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Greenwood

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[54] **ULTRASONIC FLUID DENSITOMETER HAVING LIQUID/WEDGE AND GAS/WEDGE INTERFACES**

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[51] Int. Cl.⁷ **G01N 9/24; G01N 29/02**

[57] **ABSTRACT**

[52] U.S. Cl. **73/32 A; 73/1.03; 73/1.83**

The present invention is an ultrasonic liquid densitometer that uses a material wedge having two sections, one with a liquid/wedge interface and another with a gas/wedge interface. It is preferred that the wedge have an acoustic impedance that is near the acoustic impedance of the liquid, specifically less than a factor of 11 greater than the acoustic impedance of the liquid. Ultrasonic signals are internally reflected within the material wedge. Density of a liquid is determined by immersing the wedge into the liquid and measuring reflections of ultrasound at the liquid/wedge interface and at the gas/wedge interface.

[58] Field of Search 73/32 A, 1.02, 73/1.83, 1.86, 54.41, 1.03

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12 Claims, 4 Drawing Sheets

