



US009339785B2

(12) **United States Patent**  
**Strohm et al.**

(10) **Patent No.:** **US 9,339,785 B2**  
(45) **Date of Patent:** **May 17, 2016**

(54) **METHODS AND SYSTEMS FOR ACOUSTICALLY-ASSISTED HYDROPROCESSING AT LOW PRESSURE**

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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 196 days.

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(21) Appl. No.: **14/132,262**

(22) Filed: **Dec. 18, 2013**

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(65) **Prior Publication Data**  
US 2015/0165413 A1 Jun. 18, 2015

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(51) **Int. Cl.**  
**C10G 15/08** (2006.01)  
**C10G 45/02** (2006.01)  
**C10G 45/22** (2006.01)  
**C10G 47/32** (2006.01)  
**C10G 31/00** (2006.01)  
**B01J 19/10** (2006.01)  
**C10G 31/06** (2006.01)  
**B01J 19/08** (2006.01)

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(52) **U.S. Cl.**  
CPC ..... **B01J 19/10** (2013.01); **C10G 15/08** (2013.01); **C10G 31/00** (2013.01); **C10G 45/02** (2013.01); **C10G 45/22** (2013.01); **C10G 47/32** (2013.01)

(57) **ABSTRACT**

(58) **Field of Classification Search**  
CPC ..... B01J 19/08; B01J 19/10; C10G 15/08; C10G 47/32; C10G 45/02; C10G 45/22; C10G 31/00; C10G 31/06

Hydroprocessing can be performed at low pressure using acoustic energy. For example, hydroprocessing a feedstock having one or more hydrocarbon compounds carried in, or mixed with, a transport gas involves flowing the feedstock through a reaction zone in a reactor that has a bulk pressure less than 68 atm and applying acoustic energy through the reaction zone. The hydrocarbon compounds are chemically reacted with a hydrogen source in the presence of a catalyst, wherein the reacting occurs in the reaction zone.

See application file for complete search history.

**13 Claims, 4 Drawing Sheets**

