CLAIMS

1. A hydrotreatment process comprising:

   a. providing in a reactor a liquid feedstock having a total acid number in the range 10-200 mg KOH/g;

   b. hydrotreating the liquid feedstock in liquid phase and at a temperature selected from the range 280-380°C in the presence of 10-500ppm of catalytic MoS_2 microparticle slurry based on the amount of Mo in the total amount of the reaction mixture in the reactor, to provide a liquid reaction product with decreased heteroatom content; and wherein

   at least 90% of the catalytic MoS_2 microparticles in the MoS_2 microparticle slurry have a size below 7µm, wherein the size of a microparticle is expressed as an average of the longest dimension and the shortest dimension of the microparticle.

2. The hydrotreatment process of claim 1, wherein the feedstock contains about 1-40wt-% oxygen, preferably 5-40wt-% oxygen.

3. The hydrotreatment process of claim 1 or 2, wherein the feedstock contains at least one of: crude tall oil, tall oil pitch, crude fatty acid, tall oil fatty acid, distilled tall oil, liquefied lignocellulosic biomass, bio-oil, biocrude, liquefied waste polymer, or a combination thereof.

4. The hydrotreatment process of any one of claims 1-3, wherein the temperature is selected from the range 320-370°C, preferably from the range 330-360°C.

5. The hydrotreatment process of any one of claims 1-3, wherein the feedstock contains liquefied polymer waste and the temperature is selected from the range 280-320°C, preferably from the range 290-310°C.

6. The hydrotreatment process of any one of claims 1-5, wherein the hydrotreating step is carried out at a pressure selected from the range 70-200bar such that the feedstock is in liquid phase.

7. The hydrotreatment process of any one of claims 1-6, wherein the feedstock contains liquefied polymer waste and the pressure is selected from the range 70-90bar, preferably from the range 75-85bar.

8. The hydrotreatment process of any one of claims 1-7, wherein the pressure is controlled by feeding hydrogen gas into the reactor.

9. The hydrotreatment process of any one of claims 1-8, wherein the hydrotreatment removes at least 50% of sulphur, at least 40% of nitrogen, and optionally at least 50% of oxygen from the feedstock.

10. The hydrotreatment process of any one of claims 1-9, wherein the catalytic MoS_2 microparticles are provided in at least partially crystalline form in the reactor.

11. The hydrotreatment process of any one of claims 1-10, wherein the feedstock contains liquefied polymer waste and the MoS_2 microparticle slurry is used in an amount of 10ppm – 500ppm, based on the amount of Mo in the total amount of the reaction mixture in the reactor.

12. The hydrotreatment process of any one of claims 1-11, wherein at least 90% of the particles have an aspect ratio of 0.40-1.0.

13. The hydrotreatment process of any one of claims 1-12, wherein the reaction product predominantly contains hydrocarbons having a maximum boiling point of 565°C at atmospheric pressure.

14. The hydrotreatment process of any one of claims 1-13, wherein the process is carried out in a stirred tank reactor.