Pseudo Vitrinite: possible implications for gas saturation in coals and surrounding rocks

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Coal is divided into macreal groups that generally have somewhat different gas generation and adsorption capacities. There appears to be nothing in the form or texture of macerals that provides any more specific information about the gas generation or storage history of coal. Pseudo vitrinite is a form of vitrinite that is often characterized by elliptical slits that are on the order of 1 $x10^{-5}$ metres long and 1 $x10^{-6}$ metres wide.

Data leave open the possibility that pseudo vitrinite is evidence of partial desiccation of mature vitrinite at depth. If this is the case then it implies that at some time in the coalification history of the coal, it was gas saturated rather than water saturated and had an average moisture content that was less than equilibrium moisture.

The implications of these assumptions are developed with reference to the CBM potential of various coal formations. It is easier to develop an over pressured situation in a gas-saturated rather than a water saturated stratigraphy and this will increase the adsorption of gas on coal. In addition the adsorption capacity of coal increases markedly as its moisture content is decreased below equilibrium moisture. Pseudo vitrinite may indicate coals that, at least in their past, had high adsorbed gas contents. It may also indicate the present or past existence of natural gas in the surrounding stratigraphy.

Samples from a number of coal basins and coal formations are checked for the presence of pseudo vitrinite.