US 20150307356A1

(19) United States

(12) Patent Application Publication

Zhang et al.

(10) Pub. No.: US 2015/0307356 A1

(43) Pub. Date: Oct. 29, 2015

(54) **METHODS FOR SYNTHESIZING GRAPHENE FROM A LIGNIN SOURCE**

(71) Applicant: **Mississippi State University**, Starkville, MS (US)

(72) Inventors: **Jilei Zhang**, Starkville, MS (US); **Zhiyong Cai**, Madison, WI (US); **Sung Phil Mun**, Jeonju-city (KR)

(73) Assignee: **The United States of America as Represented by the Secretary of Agriculture**, Washington, DE (US)

(21) Appl. No.: **14/297,275**

(22) Filed: **Jun. 5, 2014**

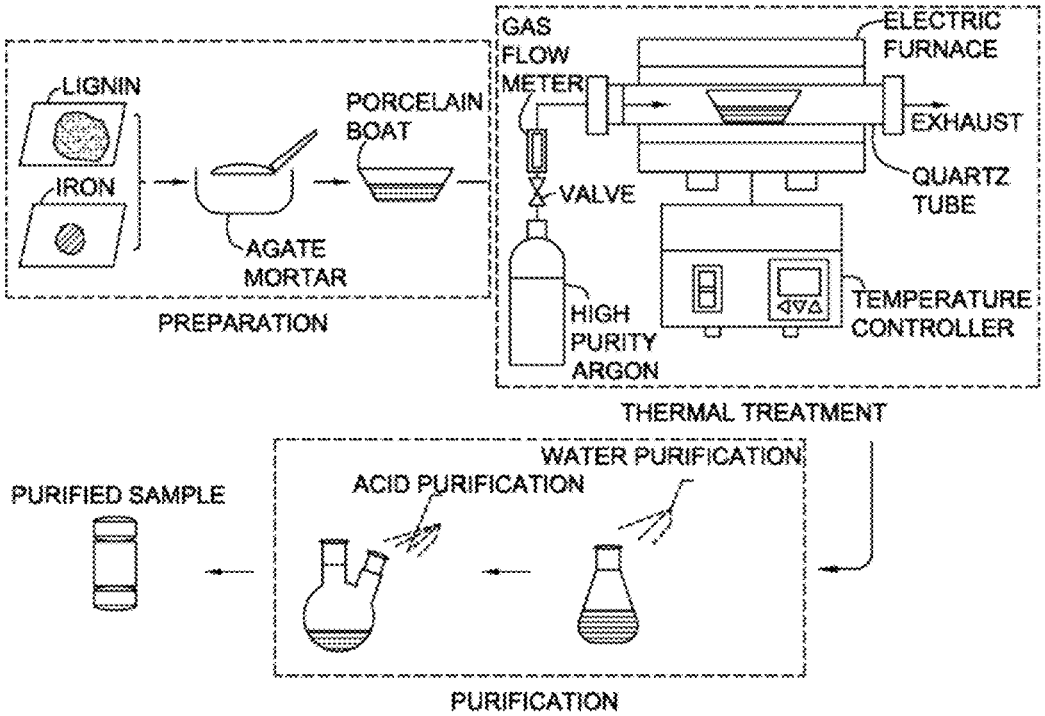
Related U.S. Application Data

(60) Provisional application No. 61/831,297, filed on Jun. 5, 2013.

Publication Classification

(51) **Int. Cl.**
C01B 31/04 (2006.01)

(52) **U.S. Cl.**
CPC ***C01B 31/0446*** (2013.01)

(57) **ABSTRACT**

Embodiments of the presently-disclosed subject matter include methods for synthesizing carbon nanomaterials from a lignin and/or source thereof. Exemplary methods comprise a process of thermal treating a lignin and/or source thereof in the presence of a catalyst to synthesize graphene nanosheets.