CLAIMS:

1. A method for processing a biocomponent feedstock, comprising:
deoxygenating a feedstock containing from 15 wt% to 40 wt% triglycerides to by contact with a catalyst in the presence of hydrogen, the first catalyst comprising a support with either a Group VI metal catalyst or Group VIII non-noble metal catalyst under deoxygenation conditions including a temperature from 230°C to 375°C, an LHSV from 0.2 hr 1 to 10 hr 1, and a hydrogen partial pressure of 1.4 to 2.8 MPa, for forming a deoxygenated effluent having an oxygen content that is at least 40% less than the oxygen content of the feedstock;
separating the at least partially deoxygenated effluent to form a gas phase effluent comprising propylene and a liquid phase effluent, the liquid phase effluent comprising at least 10 wt% olefins; and
separating at least a portion of the propylene from the gas phase effluent.

2. The method of claim 1, further comprising fractionating the liquid phase effluent to form at least a diesel product fraction.

3. The method of any prior claim, wherein the propylene separated from the gas phase effluent comprises at least 1 wt% of propylene relative to the weight of the feedstock.

4. The method of any prior claim, wherein the liquid phase effluent has an olefin to paraffin ratio of at least 0.06.

5. The method of any prior claim, wherein the catalyst comprises tungsten, molybdenum, or cobalt.

6. The method of claim 5, wherein the catalyst further comprises a physical promoter metal.

7. The method of claim 6, wherein the physical promoter metal is zinc, magnesium, or a combination thereof.

8. The method of any prior claim, further comprising exposing the liquid phase effluent to an acidic catalyst under effective conditions for oligomerization of at least a portion of

the olefins to form a product effluent; and fractionating the product effluent to form at least a diesel product fraction and a lubricant base oil product fraction.

9. The method of claim 8, further comprising:
hydrotreating the product effluent under effective hydrotreating conditions; and
dewaxing the hydrotreated product effluent to with a dewaxing catalyst, and
fractionating the hydrotreated, dewaxed product effluent to form a diesel product fraction and a lubricant base oil product fraction

10. The method of any one of claims 8-9, wherein the acidic catalyst comprises MCM-49, MCM-56, zeolite USY, montmorillonite, an acidic clay, sulfated ZrO_2, tungsten oxide, or a combination thereof.

11. The method of any one of claims 8-9, wherein the acidic catalyst comprises MCM-49, MCM-56, or tungsten oxide supported on zirconia.

12. The method of any prior claim, wherein the deoxygenated effluent comprises at least 20 wt% of olefins.

13. The method of any prior claim, further comprising:
hydrotreating the liquid phase effluent.

14. The method of any prior claim, further comprising:
dewaxing at least one of the liquid phase effluent or the diesel product with a dewaxing catalyst

15. The method of any prior claim, wherein the feedstock is deoxygenated over two portions of the deoxygenation catalyst to form a deoxygenated effluent having an oxygen content of 1.0 wt% or less.

16. The method of any prior claim, wherein the at least partially deoxygenated effluent has an oxygen content of 0.5 wt% or less.

CLAIMS:

1. A method for processing a biocomponent feedstock, comprising:

exposing a feedstock containing triglycerides to a first catalyst in the presence of hydrogen, the first catalyst comprising a supported Group VI metal catalyst or a supported Group VIII non-noble metal catalyst under effective deoxygenation conditions for forming an at least partially deoxygenated effluent comprising at least about 20 wt% of olefins, the at least partially deoxygenated effluent having an oxygen content that is at least 40% less than an oxygen content of the feedstock;

separating the at least partially deoxygenated effluent to form a gas phase effluent comprising propylene and a liquid phase effluent, the liquid phase effluent comprising at least about 10 wt% olefins;

exposing the liquid phase effluent to an acidic catalyst under effective conditions for oligomerization of at least a portion of the olefins to form a product effluent;

fractionating the product effluent to form at least a diesel product fraction and a lubricant base oil product fraction; and

separating at least a portion of the propylene from the gas phase effluent.

