WHAT IS CLAIMED IS:

1. A process for converting coal *ex situ*, comprising:

(a) treating coal with a liquid that solubilizes at least a portion of the coal,

(b) treating at least a portion of the product of step (a) with a hydrolytic microbial population to produce a product containing fatty acids,

(c) treating at least a liquid portion of the product from step (b) with an anaerobic microbial population that generate methane to produce a product containing methane.

2. The process of claim 1, wherein steps (a), (b) and (c) are performed in different vessels.

3. The process of claim 1, wherein the coal used in step (a) is pulverized coal.

4. The process of claim 1, wherein the coal used in step (a) is coal that has been treated to remove at least a portion of non-coal impurities.

5. The process of claim 1, wherein step (a) comprises the steps of:

(i) treating coal with an alkali;

(ii) treating coal with a C1-C4 carboxylic acid, benzoic acid, or salt or ester of such acid, or a combination thereof; and

(iii) treating coal with hydrogen peroxide in the presence of iron,

and wherein the order of such steps is not essential.

6. The process of claim 1, wherein the hydrolytic microbial population of step (b) includes an acetogen.

7. The process according to claim 1, wherein the anaerobic process may consist of a single phase, two phases or more than two phases of hydrolysis and biogasification.

8. The process of claim 1, wherein more than one hydrolysis phase vessel is utilized.

9. The process of claim 1, wherein more than one biogasification phase vessel is utilized.

10. The process of claim 1, wherein the coal is lignite, sub-bituminous coal, bituminous coal, semi-anthracite coal, anthracite coal or a combination thereof.

11. The process according to claim 1, wherein said hydrolytic microbial population of step (b) is a member selected from the group consisting of Acetivibrio, Clostridium, Lactobacillus, Ruminococcus, Zootermopsis, and other Firmicutes, Proteobacteria and a combination of these.

12. The process of claim 1, wherein said microbial population of step (c) is a member selected from the group consisting of Aerobacter, Aeromonas, Alcaligenes, Bacillus, Bacteroides, Clostridium, Escherichia, Klebsiella,, Leptospira, Micrococcus, Neisseria, Paracolobacterium, Proteus, Pseudomonas, Rhodopseudomonas, Sarcina, Serratia, Streptococcus and Streptomyces, Methanobacterium omelianskii, Mb. Formicium, Mb. Sohngenii, Methanosarcina barkeri, Ms. Methanica, Mc. Masei, Methanobacterium thermoautotrophicum, Methanobacterium bryantii, Methanobrevibacter smithii, Methanobrevibacter arboriphilus, Methanobrevibacter ruminantium, Methanospirillum hungatei, Methanococcus vannielli, Methanothrix soehngenii, Methanothrix sp., Methanosarcina mazei, Methanosarcina thermophila, Methanobacteriaceae, Methanosarcinaceae, Methanosaetaceae, Methanocorpusculaceae, Methaanomicrobiaceae, other archaea and a combination of these.

13. The process of claim 1, wherein one or more of said treating steps is performed in a tanks, hydrolysis vessels or bioreactor that is agitated, stirred or mixed either continuously or intermittently.

14. The process of claim 1, wherein step (c) occurs in a container that contains within it a material that provides a medium for growth of methanogenic bacteria and which increases the surface area for said growth.

15. The process of claim 1, including a device to separate the effluent solids and liquids from the biogasification reactor, such that the solids may be disposed of or put to a beneficial use, and such that the liquids may be further treated, if necessary, and recycled to the chemical treatment tank.

16. The process of claim 1, wherein the anaerobic microbial population of step (c) includes methanogenic bacterial cells.

17. The process of claim 16, wherein the methanogenic bacterial cells are separated from the effluent liquid and solids and retained within a reactor.

18. The process of claim 1, wherein the liquid of step (a) is a solvent selected from aromatic hydrocarbons, creosote and heavy oils.

19. The process of claim 18, wherein the solvent is an aromatic hydrocarbon selected from phenanthrene, chrysene, fluoranthene and pyrene, nitrogenous ring aromatics, anthracene, fluorine, and catechol.

20. The process of claim 19, wherein the nitrogenous ring aromatic is acridine or carbazole.

21. The process of claim 1, wherein the liquid of step (a) is selected from an alkali, a carboxylic acid, a salt of a carboxylic acid, an ester of a carboxylic acid, and a peroxide.

22. The process of claim 21, wherein said liquid is an alkali.

23. The process of claim 22, wherein said alkali is NaOH or KOH.

24. The process of claim 22, wherein said alkali is a Lewis base.

25. The process of claim 21, wherein said liquid is a C1-C4 carboxylic acid, carboxylic acid is acetic acid, a salt of a C1-C4 carboxylic acid or an ester of a C1-C4 carboxylic acid.

26. The process of claim 25, wherein said liquid is acetic acid or a salt or ester of acetic acid.

27. The process of claim 21, wherein said liquid is benzoic acid, or a salt or ester of benzoic acid.

28. The process of claim 21, wherein said liquid is a peroxide.

29. The process of claim 28, wherein said peroxide is hydrogen peroxide.

30. The process of claim 29, wherein said treatment is with hydrogen peroxide in the presence of iron.

31. The process of claim 1, wherein step (a) comprises:

(i) treating coal with sodium hydroxide;

(ii) treating at least a portion of the product from (i) with acetic acid or a salt or ester of acetic acid, and

(iii) treating at least a portion of the product from (ii) with hydrogen peroxide in the presence of iron.

32. The method of claim 5, wherein said alkali is sodium hydroxide or potassium hydroxide.

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(b) treating at least a portion of the product of step (a) with a hydrolytic microbial population to produce a product containing fatty acids,

(c) treating at least a liquid portion of the product from step (b) with an anaerobic microbial population that generate methane to produce a product containing methane

wherein the liquid of step (a) is selected from an alkali, a carboxylic acid, a salt of a carboxylic acid, an ester of a carboxylic acid, and a peroxide and wherein the liquid of step (a) is a peroxide.