifier, a wetting agent, an anti-foaming agent and any combination thereof.

28. The method as claimed in any one of claims 25 to 27, wherein the particulate iron oxide slurry is combined with the particulate biochar slurry and then blended together in a mixer.