

## **Method of Shale Porosity Determination Based on Magnetic Suspension Weight**

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### **Abstract**

Now that the adsorption of methane in shale is chemical adsorption: the main uses of Langmuir adsorption model is based on the monolayer adsorption mechanism to describe the methane adsorbed characteristics. However, the isotherm adsorption actually exists the pour adsorption phenomena deviated Langmuir adsorption model. The gas of methane cannot be liquefied when the pressure increase, which is based on the assumption that open surface conditions. While the structure of shale pore is different from the open surface. Many scholars study shows, The shale contains not only in a large number of mid-pore (2-50nm), but also contains some micro-pore (<2nm). 4400~5600 meters depth of shale pore size is mainly concentrated in the 2.7~11.5nm, which is rarely more than 25nm. Narrow pore throats present an approximate closed pore. The higher pressure decreased the rate of methane molecules to the eternal escape. With the increase of pressure, volume of methane in the shale pore has great influence on the experiment results.

The experiment data are the balance reading (mBAL), the temperature (T) and pressure (P) of the gas. From the temperature and the pressure the density of the gas in the MSB can be calculated using an appropriate thermal equation of state. Finally, we can record the quality changes of sample. The calculation method of porosity is mainly used for the correction of adsorption curve. 4 wells(fanye1, liye1, lu69, niuye1) in Shengli oilfield were chosen to the experiment the sample porosity of 4 wells were 4.5% , 10.5% , 5.2% , 7.2%.