CLAIMS:

1. A method for producing a distillate boiling range product, comprising:

introducing a first feed and a second feed into a reactor having a reactor volume, the reactor volume including a first volume and a separated volume, the first volume and the separated volume being separated by a dividing barrier within the reactor volume, the second feed including at least 20% by volume of a biocomponent feedstock;

exposing the first feed, in the first volume, to a first hydroprocessing catalyst under first effective hydroprocessing conditions to produce a first hydroprocessing effluent;

maintaining, by the dividing barrier, physical separation of the first feed and the second feed in at least a portion of the reactor volume; and

exposing the second feed, in the separated volume, to a second hydroprocessing catalyst under second effective hydroprocessing conditions to produce a second hydroprocessing effluent.

~~2. The method of claim 1, further comprising:~~

~~recycling at least a portion of effluent from the reactor to form at least one of the first feed or the second feed, the at least one of the first feed and the second feed comprising less than about 50 wt% of recycled effluent.~~

~~3. The method of claim 2, wherein the first feed comprises less than about 50 wt% of the recycled effluent, physical separation of the first feed and the second feed are maintained for the entire reactor volume, and the recycled effluent comprises at least a portion of the second hydroprocessing effluent.~~

~~4. The method of claim 3, wherein the second feed includes an oxygen content of at least about 3 wt%, the second effective hydroprocessing conditions comprise effective hydrodeoxygenation conditions, and the second hydroprocessing effluent comprises a liquid effluent with an oxygen content of less than about 3 wt%.~~

~~5. The method of any one of the preceding claims, wherein the first feed has a nitrogen content that differs from the nitrogen content of the second feed by at least about 100 wppm.~~

~~6. The method of any one of the preceding claims, wherein the second feed comprises at least 20% by volume of a biocomponent feedstock.~~

~~7.~~ 2. The method of ~~any one of the preceding claims~~ claim 1, wherein physical separation of the first feed and the second feed are maintained for the entire reactor volume.

~~8.~~3. The method of ~~any one of the preceding claims~~ claim 2, wherein the first feed is a naphtha boiling range feed.

~~9.~~4. The method of ~~any one of the preceding claims~~ claim 2, wherein the oxygen content of the second feed is greater than about 3 wt%.

~~10.~~5. The method of claim ~~9~~ 4, wherein the second effective hydroprocessing conditions comprise effective hydrodeoxygenation conditions, ~~and~~ the second hydroprocessing effluent ~~comprises~~ comprising a liquid effluent with an oxygen content of less than about 3 wt%.

~~11.~~6. The method of ~~any one of claims 9-10~~ claim 4, wherein the second hydroprocessing effluent is separated to form a gas phase effluent and a liquid effluent, further comprising:

mixing the liquid effluent with a mineral feed to form a mixed feed; and

hydroprocessing the mixed feed.

~~12.~~7. The method of ~~any one of the preceding claims~~ claim 1, wherein the first feed has a basic nitrogen content of at least about 50 wppm.

~~13.~~8. The method of ~~any one of the preceding claims~~ claim 1, wherein separation of

the first feed and the second feed is maintained in the reactor volume until the first feed is downstream from at least one catalyst bed.

~~14.~~9. The method of ~~any one of the preceding claims~~ claim 1, wherein the second hydroprocessing effluent is combined with the first feed and/or the first hydroprocessing effluent after a final hydroprocessing stage in the reactor volume and prior to leaving the reactor.

~~15. The method of any one of the preceding claims, wherein the second hydroprocessing effluent is combined with the first hydroprocessing effluent after a final hydroprocessing stage in the reactor volume and prior to leaving the reactor.~~

~~16. The method of any one of the preceding claims, wherein the second hydroprocessing catalyst comprises a dewaxing catalyst, and wherein the second hydroprocessing conditions comprise catalytic dewaxing conditions.~~

~~17. The method of any one of the preceding claims, wherein separation of the first feed and the second feed is maintained in the reactor volume until the first feed is downstream from at least one flow distributor.~~

10. A method for producing a distillate boiling range product, comprising:

introducing a first feed and a second feed into a reactor having a reactor volume, the reactor volume including a first volume and a separated volume, the first volume and the separated volume being separated by a dividing barrier within the reactor volume;

exposing the first feed, in the first volume, to a first hydroprocessing catalyst under first effective hydroprocessing conditions to produce a first hydroprocessing effluent;

maintaining, by the dividing barrier, physical separation of the first feed and the second feed in at least a portion of the reactor volume;

exposing the second feed, in the separated volume, to a second hydroprocessing catalyst under second effective hydroprocessing conditions to

produce a second hydroprocessing effluent; and

recycling an effluent comprising at least a portion of the first hydroprocessing effluent or at least a portion of the second hydroprocessing effluent from the reactor to form at least one of the first feed or the second feed, the at least one of the first feed and the second feed comprising less than about 50 wt% of the recycled effluent.

11. The method of claim 10, wherein separation of the first feed and the second feed is maintained in the reactor volume until the first feed is downstream from at least one catalyst bed.

12. The method of claim 10, wherein the recycled effluent comprises at least a portion of the first hydroprocessing effluent and at least a portion of the second hydroprocessing effluent.

13. The method of claim 10, wherein the first feed comprises less than about 50 wt% of the recycled effluent, physical separation of the first feed and the second feed are maintained for the entire reactor volume, and the recycled effluent comprises at least a portion of the second hydroprocessing effluent.

14. The method of claim 13, wherein the second feed includes an oxygen content of at least about 3 wt%, the second effective hydroprocessing conditions comprise effective hydrodeoxygenation conditions, and the second hydroprocessing effluent comprises a liquid effluent with an oxygen content of less than about 3 wt%.

15. A method for producing a distillate boiling range product, comprising:

introducing a first feed and a second feed into a reactor having a reactor volume, the first feed having a nitrogen content that differs from a nitrogen content of the second feed by at least about 100 wppm, the first feed being introduced on a first side of a partition in the reactor volume and the second feed being introduced on a second side of the partition;

exposing the first feed, in the reactor volume, to a first hydroprocessing catalyst under first effective hydroprocessing conditions to produce a first

hydroprocessing effluent;

maintaining physical separation of the first feed and the second feed in at least a portion of the reactor volume, the physical separation of the first feed and the second feed being maintained by the partition; and

exposing the second feed, in the reactor volume, to a second hydroprocessing catalyst under second effective hydroprocessing conditions to produce a second hydroprocessing effluent.

16. The method of claim 15, wherein the first feed has a basic nitrogen content that differs from the basic nitrogen content of the second feed by at least about 50 wppm.

17. The method of claim 15, wherein at least a portion of the second feed comprises a biocomponent feedstock.

18. The method of claim 15, wherein separation of the first feed and the second feed is maintained by the partition in the reactor volume until the first feed is downstream from at least one flow distributor.

19. The method of claim 15, wherein separation of the first feed and the second feed is maintained by the partition in the reactor volume until the first feed is downstream from at least one catalyst bed.