CLAIMS

1. A method for preparing an aviation fuel composition, the method comprising

subjecting a feedstock (101) of biological and/or recycled origin to cracking in a cracking unit (102) and to fractionation in a fractionation unit (104) to obtain a kerosene fraction (105);

subjecting the obtained kerosene fraction (105) to hydrotreatment in a hydrotreatment unit (106) to form a first jet fuel component (107);

forming a fuel composition (110) having a wear scar diameter of 0.78 mm or less, as measured with BOCLE lubricity test method according to ASTM D5001, by mixing the formed first jet fuel component (107) with a further jet fuel component (109), such that the wear scar diameter measured for the fuel composition (110) is at least 0.04 mm lower than the wear scar diameter obtained based on the neat components (107, 109), and such that the fuel composition (110) contains from 5 wt-% to 15 wt-% of the first jet fuel component (107) and from 85 wt-% to 95 wt-% of the further jet fuel component (109);

wherein the feedstock (101) contains one or more of:

- tall oil pitch (TOP),

- a mixture of sludge palm oil, palm fatty acid distillate and animal fat (FATS), and

- used lubricant oil (ULO);

wherein the first jet fuel component (107) is obtained from

- a kerosene fraction (TOP PE, 105) derived from tall oil pitch (TOP),
- a kerosene fraction (FATS PE, 105) derived from a mixture of sludge palm oil, palm fatty acid distillate and animal fat (FATS), and/or
- a kerosene fraction (ULO PE, 105) derived from used lubricant oil (ULO).

2. The method as claimed in claim 1,

wherein the further jet fuel component (109) comprises renewable jet fuel (RJF), or

wherein the further jet fuel component is renewable jet fuel component (RJF).

3. The method as claimed in claim 1 or 2, wherein the wear scar diameter of the fuel composition (110) is lowered compared to the wear scar diameter

of the first jet fuel component (107) of the fuel composition (110) and compared to the wear scar diameter of the further jet fuel component (109), as measured according to an ASTM D5001 standard.

4. The method as claimed in claim 1, 2 or 3, wherein the first jet fuel component (107) is obtained from a kerosene fraction (TOP PE, 105) derived from tall oil pitch (TOP), wherein the formed fuel composition (110) has a wear scar diameter of 0.75 mm or less, preferably 0.73 mm, as measured according to ASTM D5001.

5. The method as claimed in claim 1, 2 or 3, wherein the first jet fuel component (107) is obtained from a kerosene fraction (FATS PE, 105) derived from a mixture of sludge palm oil, palm fatty acid distillate and animal fat (FATS), wherein the formed fuel composition (110) has a wear scar diameter of 0.78 mm or less, preferably 0.74 mm, as measured according to ASTM D5001.

6. The method as claimed in claim 1, 2 or 3, wherein the first jet fuel component (107) is obtained from a kerosene fraction (ULO PE, 105) derived from used lubricant oil (ULO), wherein the formed fuel composition (110) has a wear scar diameter of 0.76 mm or less, preferably 0.74 mm, as measured according to ASTM D5001.

7. The method as claimed in any one of the preceding claims, wherein the kerosene fraction (105) has a distillation range from 145°C to 300°C, preferably from 150°C to 270°C, more preferably from 170°C to 240°C.

8. The method as claimed in any one of the preceding claims, wherein the cracking comprises catalytic cracking such as thermofor catalytic cracking (TCC), or fluid catalytic cracking (FCC).

9. The method as claimed in any one of the preceding claims, wherein the hydrotreatment is performed at a temperature from 200°C to 400°C and at a pressure from 20 bar to 150 bar in the presence of a hydrotreatment catalyst.

10. The method as claimed in any one of the preceding claims, wherein the method comprises subjecting cracked feedstock (103) to fractionation by distillation.

11. The method as claimed in any one of the preceding claims, wherein the method further comprises subjecting the kerosene fraction (105) to isomerization.

12. The method as claimed in any one of the preceding claims, wherein the catalyst in the catalytic cracking comprises aluminium based catalyst, lantha-

num based catalyst, titanium based catalyst, silicon based catalyst and/or zeolite based catalyst.

13. The method as claimed in any one of the preceding claims, wherein the temperature in the catalytic cracking is from 480°C to 580°C, preferably from 510°C to 550°C.

14. The method as claimed in any one of the preceding claims, wherein the method further comprises subjecting the feedstock to pretreatment before the cracking (102) by at least one of adsorption, treatment with an ion exchange resin, washing, heat treatment, or distillation.

15. An aviation fuel composition (110), containing

5-15 wt-% of first jet fuel component (107) originating from one or more of:

- kerosene fraction (TOP PE, 105) derived from tall oil pitch (TOP),
- kerosene fraction (FATS PE, 105) derived from a mixture of sludge palm oil, palm fatty acid distillate and animal fat (FATS), and
- kerosene fraction (ULO PE, 105) derived from used lubricant oil (ULO); and

85-95 wt-% of further jet fuel component (109);

wherein the fuel composition (110) has a wear scar diameter of 0.78 mm or less, as measured with BOCLE lubricity test method according to ASTM D5001, such that the wear scar diameter measured for the fuel composition (110) is at least 0.04 mm lower than the wear scar diameter obtained based on the neat components (107, 109).

16. The aviation fuel composition (110) as claimed in claim 15,

wherein the further jet fuel component (109) comprises renewable jet fuel (RJF), or

wherein the further jet fuel component is renewable jet fuel component (RJF).

17. The aviation fuel composition (110) as claimed in claim 15 or 16, wherein the wear scar diameter of the fuel composition (110) is lower compared to the wear scar diameter of the first jet fuel component (107) of the fuel composition (110) and compared to the wear scar diameter of the further jet fuel component (109), as measured according to ASTM D5001.

18. Use of a first fuel component for decreasing the wear scar diameter of a further jet fuel component in a fuel blend (110) of the further jet fuel compo-

nent (109) with the first jet fuel component (107), wherein the first jet fuel component (107) originates from at least one of:

- kerosene fraction (TOP PE, 105) derived from tall oil pitch (TOP),

- kerosene fraction (FATS PE, 105) derived from a mixture of sludge palm oil, palm fatty acid distillate and animal fat (FATS), and

- kerosene fraction (ULO PE, 105) derived from used lubricant oil (ULO);

wherein the fuel blend (110) has a wear scar diameter of 0.78 mm or less, as measured with BOCLE lubricity test method according to ASTM D5001, such that the wear scar diameter measured for the fuel blend (110) is at least 0.04 mm lower than the wear scar diameter obtained based on the neat components (107, 109);

wherein the fuel blend (110) contains from 5 wt-% to 15 wt-% of the first jet fuel component (107) and from 85 wt-% to 95 wt-% of the further jet fuel component (109).

19. The use according to claim 18,

wherein the further jet fuel component comprises renewable jet fuel component (RJF), or

wherein the further jet fuel component is renewable jet fuel component (RJF).