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Effect of Non-ionic Reagent Adsorption on Zeta Potential of Fine Coal Particles

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Abstract: The -5 μm size fractions of two low rank British coals were used in zeta potential measurements. The electrophoretic behaviour was described by the Helmholtz-Smoluchowski equation. The non-ionic reagents used for the adsorption tests were of diacetone alcohol and 2-ethyl hexanol. Zeta potentials of both coals at various pHs were significantly different in the absence of the non-ionic reagents. Negligible variations were observed on the zeta potential curves of both coal particles in the presence of the non-ionic reagents used. It was concluded that the pH of coal particles in slurry is a principle parameter controlling the value of zeta potentials. As the zeta potential for Bickershaw coal particles was zero at about pH 5, the point