CLAIMS

1. A method for providing a fuel meeting a predetermined specification of properties, the method comprising:

taking a sample of the fuel;

mixing an additive into the sample in metered proportions;

testing the sample to determine that the combination of the fuel and the additive meets the predetermined specification of properties;

storing the remaining fuel without the additive for subsequent mixing with the additive into the remainder of the fuel in the same metered proportion.

2. A method as claimed in claim 1, further comprising the step of:

adjusting the metered proportions of the fuel and the additive where testing reveals that the sample contains an incorrect amount of additive.

3. A method as claimed in claim 1 or claim 2, wherein the fuel and the additive are fluids at the time of mixing.

4. A method as claimed in claim 3, wherein at least one of the fuel and the additive are liquid at the time of mixing.

5. A method as claimed in any preceding claim, wherein at least one of the fuel and the additive is a hydrocarbon.

6. A method as claimed in claim 5, wherein the hydrocarbon has been distilled from crude oil.

7. A method as claimed in claim 5 or claim 6, wherein one of the fuel and the additive comprises gasoline.

8. A method as claimed in claims 5 to 7, wherein one of the fuel and the additive comprises alcohol.

9. A method as claimed claim 8, wherein the alcohol comprises ethanol.

10. A method as claimed in any preceding claim, wherein one of the fuel and the

additive comprises a bio-fuel.

11. An apparatus adapted for carrying out the method in any preceding claim, the apparatus comprising;

a blending system for incorporating the additive into the fuel; and

a sample line for taking off a sample of the mixed additive and fuel for testing.

12. An apparatus as claimed in claim 11, wherein the blending system comprises a skid.

13. An apparatus as claimed in claim 11 or claim 12 when dependent upon claim 3, wherein the blending system comprises a plurality of cylinders, and wherein each cylinder contains a piston, and

each cylinder comprises at least one inlet, through which fuel or additive is supplied to the cylinder.

14. An apparatus as claimed in claim 13, wherein each cylinder comprises a first inlet and a second inlet, one at each end of the cylinder, and a valve which in use alternately directs the fuel or additive to the first inlet or the second inlet.

15. An apparatus as claimed in claim 14, wherein, in use, the piston of each cylinder is driven solely by the pressure of fluid entering the cylinder.

16. An apparatus as claimed in any of claims 13 to 15, wherein the blending system comprises a primary cylinder and at least one secondary cylinder, wherein the pistons in the secondary cylinders are arranged to operate in synchrony with the piston in the primary cylinder.

17. An apparatus as claimed in claim 16 as it depends upon claim 14, wherein the primary cylinder comprises at least one proximity switch, arranged to operate the valve in the primary cylinder when the piston approaches the end of the primary cylinder.

18. An apparatus as claimed in claim 17, wherein the proximity switch in the primary cylinder is also arranged to operate the valves in the secondary cylinders.

19. An apparatus as claimed in any of claims 11 to 18, wherein the apparatus

comprises a heat exchanger, and the fuel and the additive are put through opposite sides of the heat exchanger prior to mixing.

20. An apparatus as claimed in any of claims 11 to 19, wherein the cylinders are mounted inside a temperature controlled enclosure.

CLAIMS

1. An apparatus adapted for carrying out a method for providing a fuel meeting a predetermined specification of properties, the method comprising:

taking a sample of the fuel;
mixing an additive into the sample in metered proportions;
testing the sample to determine that the combination of the fuel and the additive meets the predetermined specification of properties;
storing the remaining fuel without the additive for subsequent mixing with the additive into the remainder of the fuel in the same metered proportion,

the apparatus comprising;

a blending system for incorporating the additive into the fuel; and

a sample line for taking off a sample of the mixed additive and fuel for testing;

wherein said blending system comprises a plurality of cylinders, and wherein each cylinder contains a piston, and each cylinder comprises at least one inlet, through which fuel or additive is supplied to the cylinder.

2. An apparatus as claimed in claim 1, wherein the blending system comprises a skid.

3. An apparatus as claimed in claim 1, wherein each cylinder comprises a first inlet and a second inlet, one at each end of the cylinder, and a valve which in use alternately directs the fuel or additive to the first inlet or the second inlet.

4. An apparatus as claimed in claim 3, wherein, in use, the piston of each cylinder is driven solely by the pressure of fluid entering the cylinder.

5. An apparatus as claimed in any of claims 1 to 4, wherein the blending system comprises a primary cylinder and at least one secondary cylinder, wherein the pistons in the secondary cylinders are arranged to operate in synchrony with the piston in the primary cylinder.

6. An apparatus as claimed in claim 5 as it depends upon claim 3, wherein the primary cylinder comprises at least one proximity switch, arranged to operate the valve in the primary cylinder when the piston approaches the end of the primary cylinder.

7. An apparatus as claimed in claim 6, wherein the proximity switch in the primary cylinder is also arranged to operate the valves in the secondary cylinders.

8. An apparatus as claimed in any of claims 1 to 7, wherein the apparatus comprises a heat exchanger, and the fuel and the additive are put through opposite sides of the heat exchanger prior to mixing.

9. An apparatus as claimed in any of claims 1 to 8, wherein the cylinders are mounted inside a temperature controlled enclosure.