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(54) Title: PROCESSES FOR UPGRADING ALGAE OILS AND PRODUCTS THEREOF

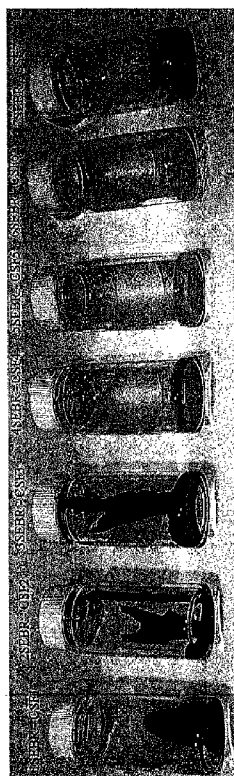


FIG. 1

(57) Abstract: Algae oil feeds comprise a wide range of molecular species forming a complex mixture of molecules having varying sizes and therefore varying boiling points, comprise high nitrogen, oxygen, and fatty acid content, but comprise low sulfur, saturated hydrocarbons, and triglycerides. The wide range of molecular species in the algae oil feeds, very unusual compared to conventional refinery feedstocks and vegetable oils, may be upgraded into fuels by conventional refining approaches such as thermal and/or catalytic-hydroprocessing. Hydrotreating at high pressure over large-pore catalyst, and optionally followed by FCC cracking, has shown a beneficial product slate including coke yield. Thermal treatment prior to hydrotreating may improve hydrotreating feedstock quality. Unusual behavior of the algae oils in thermal treatment and/or hydroprocessing, including cracking to lower boiling range compounds, may provide a high quality product slate with the flexibility to adjust the product slate due to the cracking behavior exhibited by these algae oils.



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