



US 20220416755A1

(19) **United States**(12) **Patent Application Publication****Kommireddy et al.**(10) **Pub. No.: US 2022/0416755 A1**(43) **Pub. Date: Dec. 29, 2022**(54) **ACOUSTIC IMPEDANCE MATCHING  
MATERIAL AND SYSTEM**(71) Applicants: **Dinesh Kommireddy**, Houston, TX  
(US); **Navin Sakthivel**, Spring, TX  
(US); **Aaron Avagliano**, Tomball, TX  
(US)(72) Inventors: **Dinesh Kommireddy**, Houston, TX  
(US); **Navin Sakthivel**, Spring, TX  
(US); **Aaron Avagliano**, Tomball, TX  
(US)(73) Assignee: **Baker Hughes Oilfield Operations  
LLC**, Houston, TX (US)(21) Appl. No.: **17/361,622**(22) Filed: **Jun. 29, 2021****Publication Classification**(51) **Int. Cl.****H03H 9/00** (2006.01)**G01N 29/28** (2006.01)**G01N 29/02** (2006.01)**E21B 41/00** (2006.01)(52) **U.S. Cl.**CPC ..... **H03H 9/0004** (2013.01); **G01N 29/28**  
(2013.01); **G01N 29/02** (2013.01); **E21B**  
**41/0071** (2013.01)

(57)

**ABSTRACT**

An acoustic matching material for gas measurement including a matrix material having an acoustic impedance and an acoustic impedance reduction material, having an acoustic impedance lower than the acoustic impedance of the matrix material, the acoustic impedance reduction material being dispersed in the matrix material to create an acoustic impedance graduation through a thickness of the matching material.

