Summary

In one aspect of the present disclosure, there is provided a process for production of a hydrocarbon fraction suitable for use as jet fuel (80, 224) from an oxygenate feedstock (2, 202), comprising the steps of

a. combining the feedstock (2, 202) with a diluent hydrocarbon stream (6, 226) to form a hydrotreatment feed stream (4, 204) to contact a material catalyti-cally active in hydrotreatment (10a, 10b, 10c, 10d, HDO) under hydrotreat-ing conditions to provide a hydrotreated intermediate product (14, 206),

b. directing at least an amount of said hydrotreated intermediate product (14, 206) to contact a material catalytically active in hydrocracking (18a, 18b, HDC) under hydrocracking conditions to provide a hydrocracked intermedi-ate product (22, 212),

c. separating the hydrocracked intermediate product (22, 212) in a hy-drocracked intermediate liquid fraction (34, 226) and a gaseous fraction (26, 220),

d. directing at least an amount of said hydrocracked intermediate liquid fraction (34, 226)) to contact a material catalytically active in hydrodearomatization (90a, 90b, HDA) under hydrodearomatization conditions to provide a treated product (92) comprising the hydrocarbon fraction suitable for use as jet fuel (106, 218).

In another aspect of the present disclosure, there is provided a process plant for production of a hydrocarbon suitable for use as a jet fuel (106, 218) from a feedstock (2, 202) being a renewable feedstock or an oxygenate feed-stock, comprising a hydrotreatment section (8, HDO), a hydrocracking section (16) and a hydrodearomatization section (86), said process plant being configured for

a. directing the feedstock (2, 2a, 2b, 2c, 2d, 202) to the hydrotreatment section (8, HDO) to provide a hydrotreated intermediate product (14, 206),

b. directing at least an amount of the hydrotreated intermediate product (14, 206) to the hydrocracking section (16, HDC) to provide a hydrocracked in-termediate product (22 212),

c. directing at least an amount of said hydrocracked intermediate product (22, 212) to a hydrodearomatization section (86, HDA) to provide a treated prod-uct (92) comprising the hydrocarbon fraction suitable for use as a jet fuel (106, 218).

Description

Now according to the present disclosure it is proposed to carry out jet fuel production in a two-stage configuration, where the feed is hydrotreated, hydrocracked and optionally isomerized in the first stage, and after removal of sour gases hydro-dearomatized and optionally isomerized in the second stage. Between the two stages, a full fractionation section may be used to separate out a kerosene feedstock for the second stage and to produce a stream heavier than kerosene that is recycled to extinction in the first stage. Isomerization to improve the freezing point of the jet fuel can be done in first stage, second stage or both stages.

In the following the term stage shall be used for a section of the process, in which no separation is performed.

In the following the abbreviation ppm_{molar} shall be used to signify atomic parts per million.

In the following the abbreviation ppmw shall be used to signify parts per million weight, i.e. mg/kg.

In the following the abbreviation wt/wt% shall be used to signify weight percentage.

In the following the abbreviation vol/vol% shall be used to signify volume percentage for a gas.

In the following, the term topology of a molecular sieve is used in the sense described in the "Atlas of Zeolite Framework Types," Sixth Revised Edition, Elsevier, 2007, and three letter framework type codes are used in accordance herewith.

In the following the term renewable feedstock or hydrocarbon shall be used to indicate a feedstock or hydrocarbon originating from biological sources or waste recycle. Recycled waste of fossil origin such as plastic shall also be construed as renewable.