CLAIMS

~~1. A method of determining methanol content in a crude oil, comprising:~~

extracting methanol into a water phase from a test sample of the crude oil forming a test sample extract;

extracting methanol into a water phase from a reference sample of the crude oil forming a reference sample extract, wherein the reference sample having a predetermined amount of methanol added thereto;

measuring the methanol content in the test sample extract;

measuring the methanol content in the reference sample extract; and

determining the methanol content of the crude oil based upon the methanol content in the test sample extract and the methanol content in the reference sample extract.

2. The method according to claim 1, wherein extracting methanol into a water phase from a test sample of the crude oil includes mixing a specified amount of the test sample with a mixture of water and a solvent.

3. The method according to claim 2, wherein extracting methanol into a water phase from a test sample of the crude oil further includes separating the crude oil from the water, wherein the methanol is contained in the water.

4. The method according to claim 3, further comprising:

performing an additional separation operation on the test sample in the event that separation of the crude oil from the water is unacceptable.

5. The method according to claim 3, wherein the test sample extract includes the separated water containing methanol.

6. The method according to anyone of the preceding claims, wherein measuring the methanol content in the test sample extract includes analyzing at least a portion of the test sample extract in a gas chromatograph.

~~7. The method according to claim 6, further comprising:~~

~~an additional clean-up operation on the test sample extract in the event that the~~ analysis of the test sample extract contains interferences.

8. The method according to claim 7, further comprising: reanalyzing at least a portion of the test sample extract in the gas chromatograph.

9. The method according to anyone of the preceding claims, wherein extracting methanol into a water phase from a reference sample of the crude oil includes mixing a specified amount of the reference sample with a mixture of water and a solvent.

10. The method according to claim 9, wherein extracting methanol into a water phase from a reference sample of the crude oil further includes separating the crude oil from the water, wherein the methanol is contained in the water.

11. The method according to claim 10, further comprising:

performing an additional separation operation on the test sample in the event that separation of the crude oil from the water is unacceptable.

12. The method according to claim 10, wherein the reference sample extract includes the separated water containing methanol.

13. The method according to claim 12, wherein measuring the methanol content in the reference sample extract includes analyzing at least a portion of the reference sample extract in a gas chromatograph.

14. The method according to claim 13, further comprising:

an additional clean-up operation on the reference sample extract in the event that the analysis of the reference sample extract contains interferences.

15. The method according to claim 14, further comprising: reanalyzing at least a portion of the reference sample extract in the gas chromatograph.

16. The method according to anyone of the preceding claims, wherein measuring the methanol content in the reference sample extract includes analyzing at least a portion of the reference sample extract in a gas chromatograph.

~~17. The method according to claim 16, further comprising:~~

performing an additional clean-up operation on the reference sample extract in the event that the analysis of the reference sample extract contains interferences.

18. The method according to claim 17, further comprising: reanalyzing at least a portion of the test sample extract in the gas chromatograph.

19. The method according to anyone of the preceding claims, wherein the determined methanol content of the crude oil is less than 1000 ppm.

20. The method according to claim 19, wherein the determined methanol content of the crude oil is less than 5 ppm.

21. The method according to claim 20, wherein the determined methanol content of the crude oil is less than 1 ppm.

CLAIMS

1. A method of determining methanol content in a crude oil, comprising:

adding water to a test sample of the crude oil to extract methanol from the test sample into the water phase to form a test sample extract comprising water and extracted methanol;

separating the test sample extract from the oil;

adding water to a reference sample of the crude oil having a predetermined amount of methanol added thereto to extract methanol from the reference sample in the same manner as for the test sample to form a reference sample extract comprising water and extracted methanol;

separating the reference sample extract from the oil;

measuring the methanol content of the test sample extract;

measuring the methanol content of the reference sample extract; and

determining the methanol content of the crude oil based upon the methanol content of the test sample extract and the methanol content of the reference sample extract.

2. The method according to claim 1, further comprising:

performing an additional separation operation on the test sample in the event that separation of the crude oil from the water is unacceptable.

3. The method according to claim 1, further comprising:

performing an additional clean-up operation on the test sample extract in the event that the analysis of the test sample extract contains interferences.

4. The method according to claim 3, further comprising:

reanalyzing at least a portion of the test sample extract in a gas chromatograph.

5. The method according to claim 1, wherein measuring the methanol content in the test sample extract includes analyzing at least a portion of the test sample extract in a gas chromatograph.

6. The method according to claim 5, further comprising:

performing an additional clean-up operation on the test sample extract in the event that the analysis of the test sample extract contains interferences.

7. The method according to claim 6, further comprising:

reanalyzing at least a portion of the test sample extract in the gas chromatograph.

8. The method according to claim 1, further comprising:

performing an additional separation operation on the reference sample in the event that the separation of the crude oil from the water is unacceptable.

9. The method according to claim 1, further comprising:

performing a clean-up operation on the reference sample extract in the event that the analysis of the reference sample extract contains interferences.

10. The method according to claim 9, further comprising:

reanalyzing at least a portion of the reference sample extract in a gas chromatograph.

11. The method according to claim 1, wherein measuring the methanol content in the reference sample extract includes analyzing at least a portion of the reference sample extract in a gas chromatograph.

12. The method according to claim 11, further comprising:

performing a clean-up operation on the reference sample extract in the event that the analysis of the reference sample extract contains interferences.

13. The method according to claim 12, further comprising:

reanalyzing at least a portion of the test sample extract in the gas chromatograph.

14. The method according to claim 1, wherein the determined methanol content of the crude oil is accurate when the actual methanol content of the crude oil is less than 1000 ppm.

15. The method according to claim 14, wherein the determined methanol content of the crude oil is accurate when the actual methanol content of the crude oil is less than 5 ppm.

16. The method according to claim 15, wherein the determined methanol content of the crude oil is accurate when the actual methanol content of the crude oil is less than 1 ppm.