CLAIMS

1. A process for the production of a fractionated product comprising the steps of:

(i) providing a coal in particulate form, in which the coal particles have an average particle size by volume of at most 10 μm in diameter;

(ii) combining the coal with an unrefined liquid hydrocarbonaceous material in order to create a combined solid-liquid blend;

(iii) subjecting the combined solid-liquid blend to fractionation in order to generate one or more fractionation products.

2. A process according to Claim 1, in which the coal is ultrafine coal.

3. A process according to Claim 2, in which at least 95%v, typically at least 98%v, and optionally at least 99%v of the particles are no greater than 500 μm in diameter.

4. A process according to Claim 2, in which at least 95%v, typically at least 98%v, and optionally at least 99%v of the particles are no greater than 250 μm in diameter.

5. A process according to Claim 1, in which the coal is comprised of microfine coal.

6. A process according to Claim 5, in which at least 95%v, typically at least 98%v, and optionally at least 99%v of the particles are no greater than 20 μm in diameter.

7. A process according to any preceding claim, in which the coal is subjected to de-watering prior to step (i).

8. A process according to any preceding claim, in which the coal is subjected to ash removal prior to step (i).

9. A process according to any preceding claim, in which the coal has an inherent ash content of less than 20 % by mass (%m), suitably less than 10%m, optionally less than 5%m.

10. A process according to any preceding claim, in which the unrefined liquid hydrocarbonaceous material comprises a crude oil.

11. A process according to Claim 10, in which the crude oil is selected from: a sweet crude oil; and a sour crude oil.

12. A process according to any preceding claim, in which the combined solid-liquid blend comprises at most 60%m, suitably at most 40%m; and optionally at most 30%m of coal, based on the total mass of the combined solid-liquid blend.

13. A process according to any preceding claim, in which the combined solid-liquid blend comprises at least 0.01%m; suitably at least 1%m; optionally at least 10%m of coal, based on the total mass of the combined solid-liquid blend.

14. A process according to any preceding claim, in which the fractionation comprises distillation at or around atmospheric pressure.

15. A process according to Claim 14, in which distillation is additionally undertaken at reduced pressure.

16. A process according to Claim 14, in which fractionation by way of distillation occurs under atmospheric pressure followed by reduced pressure.

17. A process according to any preceding claim, in which the one or more fractionated products comprise lower distillate products derived from both the coal and the unrefined liquid hydrocarbonaceous material.

18. A process according to Claim 17, in which the lower distillate products comprise at least one of the group selected from: gasoline; naphtha; kerosene; and diesel.

19. A process according to any preceding claim, in which the one or more fractionated products comprise middle distillate products derived from both the coal and the unrefined liquid hydrocarbonaceous material.

20. A process according to Claim 19, in which the middle distillate products comprise at least one of the group selected from: marine diesel; light vacuum gas oil; and heavy vacuum gas oil.

21. A process according to Claim 15 or 16, in which the one or more fractionated products comprises a bitumen fraction.

22. A process according to any preceding claim, in which the combined solid-liquid blend product further comprises a dispersant additive.

23. A process according to any preceding claim, in which the process provides an increase in total distillate fractions of at least 1%v, suitably at least 2%v and optionally at least 3%v as determined by comparison to an equivalent solid-liquid blend in which the solid particulate material is inert.

24. A fractionated product obtainable by a process according to any preceding claim.

25. A process for operating a fractional distiller, the process comprising:

combining a coal fines material, in which the material is in particulate form, and has an average particle size by volume of at most 10 μm in diameter, with a crude oil in order to create a combined solid-liquid blend,

in which the combined solid-liquid blend comprises at least 0.01%m and at most 60%m of the coal fines material, based on the total mass of the combined solid-liquid blend;

introducing the combined solid-liquid blend into a fractionation column, or combining coal fines material with the crude oil in situ within a fractionation column, at or around atmospheric pressure; and

elevating the temperature of the fractionation column in order to effect fractionation of the combined solid-liquid blend so as to generate one or more fractionation products.

26. A process according to Claim 25, in which one or more of the fractionation products is subjected to a further fractionation under reduced pressure so as to generate one or more reduced pressure fractionation products.

27. A combined solid-liquid blend product comprising a dewatered coal fines preparation together with a crude oil, in which the preparation in particulate form and is characterised in that it has an average particle size by volume of at most 10 μm in diameter, and in which the solid-liquid blend comprises at most 60%m of dewatered coal fines, based on the total weight of the combined solid-liquid blend product.

28. A combined solid-liquid blend product according to Claim 27, in which the combined solid-liquid blend product comprises dewatered coal fines selected from one of the group consisting of:

(a) ultrafine coal which includes particles in which typically at least 95%v of the particles are no greater than 250 μm in diameter;

(b) ultrafine coal which includes particles in which typically at least 98%v of the particles are no greater than 250 μm in diameter;

(c) ultrafine coal which includes particles in which typically at least 99%v of the particles are no greater than 250 μm in diameter;

(d) microfine coal which comprises particles in which typically at least 95%v of the particles are no greater than 20 μm in diameter;

(e) microfine coal which comprises particles in which typically at least 98%v of the particles are no greater than 20 μm in diameter; and

(f) microfine coal which comprises particles in which typically at least 99%v of the particles are no greater than 20 μm in diameter.

29. A combined solid-liquid blend product according to Claim 27 or 28, in which the dewatered coal fines preparation comprises coal that has an inherent ash content of less than 20%m, suitably less than 10%m, optionally less than 5%m.

30. A combined solid-liquid blend product according to Claim 27 or 28, in which the dewatered coal fines preparation is subjected to a de-ashing process prior to combination in the solid-liquid blend product such that the preparation comprises less than 5%m of ash.

31. A combined solid-liquid blend product according to any of Claims 27 to 30, in which the combined solid-liquid blend product further comprises a dispersant additive.

32. Use of a combined solid-liquid blend product according to any of Claims 27 to 31, in a fractionation process for generating one or more fractionation products.