

Decreasing the time response of calibration-free pH sensors based on tungsten bronze nanocrystals

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A considerable improvement of time constants of tungsten bronze pH sensors was achieved by decreasing the crystal size of the tungsten bronze previously reported by the authors. Experiments have been performed on the basis of a previously developed calibration-free pH tungsten bronze electrode. The nano-sizing of the tungsten bronze was realized by addition of sodium chloride to the $\text{Na}_2\text{WO}_4/\text{WO}_3$ melt in which tungsten wires were oxidized. With increasing NaCl concentration, the crystals size decreased. © 2017 Elsevier B.V.

Calibration-free pH measurements

Direct contact ion sensitive electrodes

pH sensor

Sodium tungsten bronze

Tungsten