The invention claimed is:

1. A heavy marine fuel oil product that is ISO 8217: 2017 compliant for a residual marine fuel, and is of merchantable quality as such, and has a sulfur content (ISO 14596 or ISO 8754) less than 0.5 wt %, and is made from a heavy marine fuel oil that is ISO 8217:2017 compliant that has a sulfur content (ISO 14596 or ISO 8754) greater than 0.5 % wt., said product being produced by a process comprising:

a) combining a predetermined quantity of the heavy marine fuel oil. with a predetermined amount of an Activating Gas to form a Feedstock Mixture;

b) bringing the Feedstock Mixture up to predetermined process conditions of temperature and pressure to form a heated and pressurized Feedstock Mixture;

c) contacting said heated and pressurized Feedstock Mixture in at least one reactor vessel with one or more catalyst systems selected from the group consisting of: an ebulliated bed supported transition metal heterogeneous catalyst, a fixed bed supported transition metal heterogeneous catalyst, and a combination of ebulliated bed supported transition metal heterogeneous catalysts and fixed bed supported transition metal heterogeneous catalysts, wherein said contacting takes place under reactive process conditions to form a Process Mixture;

d) removing the Process Mixture from being in contact with the one or more catalyst systems in the at least one reactor vessel and sending the Process Mixture via fluid communication from the at least one reactor vessel to at least one second vessel for separating the Liquid Components of the Process Mixture from the Gaseous Components of the Process Mixture;

e) sending by fluid communication the Liquid Components of the Process Mixture from the at least one second vessel to at least one third vessel, and removing from the Liquid Components of the Process Mixture any residual gaseous components and any by-product hydrocarbon components to form said heavy marine fuel oil product; and,

f) discharging from said at least one third vessel said heavy marine fuel oil product.

2. The product of the process of claim 1, wherein the heavy marine fuel oil has a sulfur content (ISO 14596 or ISO 8754) in the range from 1.0% wt. to 5.0% wt., a kinematic

viscosity at 50° C (ISO 3104) between the range from 180 mm^2/s to 700 mm^2/s; a density at 15° C (ISO 3675) between the range of 991.0 kg/m^3 to 1010.0 kg/m^3; a CCAI is in the range of 780 to 870 ; a flash point (ISO 2719) no lower than 60.0 °C, a total sediment – aged (ISO 10307-2) of lower than 0.10% wt. ; a carbon residue – micro method (ISO 10370) lower than the range of 18.00% wt. and 20.00% wt., and an aluminum plus silicon (ISO 10478) content less than 60 mg kg.

3. The product of the process of claim 1, wherein the heavy marine fuel oil product has a sulfur content (ISO 14596 or ISO 8754) less than 0.1 wt %.; a kinematic viscosity at 50° C (ISO 3104) between the range from 180 mm^2/s to 700 mm^2/s; a density at 15° C (ISO 3675) between the range of 991.0 kg/m^3 to 1010.0 kg/m^3; a CCAI is in the range of 780 to 870 ; a flash point (ISO 2719) no lower than 60.0° C, a total sediment – aged (ISO 10307-2) of lower than 0.10 % wt. ; a carbon residue – micro method (ISO 10370) lower than the range of 18.00 % wt. and 20.00 % wt., and an aluminum plus silicon (ISO 10478) content less than 60 mg/kg.

4. The product of the process of claim 1 wherein the catalyst system comprises a porous inorganic oxide catalyst carrier selected from the group consisting of alumina, alumina/boria carrier, a carrier containing metal-containing aluminosilicate, alumina/phosphorus carrier, alumina/alkaline earth metal compound carrier, alumina/titania carrier and alumina/zirconia carrier, and a transition metal component selected from the group consisting of group 6, 8, 9 and 10 of the Periodic Table.

5. The product of the process of claim 1, wherein the catalyst system comprises one or more fixed bed supported transition metal heterogeneous catalysts, wherein the supported transition metal heterogeneous catalyst is composed of a porous alumina oxide catalyst carrier and a transition metal catalysts selected from the group consisting of Ni--Mo, Co--Mo, Ni--W, and Ni – Co—Mo.

6. The product of the process of claim 1, wherein the predetermined quantity of the Activating Gas and the predetermined quantity of Feedstock Heavy Marine Fuel Oil is in the range of 2500 scf gas/bbl of Feedstock HMFO to 4500 scf gas/bbl of Feedstock Heavy Marine Fuel Oil.

7. The product of the process of claim 1, wherein the reactive conditions of temperature in the at least one reactor vessel is in the range between 650° F and 850° F and the reactive conditions of pressure temperature in the at least one reactor vessel is in the range between

1000 psig and 2500 psig; and the reactive conditions of liquid hourly space velocity in the at least one reactor vessel is in the range between 0.08 oil/hour/m^3 catalyst and 0.5 oil/hour/m^3 catalyst.

8. The product of the process of claim 6 wherein the hydraulic capacity of the at least one reactor vessel is in range between 5,000 bbl of Feedstock Heavy Marine Fuel Oil/day and 45,000 bbl of Feedstock Heavy Marine Fuel Oil/day.