AMENDED CLAIMS

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1. A fuel composition for combustion, the fuel composition comprising:

a hydrocarbon-based fuel; and

magnetite material comprising magnetite (Fe_3O_4),

wherein:

the magnetite material is in the form of powder with a size range from 1 nm – 5 mm;

the magnetite material is 0.1–80% wt of the fuel composition.

the magnetite material comprises at least 40% magnetite (Fe_3O_4);

the magnetite material has at least 25% Fe (iron); and

a combustion performance measured as specific energy output and off-gases reduction of the fuel composition is non-linearly related to a proportion of the magnetite material.

2. The fuel composition as claimed in claim 1, wherein the magnetite material additionally comprises silica (SiO_2), phosphate, pyrite (FeS2), alumina (Al2O3), titania (TiO2), Mn_3O_4, Cr_2O_3, V_2O_5, MgO, K_2O, SrO, Na_2O, ZrO_2, and/or BaO.

3. The fuel composition as claimed in to claim 1, wherein the magnetite material is at least 0.125- 2.5% wt of the fuel composition.

4. The fuel composition as claimed in claim 1, wherein the raw magnetite material includes fe_2+ and/or fe_3+ with a dominant north pole and is cooled and or is subjected to a magnetic field.

5. The fuel composition accordingly to claim 1, wherein the hydrocarbon-based fuel comprises one of more of:

coal, peat, lignite, slimes dam coal, charcoal, and/or anthracite;

a petroleum-based fuel comprising heavy fuel oil (HFO); and/or

biomass, wood or wood pellets, opportunity fuels, biofuels, and/or bitumen.

6. The fuel composition as claimed in claim 1, wherein the hydrocarbon-based fuel is a liquid, and the magnetite material is a suspension or sediment.

7. The fuel composition as claimed in claim 1, wherein the hydrocarbon-based fuel includes one or more of:

tyre-derived fuel;

plastic waste fuel;

waste oil;

fly-ash; and

recovered soot.

8. The fuel composition as claimed in claim 1, in which the magnetite material is recovered from a previous combustion event of the fuel composition, which converted at least some of the magnetite material to Fe2+ and/or Fe3+, wherein the fuel composition includes at least 10% wt of Fe2+ and/or Fe3+.

9. A combustion product comprising the fuel composition of claim 1, wherein:

the hydrocarbon-based fuel is a wax, comprises paraffin wax, and/or stearic acid;

the fuel composition is formed into a candle; and

the combustion product includes a wick, the wick and the fuel composition both being involved in combustion.

10. A method of making the fuel composition as claimed in claim 1, the method including:

recovering magnetite material from a previous combustion event of the fuel composition;

mixing the hydrocarbon-based fuel with the recovered magnetite material for combustion; and

repeating the above steps.

11. The method as claimed in claim 10, the method including cooling the recovered magnetite material for at least 1 hour at a temperature of at most 35°C after the previous combustion event.

12. The method as claimed in claim 10, wherein:

the recovered magnetite material is a solid; and

the method includes processing the solid magnetite material to produce the magnetite material by grinding it into a powder of less than 45 μm in size.

13. The method as claimed in claim 10, which further comprises mixing the recovered magnetite material with raw magnetite material which has not been previously combusted.

14. The method as claimed in claim 10, where the recovered magnetite material is applied/fed to a top surface of the hydrocarbon-based fuel.

15. The method as claimed in claim 10, wherein the recovered magnetite material is cooled and subjected to a magnetic field.

16. A method of making the fuel composition as claimed in claim 1, the method including:

providing container or conduit made of the magnetite material;

providing the hydrocarbon-based fuel in the container or conduit; and

allowing at least some of the magnetite material from the container or conduit to leave or be removed from the container or conduit and mix with the hydrocarbon-based fuel, thereby to make the fuel composition.

17. A method of making the fuel composition as claimed in claim 1, wherein:

the hydrocarbon-based fuel is at least partially gaseous;

the gaseous hydrocarbon-based fuel is fed into a fluidised bed formation;

the magnetite material is recovered from a previous combustion event; and

the gaseous hydrocarbon-based fuel comprises one or more of CO_2, CO, SO_2, and/or NO.

18. A method of preparing the fuel composition according to claim 1, wherein the magnetite material is subjected to a north pole magnetic field or after a combustion process resulting in a dominant south pole and greater fe2+ in the magnetite material, or where the magnetite material is subjected to a south pole magnetic field resulting with a dominant north pole all around and the fe3+ content increase in the magnetite material-based fuel.

19. A method of making the fuel composition as claimed in claim 1, where the magnetite material is bonded with a hydrocarbon fuel with bonding agent comprising a resin and is made into pellet or ball structure.