



## **Surface Relaxivity Calculations using Nuclear Magnetic Resonance Measurements**

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**Summary:** A method to determine the surface relaxivity on unconventional rock formations

**Description:** Pore size distribution is a critical parameter in evaluating oil and gas reservoir producibility. The only direct downhole representation of pore size distribution is Nuclear Magnetic Resonance (NMR) logging  $T_2$  distribution data, and a reliable estimate of surface relaxivity is required to convert time domain  $T_2$  data to a pore size distribution. The available techniques to estimate the surface relaxivity are in the form of correlations and do not apply in rocks with very fine grains such as shales. This work provides a method and workflow diagram that can be used to precisely calculate the surface relaxivity by coming NMR laboratory measurements, 3D rock models, and NMR simulation. This method can be used on both conventional and unconventional rock formations.

### **Main Advantages of this Invention:**

- Can be applied to unconventional rock formations such as shale.

### **Potential Areas of Application:**

- Oil and gas development

**ID number:** 15002

**Intellectual Property Status:** US provisional patent 62/079,481 filed

**Opportunity:** We are seeking an exclusive or non-exclusive licensee for implementation of this technology.

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