CLAIMS

1. A method of purifying a recycled or renewable organic material (10), wherein the recycled or renewable organic material (10) comprises more than 1 ppm silicon as silicon compounds and/or more than 10 ppm phosphorous as phosphorous compounds,

comprising the steps of

(a) providing a feed of the recycled or renewable organic material (10), wherein the recycled or renewable organic material is selected from a group consisting of plant based fats and oils, animal based fats and oils, fossil waste-based oils, waste oils, algal oils and microbial oils;

(b) optionally pre heat treating (20) the recycled or renewable organic material (10) at 180 to 325°C and optionally adding acid before or after the heat treatment (20) process and optionally filtering the pre heat treated recycled or renewable organic material;

(c) heat treating (40) the recycled or renewable organic material in the presence of an adsorbent selected from silica-based adsorbents at 180 to 325°C and filtering (50) the heat treated recycled or renewable organic material, and optionally adding acid before or after the heat treatment process;

(d) optionally blending the heat treated recycled or renewable organic material with a hydrocarbon or lipid-based stream;

(e) optionally evaporating (30) the volatile silicon compounds from the heat treated recycled or renewable organic material; and

(f) hydrotreating (60) the heat treated recycled or renewable organic material in a presence of a hydrotreating catalyst;

to obtain purified hydrotreated recycled or renewable organic material (61) comprising less than 20%, preferably less than 10%, more preferably less than 5%, of the original silicon content of the recycled or renewable organic material provided in step (a) and/or less than 30% of the original phosphorous content of the recycled or renewable organic material provided in step (a).

2. A method as claimed in claim 1, wherein heat treatment (20) in step (b) is performed at a temperature from 200 to 300°C, preferably at a temperature from 240 to 280°C.

3. A method as claimed in claim 1 or 2, wherein the residence time, is from 1 to 300 min, preferably from 5 to 90 min, more preferably from 20 to 40 min in heat treatment (20) of step (b).

4. A method as claimed in any one of claim 1 to 3, wherein evaporation (30) in step (e) is performed at 150°C to 225°C, preferably at 160°C to 200°C, more preferably at 160 to 180°C.

5. A method as claimed in any one of claim 1 to 4, wherein the pressure in evaporation (30) of step (e) is from 0.1 to 5 kPa, preferably from 0.1 to 3 kPa.

6. A method as claimed in any one of claim 1 to 6, wherein water is added to the heat treated recycled or renewable organic material so that the water content of the heat treated recycled or renewable organic material before evaporation step (e) is from 1 to 5 wt%, preferably from 1.5 to 4 wt%, more preferably from 2 to 3 wt%.

7. A method as claimed in any one of claim 1 to 6, wherein the temperature in step (c) is from 200 to 300°C, preferably at from 240 to 280°C.

8. A method as claimed in any one of claim 1 to 7, wherein the residence time is from 1 to 300 min, preferably from 5 to 240 min, more preferably from 30 to 90 min in step (c).

9. A method as claimed in any one of claims 1 to 8, wherein the pressure in step (c) is from 500 to 5000 kPa, preferably from 800 to 2000 kPa.

10. A method as claimed in any one of claim 1 to 9, wherein the silica-based adsorbent is selected from a group consisting of alumina silicate, silica gel and mixtures thereof.

11. A method as claimed in any one of claim 1 to 10, wherein the amount of adsorbent is from 0.1 to 10.0 wt-%, preferably 0.5 to 2.0 wt%, of the total weight of the treated recycled or renewable organic material.

12. A method as claimed in any one of claims 1 to 11, wherein hydrotreating step (f) takes place under continuous hydrogen flowwith a H2/feed ratio from 500 to 2000 n-L/L, preferably from 800 to 1400 n-L/L.

13. A method as claimed in any one of claims 1 to 12, wherein the hydrotreating catalyst in step (f) is a supported Pd, Pt, Ni, NiW, NiMo or a CoMo catalysts and the support is zeolite, zeolite-alumina, alumina and/or silica, preferably NiW/Al_2O_3, $NiMo/Al_2O_3$ or $CoMo/Al_2O_3$.

14. A method as claimed in any of claims 1 to 13 wherein step (f) is accomplished by (f1) hydrodeoxygenating (HDO) the heat treated recycled or renewable organic material fraction in a presence of a HDO catalyst at a temperature from 290 to 350°C under pressure from 4 to 20 MPa and under continuous hydrogen flow to obtain purified recycled or renewable organic material comprising less than 20%, preferably less than 10 %, more preferably less than 5%, of the

original silicon content of the recycled or renewable organic material provided in step (a).

15. A process for producing recycled or renewable hydrocarbons, comprising steps of

(x) purifying the recycled or renewable organic material as claimed in any one of claims 1 to 14, and

(y) subjecting the purified recycled or renewable organic material to an oil refinery conversion process, wherein the oil refinery conversion process comprises altering the molecular weight of the feed, removal of heteroatoms from the feed, altering the degree of saturation of the feed, rearranging the molecular structure of the feed, or any combination thereof to obtain at least one recycled or renewable hydrocarbon.