

[A continuous in situ method for the measurement of dissolved hydrogen in high-temperature aqueous systems](#)

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A temperature-compensated palladium resistance probe has been developed for in situ monitoring of the concentration of hydrogen in aqueous systems at elevated temperatures. The performance of the probe has been investigated in 0.1 m B(OH)₃ at 275 °C and for hydrogen concentrations ranging from 0 to 1.5 ppm. In the absence of a high concentration of oxygen, the probe exhibits a fast response for hydrogen absorption but a slow response for desorption. Prior exposure of the probe to oxygenated water, however, reverses the relationship in that absorption tends to be slow or exhibits an induction period and desorption is rapid. The effect of oxygen is discussed in terms of a model that assumes a surface process to be rate-controlling for the absorption/desorption behavior of hydrogen in palladium.