(typically used in a fuel in an amount of greater than 3000 ppm, *i.e.* 0.3 %, weight additive / weight oxygenate base fuel), may not be introduced into oxygenate fuels in adequate amounts by direct dosing into the oxygenate base fuel at the fuel terminal. Furthermore, modifying the additive dosing systems so an additive may introduced into the oxygenate base fuel at higher treat rates may compromise the dispensing accuracy for the conventional deposit-control additive packs which are used at lower treat rates.

There is also limited flexibility associated with adding the octane improver additives to the BOB, or the oxygenate base fuel at the fuel terminal. For instance, it is difficult to alter the ratio of oxygenate and octane improver, so producing fuels with different oxygenate content but the same octane grade can be challenging. Similarly, the opportunity to offer multiple octane grades with a choice of oxygenate levels is missed.

Accordingly, there remains a need for a method for additising an oxygenate-containing fuel at a fuel terminal, *e.g.* with an octane improver, which mitigates at least some of the problems highlighted above. In particular, there remains a need for a method for additising an oxygenate fuel, such as an ethanol-containing fuel, with adequate amounts of fuel additives, *e.g.* octane improvers. There also remains a need for a method for additising an oxygenate fuel, such as an ethanol-containing fuel, which enables fuels having a range of properties to be prepared.

Summary of the Invention

Surprisingly, it has now been found that many of the constraints associated with additising a fuel with an octane-boosting additive may be avoided by preparing an additised oxygenate which comprises an oxygenate and an octane-boosting additive, and then blending said additised oxygenate with a base fuel.

Accordingly, in one aspect, the present disclosure provides a method for preparing a fuel composition which comprises a base fuel, an oxygenate and an octane-boosting additive, said method comprising:

blending an additised oxygenate with a base fuel,

wherein the additised oxygenate comprises an oxygenate and an octane-boosting additive.

In another aspect, the present disclosure provides a fuel composition which is obtainable by the methods as disclosed herein.

In another aspect, the present disclosure also provides an apparatus comprising:

a base fuel source, an oxygenate source and an octane-boosting additive source; an oxygenate blending point through which an octane-boosting additive from the

octane-boosting additive source may be blended with an oxygenate from the oxygenate source to form an additised oxygenate; and

a fuel blending point through which the additised oxygenate may be blended with a base fuel from the base fuel source.

In another aspect, the present disclosure further provides an additised oxygenate, wherein the additised oxygenate comprises an oxygenate and an octane-boosting additive. In a further aspect, the present disclosure provides a method for producing an additised oxygenate, said method comprising blending an octane-boosting additive with an oxygenate.

Brief Description of the Figures

Figure 1 is a diagram of an apparatus that may be used to carry out the method of the present invention.

Figure 2 shows a graph of the change in octane number (both RON and MON) of an E10 gasoline base fuel having a RON of 95 when treated with varying amounts of an octane-boosting additive described herein.

Figures 3a and 3b show graphs comparing the change in octane number (both RON and MON) of oxygenate fuels when treated with octane-boosting additives described herein and N-methyl aniline. Specifically, Figure 3a shows a graph of the change in octane number of an E10 fuel against treat rate; and Figure 3b shows a graph of the change in octane number of an E10 fuel at a treat rate of 0.67 % by weight.

Detailed Description of the Invention

Method of preparing a fuel composition

The present invention provides a method for preparing a fuel composition which comprises a base fuel, an oxygenate and an octane-boosting additive. The method comprises blending an additised oxygenate with a base fuel, the additised oxygenate comprising an oxygenate and an octane-boosting additive.

Preferably, the method of the present invention further comprises producing the additised oxygenate by blending the octane-boosting additive with the oxygenate. This may be achieved by adding the octane-boosting additive to an oxygenate storage tank or to an oxygenate stream which leads to a fuel blending point through which the additised oxygenate may be blended with the base fuel. Preferably, the octane-boosting additive is added to an oxygenate stream which leads to a fuel blending point through which the additised oxygenate may be blended with the base fuel.