CLAIMS

1. A method to improve or maintain stability and/or compatibility of a residual hydrocarbon component or a residual fuel composition, said method comprising:

blending at least 5 % m/m to 80 % m/m of a fatty acids alkyl esters component with a stable residual fuel composition comprising (i) at least 5 % m/m to 95 % m/m of a residual hydrocarbon component selected from a group consisting of an atmospheric tower bottoms (ATB) residue, a vacuum tower bottoms residues (VTB), and any combination thereof and (ii) up to 90 % m/m of a non-hydroprocessed hydrocarbon component, a hydroprocessed hydrocarbon component, or any combination thereof, wherein the fatty acids alkyl esters component is blended with the stable residual fuel composition before at least one other fuel composition that decreases the asphaltenes solvency power of the residual fuel composition is added thereto and the combination of the stable residual fuel composition and the at least one other fuel composition forms a blended residual fuel composition, and wherein at least the blending of the fatty acids alkyl esters component before the at least one other fuel composition is added increases the compatibility of said stable residual fuel composition and/or the stability of the blended residual fuel composition, wherein the increase in compatibility of the stable residual fuel composition and/or the stability of the blended residual fuel composition is at least measured by a decrease in the amount of asphaltenes flocculation and/or precipitation in the blended residual fuel composition relative to the amount of asphaltenes flocculation and/or precipitation in the same blended residual fuel composition which (i) does not comprise the fatty acids alkyl esters component or (ii) comprises the fatty acids alkyl esters component blended after the at least one other residual marine fuel composition has been added to the stable residual marine fuel composition,

wherein the non-hydroprocessed component is selected from the group consisting of light cycle oil (LCO), heavy cycle oil (HCO), fluid catalytic cracking (FCC) cycle oil, FCC slurry oil, pyrolysis gas oil, cracked light gas oil (CLGO), cracked heavy gas oil (CHGO), pyrolysis light gas oil (PLGO), pyrolysis heavy gas oil (PHGO), pyrolysis residue (ECR), thermally cracked residue, thermally cracked heavy distillate, coker heavy distillates, vacuum gas oil (VGO), coker diesel, coker

gas oil, coker VGO, thermally cracked VGO, thermally cracked diesel, thermally cracked gas oil, Group I slack waxes, lube oil aromatic extracts, deasphalted oil (DAO), and any combination thereof;

and wherein the hydro-processed component is selected from a group consisting of low-sulphur diesel (LSD) having a sulphur content of less than 500 ppmw, ultra low-sulfur diesel (ULSD) having a sulphur content of less than 15 ppmw; hydrotreated LCO; hydrotreated HCO; hydrotreated FCC cycle oil; hydrotreated pyrolysis gas oil, hydrotreated PLGO, hydrotreated PHGO, hydrotreated CLGO, hydrotreated CHGO, hydrotreated coker heavy distillates, hydrotreated thermally cracked heavy distillate, hydrotreated coker diesel, hydrotreated coker gas oil, hydrotreated thermally cracked diesel, hydrotreated thermally cracked gas oil, hydrotreated VGO, hydrotreated coker VGO, hydrotreated residues, hydrocracker bottoms, hydrotreated thermally cracked VGO, and hydroprocessed DAO, including hydrotreated hydrocracker DAO, and any combination thereof.

2. The method of claim 1,

wherein: (i) the blended residual fuel composition comprising the stable residual fuel composition blended with the fatty acids alkyl ester component before the at least one other fuel composition is added has an asphaltenes solubility level, (ii) the blended residual fuel composition comprising with the stable residual fuel composition without the fatty acids alkyl ester component has an asphaltenes solubility level, and (iii) the blended residual fuel composition comprising the stable residual fuel composition blended with the fatty acids alkyl ester component after the at least one other fuel composition is added has an asphaltenes solubility level; wherein the asphaltenes solubility level of (i) is greater than the asphaltenes solubility level of either (ii) or (iii).

3. The method of claim 2 wherein the asphaltenes solubility is determined by ASTM D4740.

4. The method of any of the preceding claims, wherein stability is determined using the ASTM D7060 method.

5. The method of any of the preceding claims, wherein the fatty acids alkyl esters component is a product of trans-esterification of vegetable oils and/or animal fats with an alcohol, or the esters of a fatty acids derived from naturally occurring oils and fats, and an alcohol.

6. The method of claim 5, wherein said oils and/or fats are selected from the group consisting of Soy Oil, Palm Oil, Rapeseed Oil, Linseed Oil, Coconut Oil, Corn Oil, Cotton Oil, Cooking Oils, including Used Cooking Oils, Waste Cooking Oils, Sunflower Oil, Safflower Oil, Algae Oil, Tallow, Lard, Yellow Grease, Brown Grease, Fish Oils, and any combination thereof.

7. The method of claim 5, wherein said alcohol is selected from the group consisting of linear, branched, alkyl, aromatic, primary, secondary, tertiary, and polyols.

8. The method of any of the preceding claims wherein the residual fuel composition has a sulphur content in a range of about 0.05 to about 3.5 % m/m.

9. The method of any one of the preceding claims, wherein the residual fuel composition exhibits at least one of the following:

a hydrogen sulfide content of at most 2.0 mg/kg; an acid number of at most 2.5 mg KOH per gram; a sediment content of at most 0.1 % m/m; a water content of at most 0.5 % v/v; an ash content of at most 0.15 % m/m; a density at 15 °C in a range of 0.870 to 1.010 g/cm^3, a kinematic viscosity at 50 °C in a range of 1 to 700 cSt, a pour point in the range of -30 to 35 °C, and a flash point in a range of 60 °C to 130 °C.

10. The method of any one of the preceding claims, wherein the Atmospheric Tower Bottoms (ATB) residues exhibit at least one of the following: a pour point in a range of -19.0 to 64 °C, a flash point in a range of 80 to 213 °C; an acid number of up to 8.00 mg KOH/g; a density at ~15 °C of at most about 1.0 g/cc; and a kinematic viscosity at ~ 50 °C in a range of 1.75 to 15000 cSt, and wherein

the VTB residues exhibit at least one of the following: a density at 15 °C in a range of 0.8 to 1.1 g/cc; a pour point in a range of -15.0 to 95 °C, a flash point in a range of 220 to 335 °C; an acid number of up to 8.00 mg KOH/g; and a kinematic viscosity at 50 °C in a range of 3.75 to 15000 cSt.

11. The method of any one of the preceding claims wherein the ATB residues comprise greater than 70 % m/m, greater than 80 % m/m, or greater than 90 % m/m hydrocarbons having carbon numbers greater than C20.