Claims:

1. An integrated process for producing a low pour point MARPOL compliant bunker fuel oil, said process comprising:

a) subjecting a residue feed stock to mild thermal cracking in a mild thermal cracking unit to produce a cracked effluent stream, wherein the mild thermal cracking unit comprises a furnace and a reactor; wherein the residue feed stock is subjected to thermal cracking to form lighter fractions;

b) fractionating the thermally cracked effluent stream from an outlet of the reactor in a fractionator column for obtaining streams with boiling ranges 140°C-, 140-280°C, 280-380°C and 380°C+;

c) withdrawing the 140-280ºC boiling range stream from the cracked effluent stream;

d) subjecting the withdrawn stream and a straight run kerosene stream to stripping in a stripper and fractionating in a vacuum column separator for producing an aromatic enriched stream in-situ; and

e) blending the aromatic enriched stream, the 380°C+ fraction, and a paraffinic stream to produce the low pour point MARPOL compliant bunker fuel oil;

wherein the low pour point MARPOL compliant bunker fuel oil has a pour point of 9ºC to 18 ºC.

2. The process as claimed in claim 1, wherein the residue feed stock is selected from a group consisting of a vacuum residue, an atmospheric residue, and a pitch having a sulfur content in a range 0.1-0.6 wt%.

3. The process as claimed in claim 1, wherein the stripper has a top temperature in a range of 150-200°C, a top pressure in a range of 1-2 Kg/cm^2 (g) and a bottom temperature in a range of 200-300°C.

4. The process as claimed in claim 1, wherein the vacuum column separator has a top temperature in a range of 40-100°C, a pressure below 760 mm Hg and a bottom temperature in a range of 250-300°C.

5. The process as claimed in claim 1, wherein the low pour point MARPOL compliant bunker fuel is produced using the 380^{o} C+ boiling fraction in a range of 60-80 wt%, the 140-280^{o}C boiling fraction in a range of 5-15 wt%, the aromatic enriched stream in a range of 5-15 wt% and a 280-380^{o}C boiling fraction in a range of 0-5 wt%.

6. The process as claimed in claim 1, wherein the low pour point MARPOL compliant bunker fuel oil has sulfur in a range of 0.1- 0.5 wt%.

7. An integrated process for producing a low pour point MARPOL compliant bunker fuel oil, said process comprising:

a) heating a liquid hydrocarbon feedstock in a furnace of a mild thermal cracking unit;

b) sending the heated stream from the furnace to a reactor to obtain the cracked effluent stream;

c) fractionating the cracked effluent stream in a fractionator column for obtaining fractions with boiling ranges 140°C-, 140-280°C, 280-380°C and 380°C+;

d) withdrawing a paraffinic stream of boiling range 140-280°C from the fractionator column;

e) using the paraffinic stream along with a straight run kerosene stream as a feed stock for in-situ aromatic enrichment through stripping in a stripper followed by separation in a vacuum column separator to obtain an aromatic enriched stream;

f) blending the 380°C+ fraction, the aromatic enriched stream, the paraffinic stream and the 280-380^{o}C boiling fraction to produce the low pour point MARPOL compliant bunker fuel oil;

wherein the low pour point MARPOL compliant bunker fuel oil has a pour point in a range of 9^{o}C to 18 ^{o}C.

8. The process as claimed in claim 7, wherein the liquid hydrocarbon feedstock is selected from a group consisting of a vacuum residue, an atmospheric residue, a pitch having sulfur content in a range of 0.1-0.6 wt%.

9. The process as claimed in claim 7, wherein the reactor of the mild thermal cracking unit is operated at an operating temperature ranging from 400 to 470ºC and at an operating pressure ranging from 5 to 20 Kg/cm^2 (g).

10. The process as claimed in claim 7, wherein the reactor of the mild thermal cracking unit is operated at a residence time ranging from 10-40 minutes.

11. The process as claimed in claim 7, wherein the stripper has a top temperature in a range of 150-200°C, a top pressure 1-2 Kg/cm^2 (g) and a bottom temperature in a range of 200-300°C.

12. The process as claimed in claim 7, wherein the vacuum column separator has a top temperature in a range of 40-100°C, a pressure below 760 mm Hg and a bottom temperature in a range of 250-300°C.

13. The process as claimed in claim 7, wherein the aromatic enriched stream has a higher flash point and aromatic content as compared to the liquid hydrocarbon feed stock.

14. The process as claimed in claim 7 wherein the low pour point, MARPOL compliant bunker fuel oil is produced using the 380ºC+ boiling fraction in a range of 60-80 wt%, the 140-280ºC boiling fraction in a range of 5-15 wt%, the aromatic enriched stream in a range of 5-15 wt% and the 280- 380 ºC boiling fraction in a range of 0-5 wt%.

15. The process as claimed in claim 7, wherein aromatic enrichment of 140-280ºC boiling stream provides stability to a residue from the mild thermal cracking unit by solubilizing asphaltenes present .

16. The process as claimed in claim 7, wherein a flash point of the paraffinic stream is in a range of 30-60ºC and increases to 100-130ºC due to the aromatic enrichment.

17. The process as claimed in claim 7, wherein the low pour point MARPOL compliant bunker fuel oil has a sulfur in a range of 0.1- 0.5 wt%.