2. The method of claim 1, further comprising fractionating the liquid phase effluent to form at least a diesel product fraction.

3. The method of claim 1, wherein the propylene separated from the gas phase effluent comprises at least 1 wt% of propylene relative to the weight of the feedstock.

4. The method of claim 1, wherein the feedstock comprises at least 40 wt% of triglycerides.

5. The method of claim 1, wherein the liquid phase effluent has an olefin to paraffin ratio of at least about 0.06.

6. The method of claim 1, wherein the first catalyst comprises tungsten, molybdenum, or cobalt.

7. The method of claim 6, wherein the first catalyst further comprises a physical promoter metal.

8. The method of claim 7, wherein the physical promoter metal is zinc, magnesium, or a combination thereof.

9. The method of claim 1, further comprising:

hydrotreating the product effluent under effective hydrotreating conditions to produce a hydrotreated product effluent; and

exposing the hydrotreated product effluent to a dewaxing catalyst under effective dewaxing conditions,

wherein the hydrotreated product effluent is dewaxed prior to the fractionation of the product effluent.

10. The method of claim 1, wherein the acidic catalyst comprises MCM-49, MCM-56, zeolite USY, montmorillonite, an acidic clay, sulfated ZrO_2, tungsten oxide, or a combination thereof.

11. The method of claim 1, wherein the acidic catalyst comprises MCM-49, MCM-56, or tungsten oxide supported on zirconia.

12. The method of claim 1, wherein the effective deoxygenation conditions include a temperature from about 250°C to about 350°C, an LHSV from about 0.2 hr^{-1} to about 10 hr^{-1}, and a hydrogen partial pressure of about 200 psig (1.4 MPag) to about 2000 psig (14 MPag).

13. The method of claim 1, further comprising:

hydrotreating the liquid phase effluent under effective hydrotreating conditions.

14. The method of claim 1, further comprising:

exposing at least one of the liquid phase effluent or the diesel product to a dewaxing catalyst under effective dewaxing condition.

15. The method of claim 1, wherein exposing the feedstock to the first catalyst comprises:

exposing the feedstock containing triglycerides to a first catalyst portion in the presence of hydrogen under effective deoxygenation conditions to form an at least partially deoxygenated effluent and first gas phase effluent comprising propylene, the first catalyst portion comprising a supported Group VI metal catalyst or a supported Group VIII non-noble metal catalyst;

exposing at least a portion of the partially deoxygenated effluent to a second catalyst portion in the presence of hydrogen under effective deoxygenation conditions to form the deoxygenated effluent and a second gas phase effluent comprising propylene, the deoxygenated effluent having an oxygen content of about 1.0 wt% or less, the second catalyst portion comprising a supported Group VI metal catalyst or a supported Group VIII non-noble metal catalyst; and

separating at least a portion of the propylene from the first gas phase effluent and the second gas phase effluent.

16. The method of claim 15, wherein the first catalyst portion and the second catalyst portion comprise the same supported metal catalyst.

17. The method of claim 1, wherein the first catalyst comprises tungsten, the feedstock comprises from about 15 wt% to about 40 wt% triglycerides, and the effective deoxygenation conditions include a temperature from about 560°F (293°C) to about 600°F (316°C), an LHSV from about 0.2 hr^{-1} to about 10 hr^{-1}, and a hydrogen partial pressure of about 300 psig (2.1 MPag) to about 500 psig (3.4 MPag).

18. The method of claim 1, wherein the first catalyst comprises zinc and molybdenum, the feedstock comprises from about 15 wt% to about 40 wt% triglycerides, and the effective deoxygenation conditions include a temperature from about 560°F (293°C) to about 600°F (316°C), an LHSV from about 0.2 hr^{-1} to about 10 hr^{-1}, and a hydrogen partial pressure of about 300 psig (2.1 MPag) to about 500 psig (3.4 MPag).

19. The method of claim 1, wherein the at least partially deoxygenated effluent has an oxygen content of about 0.5 wt% or less.