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**Wang et al.**

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(54) **STRUCTURED CATALYST BED AND METHOD FOR CONVERSION OF FEED MATERIALS TO CHEMICAL PRODUCTS AND LIQUID FUELS**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 371 days.

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(21) Appl. No.: **12/393,837**

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

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(51) **Int. Cl.**  
**B01J 8/02** (2006.01)  
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(57) **ABSTRACT**

(52) **U.S. Cl.** ..... **422/601; 422/602; 422/603; 422/198; 422/220; 422/222**

The present invention is a structured monolith reactor and method that provides for controlled Fischer-Tropsch (FT) synthesis. The invention controls mass transport limitations leading to higher CO conversion and lower methane selectivity. Over 95 wt % of the total product liquid hydrocarbons obtained from the monolithic catalyst are in the carbon range of C<sub>5</sub>-C<sub>18</sub>. The reactor controls readsorption of olefins leading to desired products with a preselected chain length distribution and enhanced overall reaction rate. And, liquid product analysis shows readsorption of olefins is reduced, achieving a narrower FT product distribution.

(58) **Field of Classification Search** ..... 422/601, 422/602, 603, 198, 220, 222  
See application file for complete search history.

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**14 Claims, 13 Drawing Sheets**

