CLAIMS

1. A method for combined production of renewable paraffinic products, the method comprising

providing a renewable paraffinic feed by hydrodeoxygenation and isomerization of renewable raw material comprising fatty acids and/or esters of fatty acids; and

fractionating the renewable paraffinic feed into two fractions, such that within the two fractions,

- a lighter fraction fulfils a specification for an aviation fuel component of ASTM D7566-17b Annex A2 for HEFA (hydroprocessed esters and fatty acids), and
- a heavier fraction fulfils a specification for an electrotechnical fluid component of standard IEC 60296 – 2018,

a combined yield of the two fractions is at least 98 wt-% of the renewable paraffinic feed subjected to the fractionation, and

a yield of the lighter fraction is 20-90 wt-% of the total weight of the two fractions, and a yield of the heavier fraction is 10-80 wt-% of the total weight of the two fractions,

wherein the hydrodeoxygenation is performed under a hydrogen pressure from 10 to 200 barg (bar gauge), at temperature from 200 to 400 °C, and using liquid hourly space velocity of 0.2 h-1 to 10 h-1, and

wherein the isomerization is performed at a temperature of 200 – 500 ^{o}C, and at a pressure of 10 – 150 bar (absolute).

2. The method according to claim 1, wherein the heavier fraction fulfils a specification for an electrotechnical fluid component of standard IEC 60296 – 2018 comprising:

a viscosity at 40^{o}C as measured according to ENISO 3104 – 1996 of 12 mm^2/s or below, typically 3.4 mm^2/s,

a viscosity at -30^{o}C as measured according to ENISO 3104 – 1996 of 1800 mm^2/s or below, typically 42.2 mm^2/s,

a flash point (PM) as measured according to ENISO 2719 – 2016 of at least 135^{o}C, typically 138.5^{o}C, and

an acidity of 0.01 mg KOH/g or below, typically less than 0.001 mg KOH/.

3. The method according to claim 1 or 2, wherein the heavier fraction is a transformer oil fulfilling all Table 2 General Specifications of standard IEC 60296 – 2018.

4. The method according to any of the preceding claims, wherein the fractionating is provided by distillation.

5. The method according to any of the preceding claims, wherein the combined yield of the two fractions is at least 99 wt-% or 100 wt-% of the renewable paraffinic feed subjected to the fractionation.

6. The method according to any of the preceding claims, wherein the isomerization is catalytic isomerization, preferably catalytic hydroisomerization.

7. The method according to any of the preceding claims, wherein the production capacity of the lighter fraction and the production capacity of the heavier fraction are adjusted by the selection of the hydrodeoxygenation and isomerization conditions, such as temperature and/or residence time in isomerization, and/or by selection of the renewable raw material.

~~8. The method according to any of the preceding claims, wherein the hydrodeoxygenation is performed under a hydrogen pressure from 10 to 200 barg (bar gauge), at temperature from 200 to 400 °C, and using liquid hourly space velocity of 0.2 h-1 to 10 h-1.~~

~~9~~8. The method according to any of the preceding claims, wherein the isomerization is performed at a temperature of ~~200 – 500 °C, preferably at~~ 280 – 400 °C, and at a pressure of ~~10 – 150 bar~~ (absolute)~~, preferably~~ 30 – 100 bar.

~~10~~9. The method according to any of the preceding claims, wherein the renewable paraffinic feed is subjected, after hydrodeoxygenation and isomerization, to a stabilization treatment in a stabilization column, at a pressure lower than the isomerization pressure, to obtain a stabilized renewable paraffinic feed and an overhead fraction comprising hydrocarbons in the naphtha range (C4-C8), followed by subjecting the stabilized renewable paraffinic feed to the fractionation, and optionally recovering and recycling at least part of the overhead fraction back to the stabilization column for refluxing.

~~11~~10. The method according to any of the preceding claims, wherein the production capacity of the lighter fraction and the production capacity of the heavier fraction are adjusted by selection of the cloud point and/or the density of the renewable paraffinic feed.

~~12~~11. The method according to any of the preceding claims,

wherein the cloud point of the renewable paraffinic feed is -30°C or below, or -34°C or below, or -40°C or below, or -48°C or below, as measured according to EN23015 - 1994.

~~13~~12. The method according to any of the preceding claims, wherein a yield of the lighter fraction is 70-90 wt-% of the total weight of the two fractions, and a yield of the heavier fraction is 10-30 wt-% of the total weight of the two fractions.

~~14~~13. The method according to any of the preceding claims, wherein the renewable paraffinic feed contains C8-C22 hydrocarbons, or C10-C20 hydrocarbons, or C15-C18 hydrocarbons.

~~15~~14. The method according to any of the preceding claims, wherein the renewable paraffinic feed has a distillation range of within the range of 140°C - 340°C, preferably within the range of 180°C - 320°C.

~~16~~15. The method according to any of the preceding claims, wherein the lighter fraction fulfils a specification for an aviation fuel component of ASTM D7566-17b Annex A2 for HEFA comprising:

a density of at most 772 kg/m^3 as measured at 15 °C according to ASTM D4052 - 2016, and

a freezing point of less than -40°C as measured according to IP529 - 2016.

~~17~~16. The method according to any of the preceding claims, wherein the lighter fraction is an aviation fuel component fulfilling all specifications of ASTM D7566-17b Annex A2 for HEFA.

~~18~~17. The method according to any of the preceding claims, further comprising stabilizing the lighter fraction by admixing one or more antioxidants.

~~19~~18. The method according to any of the preceding claims, further comprising blending:

1 - 50 vol-%, preferably 3 – 50 vol-%, of the lighter fraction;

99 – 50 vol-%, preferably 97 – 50 vol-%, of a fossil aviation fuel component;

and optionally one or more aviation fuel performance enhancing additive selected from antioxidants, metal deactivators, and fuel system icing inhibitors, and/or one or more aviation fuel handling and maintenance additive selected from electrical conductivity improvers, leak detection additives, biocidal additives, corrosion inhibitors, and lubricity improvers;

to obtain a final aviation fuel composition.