consumption, compared to a process converting C18 hydrocarbons to C17 hydrocarbons by hydrocracking.

In one aspect, there is provided a method for producing a hydrocarbon mixture having an end-boiling point according to ASTM D86 below 300°C and being suitable for use as an aviation fuel from a decarboxylation feedstock comprising fatty acid esters and/or triglycerides and wherein at least 40% of the carbon atoms of the decarboxylation feedstock are contained in C18 side-chains, by converting said decarboxylation feedstock in in the presence of a material catalytically selective towards decarboxylation, such that the ratio between deoxygenation by formation of carbon oxides and deoxygenation by formation of water is at least 1.5:1, 2:1 or 3:1, as measured by the ratio of C17 paraffins to C18 paraffins in the deoxygenated hydrocarbon mixture.

In another aspect, there is provided a process plant for production of a hydrocarbon fraction from an decarboxylation feedstock, said process plant comprising a decarboxylation section, a hydrocracking section and a fractionation section, said process plant being configured for directing the decarboxylation feedstock in combination with an amount of a hydrocracked intermediate product to the decarboxylation section to provide a deoxygenated hydrocarbon mixture, separating the deoxygenated hydrocarbon mixture in said fractionation section to provide at least two fractions, including a low boiling product fraction and a high boiling product fraction, directing at least an amount of the high boiling product fraction to the hydrocracking section to provide a hydrocracked intermediate product, directing at least an amount of said hydrocracked intermediate product to the decarboxylation section, wherein said decarboxylation section contains a catalytically active material comprising less than 1 wt%, 0.5 wt% or 0.1wt% Co, Mo or W.

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 ppm_v shall be used to signify volumetric parts per million, e.g. molar gas concentration.

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

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.

In the following the term deoxygenation shall be used to signify removal of oxygen from oxygenates by formation of water in the presence of hydrogen, as well as removal of oxygen from oxygenates by formation of carbon oxides in the presence of hydrogen.

In the following the term hydrodeoxygenation shall be used to signify removal of oxygen from oxygenates by formation of water in the presence of hydrogen.

In the following the term decarboxylation shall be used to signify removal of oxygen from oxygenates by formation of carbon oxides in the presence of hydrogen.

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.