Claims

1. A method for removing calcium from crude oil or its blends containing calcium naphthenate, and ~~i)~~ having no sulfur or having less than 0.2% by wt. sulfur contents of the crude oil or its blend, and

~~ii) having basic or alkaline conditions, and~~

~~iii) having a pH varying from about 6 to 11, and~~

~~iv) wherein said basic or alkaline conditions of crude oil or its blends or wash water are due to presence of one or more compounds selected from the group comprising ammonium hydroxide, ammonia, nitrogen compounds, basic compounds and alkaline compounds, and~~

~~v) wherein no acid and/or aldehyde having 7-20 carbon atoms is added to the crude oil or the additive, and~~

~~vi)~~ wherein ~~the~~ additive added to the crude oil or its blend or wash water for ~~the~~ desalter consists of glyoxylic acid; and

wherein the crude oil or its blends or the wash water for the desalter have:

i) a pH varying from 5 to 11;

ii) basic or alkaline conditions; and

iii) wherein said basic or alkaline conditions of crude oil or its blends or wash water are due to presence of one or more compounds selected from the group comprising ammonium hydroxide, ammonia, nitrogen compounds, basic compounds and alkaline compounds, and

wherein no acid and/or aromatic aldehyde having 7-20 carbon atoms is added to the additive.

2. The method as claimed in claim 1, wherein said pH varies from 6 to 11.

~~2~~3. ~~A~~ The method as claimed in claim 1 or 2, wherein the pH varies from ~~about~~ 7 to ~~about~~ 11.

~~3~~4. ~~A~~ The method as claimed in claim 1 or 2, wherein the pH varies from ~~about~~ 9 to ~~about~~ 11.

~~4. A method as claimed in any one of the preceding claims 1 to 3, wherein the pH is of wash water for desalter used in the crude oil processing system.~~

~~5. A method as claimed in any one of the preceding claims 1 to 4, wherein the additive is added in the crude oil phase or wash water for the desalter.~~

~~65~~. A method comprising use ~~Use of~~ of an additive consisting of glyoxylic acid for removal of calcium from crude oil or its blends containing calcium naphthenate, and ~~i)~~ having no sulfur or having less than 0.2% by wt. sulfur contents of the crude oil or its blend, and

~~ii) having basic or alkaline conditions, and~~

~~iii) having a pH varying from about 6 to 11, and~~

~~iv) wherein said basic or alkaline conditions of crude oil or its blends or wash water are due to presence of one or more compounds selected from the group comprising ammonium hydroxide, ammonia, nitrogen compounds, basic compounds and alkaline compounds, and~~

wherein the additive consisting of glyoxylic acid is added to the crude oil or its blend or wash water for desalter;

wherein the crude oil or its blends or the wash water for the desalter have:

i) a pH varying from 5 to 11;

ii) basic or alkaline conditions, and

iii) wherein said basic or alkaline conditions of crude oil or its blends or wash water are due to presence of one or more compounds selected from the group comprising ammonium hydroxide, ammonia, nitrogen compounds, basic compounds and alkaline compounds; and

~~v)~~ ——wherein no acid and/or aromatic aldehyde having 7-20 carbon atoms is added to ~~the crude oil or~~ the additive.

6. The method as claimed in claim 5, wherein the pH varies from 6 to 11.

7. ~~Use of glyoxylic acid~~ The method as claimed in claim ~~6~~5 or 6, wherein the pH varies from ~~about~~ 7 to ~~about~~ 11.

8. ~~Use of glyoxylic acid~~ The method as claimed in claim ~~6 or 7~~5 or 6, wherein the pH varies from ~~about~~ 9 to ~~about~~ 11.

~~9. Use of glyoxylic acid as claimed in any one of the preceding claims 6 to 8, the pH is of wash water for desalter used in the crude oil processing system.~~

~~10. Use of glyoxylic acid as claimed in any one of the preceding claims 6 to 9, wherein the additive is added in the crude oil phase or wash water for the desalter.~~

~~11~~9. ~~A~~The method as claimed in any one of the preceding claims 1 to ~~5~~4, wherein the glyoxylic acid is identifiable by cas no. 298-12-4.

~~12~~10. ~~A~~The method as claimed in any one of the preceding claims 1 to ~~5~~4, and ~~11~~9, wherein the glyoxylic acid is taken in an amount varying from ~~about~~ 1:1 to 1:3 mole ratio of calcium to glyoxylic acid.

~~13~~11. ~~A~~The method as claimed in any one of the preceding claims 1 to ~~5~~4, and ~~11-12~~ 9 to 10, wherein the glyoxylic acid is taken in an amount varying from ~~about about~~ 1 to ~~about~~ 2000 ppm in the crude oil or wash water for desalter.

Claims

1. A method for removing calcium from crude oil or its blends containing calcium naphthenate, and having no sulfur or having less than 0.2% by wt. sulfur contents of the crude oil or its blend, and

wherein additive added to the crude oil or its blend or wash water for desalter consists of glyoxylic acid; and

wherein the crude oil or its blends or the wash water for the desalter have:

i) a pH varying from 5 to 11;

ii) basic or alkaline conditions; and

iii) wherein said basic or alkaline conditions of crude oil or its blends or wash water are due to presence of one or more compounds selected from the group comprising ammonium hydroxide, ammonia, nitrogen compounds, basic compounds and alkaline compounds, and

wherein no acid and/or aromatic aldehyde having 7-20 carbon atoms is added to the additive.

2. The method as claimed in claim 1, wherein said pH varies from 6 to 11.

3. The method as claimed in claim 1 or 2, wherein the pH varies from 7 to 11.

4. The method as claimed in claim 1 or 2, wherein the pH varies from 9 to 11.

5. A method comprising use of an additive consisting of glyoxylic acid for removal of calcium from crude oil or its blends containing calcium naphthenate, and having no sulfur or having less than 0.2% by wt. sulfur contents of the crude oil or its blend, and

wherein the additive consisting of glyoxylic acid is added to the crude oil or its blend or wash water for desalter;

wherein the crude oil or its blends or the wash water for the desalter have:

i) a pH varying from 5 to 11;

ii) basic or alkaline conditions, and

iii) wherein said basic or alkaline conditions of crude oil or its blends or wash water are due to presence of one or more compounds selected from the group comprising ammonium hydroxide, ammonia, nitrogen compounds, basic compounds and alkaline compounds; and

wherein no acid and/or aromatic aldehyde having 7-20 carbon atoms is added to the additive.

6. The method as claimed in claim 5, wherein the pH varies from 6 to 11.

7. The method as claimed in claim 5 or 6, wherein the pH varies from 7 to 11.

8. The method as claimed in claim 5 or 6, wherein the pH varies from 9 to 11.

9. The method as claimed in any one of the preceding claims 1 to 4, wherein the glyoxylic acid is identifiable by cas no. 298-12-4.

10. The method as claimed in any one of the preceding claims 1 to 4, and 9, wherein the glyoxylic acid is taken in an amount varying from 1:1 to 1:3 mole ratio of calcium to glyoxylic acid.

11. The method as claimed in any one of the preceding claims 1 to 4, and 9 to 10, wherein the glyoxylic acid is taken in an amount varying from 1 to 2000 ppm in the crude oil or wash water for desalter.